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Evaluating the Dynamics of Capital Structure, Corporate Governance, and Bank Performance: A Case Study of Listed Banks in Ghana

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***Abstract*—** *This study explores the interconnections among capital structure, corporate governance, and bank performance in listed banking institutions in Ghana, utilizing a comprehensive scorecard approach to assess corporate governance compliance. We identify a bi-causal link between corporate governance and stock returns, indicating that changes in corporate governance practices lead to subsequent fluctuations in stock returns. As stock returns rise, banks can attract more investors, reducing their debt and leverage (debt to equity ratio) ratios. Regarding capital structure and bank performance, we find no evidence supporting the notion that the equity ratio causes changes in stock returns, but a causal relationship exists in the opposite direction. Stock returns impact the proportion of total assets attributed to equity, as higher returns attract investors, facilitating bank expansion through new share issuance. Furthermore, we detect a bi-directional causality between stock returns and the debt ratio. Lastly, we observe a unidirectional causality where the debt to equity ratio does not cause changes in stock returns, but stock returns influence the debt to equity ratio. Rising stock returns enhance equity value, prompting banks to increase equity at the expense of debt, thus boosting operational funding through retained earnings. These findings illuminate the complex relationships between capital structure, corporate governance, and bank performance, offering valuable insights for financial practitioners and policymakers.*

I. INTRODUCTION

In recent years, the global economy has witnessed significant transformations, marked by events such as the 2008 financial crisis and subsequent credit crunch (Blasco-Martel, Y., Cuevas, J., & Riera-Prunera, 2023). These events have sparked a surge in academic and research interest in the banking industry worldwide. The effects of these global shifts have reverberated through the African banking sector, driven by the increasing interconnectedness of global financial systems (Allam, Bibri & Sharpe, 2022). African banks, particularly those in Ghana, have found themselves deeply influenced by the evolving landscape of banking services on a global scale (Ahmed & Rehman, 2008).

Despite these challenges, banks continue to earn commendation for their profitability, extensive branch networks, and outstanding customer service (Lottu et al.,2023). Central to a bank's mission is the accumulation of surplus capital and its effective deployment to areas of the economy facing deficits, achieved through lending and saving operations, primarily driven by customer deposits. Larger banks, in particular, are assumed to wield more financial influence due to their ability to engage in extensive lending and saving operations. However, the banking industry has undergone substantial transformations in its financial and monetary environment, coupled with technological advancements, leading to heightened

competition among banks (Spathis et al., 2002; Bisht et al., 2022). As financial intermediaries, banks are entrusted with the critical role of ensuring the efficient flow of capital to sectors of the economy in need. Despite the presence of other financial institutions in the intermediation process, banks are widely regarded as the most pivotal.

In the Ghanaian context, the banking sector presents substantial financial opportunities despite fierce competition (Ghana Banking Survey, 2009; Boadi & Osarfo, 2019). However, these opportunities are accompanied by inherent risks, including credit, market, and operational risks, which banks must navigate to maintain their competitive edge (Amidu, 2007). Consequently, banks must devise innovative strategies to determine the adequate capital reserves required to mitigate unexpected losses stemming from these risk exposures. The importance of capital in ensuring the stability and longevity of banks in this dynamic landscape cannot be overstated.

The definition of banks varies from one nation to another, encompassing a range of functions and services. The banking sector is regulated and overseen by the Bank of Ghana, serving as the central bank. Reforms aimed at fostering competition, attracting foreign investment, enhancing operational efficiency, and promoting electronic banking services have liberalized Ghana's banking sector. As a result, the industry has witnessed increased competition and the adoption of robust business practices, cutting-edge technology, and advanced risk management systems.

In addition to the 31 universal banks, including those with foreign ownership, Ghana's banking sector encompasses rural and community banks, as well as non-banking financial institutions such as savings and loan associations, leasing companies, finance firms, and mortgage lenders. This diverse landscape reflects the evolving and dynamic nature of the banking industry in Ghana, poised to meet the challenges and opportunities of the future.

The choice between debt and equity capital represents a pivotal financial decision for businesses, including banks (Glen and Pinto, 1994; Park, 2022). To make this choice effectively, managers must grasp how capital structure impacts performance, as profitable banks meticulously consider their financing options to remain competitive. This choice varies across economies due to country-specific factors (Bos and Fetherston, 1993; Omete, 2023). This understanding underscores the importance of exploring the relationship between capital structure and bank performance in the Ghanaian banking sector, which has received limited attention in the existing literature.

Amidu (2007) pioneered the examination of Ghanaian banks' capital structure determinants. Recent developments, such as the 2017-2018 banking crisis in Ghana, wherein the central bank allowed private entities to take over indigenous banks through mergers and acquisitions, alongside the entry of international players like First National Bank and Republic Bank, have reshaped the competitive landscape. Liberal banking laws have also permitted international banks, including Citibank N.A. and Bank of Beirut, to establish a presence in Ghana. The perception of sustainable growth, transparent legislation, competent regulation, and political stability serve as key drivers of investment in the Ghanaian banking sector.

Corporate governance, although has a universal goal, varies across nations due to unique systems influenced by socioeconomic, legal, political, and cultural factors (Huynh et al., 2022; Nobanee & Ellili, 2022; Borgia, 2005; Okike, 2007). Despite these variations, its core objective remains consistent: to govern the actions of a company's various members. The OECD (1999) defines corporate governance as the system managing and governing commercial businesses, prescribing decision-making processes, rights and obligations distribution among stakeholders, and performance evaluations (El-Chaarani et al., 2022; Molla et al., 2023).

Although extensive research exists globally on the relationship between capital structure, corporate governance, and firm performance, there is a dearth of literature on their interplay in the context of the Ghanaian banking sector. Understanding this dynamic is crucial given the sector's significance in the country's transition from an agriculture-focused economy to a service sector-driven one (Agwu et al., 2023; EconomyWatch.com, 2011). The recent banking crisis in Ghana underscored the importance of effective corporate governance, but the impact of these practices on banks' performance remains context-specific. Therefore, this study aims to investigate the causal relationship between capital structure and stock return, as well as the link between corporate governance and stock returns, filling the research gap and shedding light on the unique dynamics of Ghanaian banks in the service sector.

II. LITERATURE REVIEW

2.1 Corporate governance and Agency theory

The oversight and regulation of business operations in a transparent manner has long been recognized as a crucial aspect of corporate governance. The centrality of the agency theory in the examination of corporate governance is evident via the extensive referencing of research publications. The research conducted by Ross (1973) and later expanded upon by Jensen and Meckling (1976) has

suggested that the agency theory provides a suitable framework for examining corporate governance. This notion prompts us to contemplate the behavioural tendencies of managers. The case of corporations that provide their managers with variable remuneration based on the growth of turnover might be cited. Similarly, it is imperative to acknowledge that the effectiveness of internal control and internal audit functions within organizations can significantly contribute to enhancing the corporate governance framework of those organizations. According to Nyakundi et al. (2014) and Kumar et al. (2022) it serves as a key factor in ensuring the effective operation of business processes within a regulated setting, with the goal of enhancing financial performance.

Effective corporate governance entails the implementation of control and oversight procedures to guarantee that managerial actions align with the optimal interests of shareholders (Al-Zaqeb et al., 2022; Abdullah & Tursoy, 2023). This may encompass the establishment of an autonomous board of directors, remuneration of executives tied to the company's success, financial transparency, and dissemination of pertinent information to shareholders. Corporate governance plays a pivotal role in mitigating conflicts of interest and enhancing the financial performance of a company by the implementation of suitable incentives and controls. This, in turn, leads to an augmentation in the firm's value and the return on investment for its shareholders. Yermack (1996) conducted a study to examine the significance of corporate governance mechanisms and their influence on financial performance.

Additionally, Shleifer and Vishny (1997) conducted a comprehensive evaluation of the current body of literature to assess the status of research on corporate governance. The researchers reached the conclusion that agency theory serves as a significant conceptual framework for comprehending the connection between corporate governance and financial performance. Moreover, they assert that it can be utilized to develop efficient governance procedures for companies (Abdullah & Tursoy, 2023). Let us contemplate a corporation that is listed on the stock exchange, wherein the stakeholders own a vested interest in the optimization of their share value. In contrast, the objectives of the company's managers may diverge, encompassing the maximization of personal income or the preservation of their authority inside the organization. The divergence of interests among stakeholders can result in strategic decisions that may not align with the ideal outcomes for the company or its shareholders. In the above scenario, it is posited by agency theory that the implementation of robust corporate governance mechanisms can effectively harmonize the interests of stakeholders and enhance the financial performance of the organization. One illustrative instance involves the establishment of an autonomous and proficient board of directors, which can effectively oversee the actions of executives and formulate strategic choices that align with the welfare of shareholders. In a similar vein, the provision of incentives to executives, contingent upon the performance of the company, can serve as a motivating factor for exerting increased effort towards enhancing the overall worth of the organization. In essence, agency theory posits that the establishment of effective corporate governance mechanisms is crucial to align the interests of stakeholders and enhance the financial performance of the firm. Through the implementation of suitable control and oversight systems, corporate governance has the potential to mitigate conflicts of interest and enhance shareholder value.

2.2 Capital structure and bank performance

The discourse surrounding the capital structure of enterprises originated with the seminal research conducted by (Modigliani and Miller, 1958). The proponents initially maintained the stance that the financial techniques employed by a firm do not have an impact on the firm's worth. However, this perspective underwent a shift in 1963 following subsequent investigations. The study determined that altering the capital structure of a firm can effectively enhance its value, although it is crucial to consider an optimal blend of capital structure. The discourse surrounding the most advantageous capital structure was reinvigorated in 1984 by the introduction of the pecking order theory. According to Myers and Majluf ,1984, this theory posits that profitable firms tend to limit their reliance on debt capital and instead prioritize the utilization of domestically generated money.

The subsequent proposition known as the static trade-off theory posits that organizations make decisions regarding their target leverage ratios by considering the trade-off between the advantages and disadvantages associated with increasing their leverage (Opoku-Asante et al., 2022). In the absence of adjustment costs, firms would consistently counteract departures from their primary aim. Conversely, in situations where significant adjustment costs are present, it is probable that the duration of the adjustment process will be significantly prolonged (Fama and French, 2002; Oanh et al.,2023). Gleason et al., 2000 posited that organizations could enhance their performance by strategically employing varying proportions of debt and equity in their capital structure, drawing primarily upon the static trade-off concept.

When analysing the influence of capital structure on firm performance, the extant finance literature identifies two types of performance measures. These include the

conventional accounting measures of performance, such as return on assets (ROA), return on equity (ROE), earnings per share, and Tobin's Q. Additionally, there are profit efficiency measures, such as frontier efficiency as proposed by Berger and di Patti, 2002. Abu-Rub, 2012 employed various performance indicators, including return on average equity (ROE), return on average assets (ROA), earnings per share, Tobin's Q, and the market value of equity to book value of equity ratio, to examine the influence of capital structure on firm performance. In addition to the impact of capital structure on a company's success, Hansen and Wernerfelt (1989) identified external and organizational factors as key determinants of firm performance.

In a separate investigation, Hoffmann (2011) conducted an analysis utilizing data from the United States banking sector spanning a duration of 13 years. The objective of this study was to explore the association between earnings and capital within the industry. The findings revealed a negative correlation between the ratio of equity to assets and bank profitability. Additionally, a non-monotonic U-shaped relationship was observed between these variables. This statement suggests that the first adoption of leverage can potentially lead to a reduction in agency costs and an enhancement in firm performance. However, after a certain point, further increases in leverage can raise the anticipated costs associated with bankruptcy and financial distress (Berger and di Patti, 2002). Additionally, Berger, 1995 conducted a study investigating the correlation between the capital-to-assets ratio and bank profitability. The findings of the study revealed a significant and positive association between the capital-to-assets ratio and bank profitability. This suggests that an increase in the capital-to-assets ratio may result in reduced bankruptcy costs and lower interest payments, which could potentially mitigate a substantial portion of any decline in earnings.

2.3 Corporate governance and performance

In scholarly investigations that have incorporated corporate governance as a primary variable, two principal domains have been subject to examination. The primary objective is to examine governance through the lens of shareholder and capital structure considerations. The secondary objective is to explore the composition of boards of directors and enhance the effectiveness of governance mechanisms to enhance financial performance. Several studies have highlighted the significance of capital structure, including the works of Khan et al. (2022); Haralayya, B. (2022); McConnell and Servaes (1990), Nesbitt (1994), Smith (1996), Del Guercio and Hawkins (1999), and Hartzell and Starks (2003). These researchers have observed a positive impact on management behaviour resulting from the involvement of institutional shareholders. In the realm of board of directors' operations, notable contributions have been made by Brickley et al. (1994) and Lee et al. (1999), who have underscored the significance of independent or external directors in enhancing the standard of governance efficacy. Furthermore, Jensen (1993) has demonstrated that the presence of multiple directorships enhances the level of autonomy granted to directors, enabling them to exert influence on the financial outcome.

Shleifer and Vishny (1997) propose that corporate governance procedures serve to mitigate agency costs arising from conflicts of interest among stakeholders inside institutions. According to a later analysis by the OECD advisory group in 2004, it was found that efficient corporate governance has the potential to boost economic efficiency and growth, while also improving investor trust. Moreover, it leads to enhanced operational performance. According to Claessens (2003), the adoption of corporate governance practices also enhances institutions' access to external financing, improves operational performance, and reduces the cost of capital.

The current body of scholarly research pertaining to Italian banks has primarily concentrated on the examination of ownership structures, with a specific emphasis on the efficiency disparities between publicly owned banks and their privatized counterparts. In their study, Bianchi, Di Battista, and Lusignani (1997) investigate the correlation between various corporate governance measures and the performance of banks. The researchers discover that private banks consistently outperform publicly owned banks across all evaluated criteria. De Bonis (1997) demonstrates that publicly held banks exhibit inferior performance metrics, even when eliminating the significantly distressed institutions in the Southern region.

Multiple research investigations have identified empirical data suggesting that private banks operating as cooperative banks have superior management practices. In the study conducted by Farabullini and Ferri (1997) about the ex-ante probability of underperformance among banks in the southern region, it was shown that cooperative banks had a lower likelihood of bad performance. Within the realm of publicly owned banks, savings banks are local establishments that have predominantly fallen under the jurisdiction of prominent banking foundations. The precise role of these foundations remains a topic of ongoing scholarly discourse. Furthermore, it has been observed that the organizational structures of savings banks have exhibited a greater resemblance to those commonly found in public administration, as opposed to other banks that are publicly held. The impact of the stock market on managerial control is not definitively established: Bianchi, Di Battista, and Lusignani (1997) observe limited evidence supporting

the notion that stock exchange listing leads to market discipline. Due to the limited availability of comprehensive data, there has been a relative neglect of alternative facets pertaining to organizational structure and corporate governance.

2.4 Hypothesis Development

Several research in Ghana have examined the relationship between capital structure and performance, yielding consistent findings. In a study conducted by Abor (2005), the relationship between the capital structure and performance of 22 firms listed on the Ghana Stock Exchange (GSE) was examined. The findings revealed a substantial positive correlation between short-term indebtedness, as measured by the short-term debt-to-assets ratio and return on average assets (ROAA). The researcher also discovered a substantial negative link between performance and long-term debt, as measured by the long-term debt-to-assets ratio. The results of this study align with the findings of Hadlock and James (2002), which propose that profitable enterprises tend to employ a greater amount of short-term debt. In a separate investigation conducted by Bokpin et al. (2010), it was observed that companies listed on the Ghana Stock Exchange (GSE) tend to employ significant amounts of loan capital, indicating a strong inclination towards utilizing short-term debt as a means of funding their business activities. However, Ghanaian listed banks are limited when it comes to studies as such. It is for this reason that this study seeks to address banks. To discover if the results for listed firms are consistent literature, we developed the following hypothesis:

H_1: - There is a causal relationship between the equity ratio and stock return.

H_2: - There is a causal relationship between the debt ratio and stock return.

H_3: - There is a causal relationship between the debt-to-equity ratio and stock return.

Corporate governance has garnered considerable attention and experienced substantial development as a significant instrument, particularly in recent decades. The recent financial crises, rapid privatization growth, and the presence of financial institutions have contributed to the strengthening of corporate governance norms in various institutions across different countries. Numerous studies have demonstrated that effectively implemented corporate governance procedures significantly contribute to organizational performance. The implementation of effective corporate governance practices is crucial for a firm due to various reasons: According to the Organisation for Economic Co-operation and Development OECD (2004), the implementation of effective corporate governance practices has been found to enhance the reputation of a company, mitigate risks, and instil greater confidence among shareholders. Moreover, the establishment of sound corporate governance practices entails the implementation of many cohesive processes, internal control systems, and external settings that collectively enhance the overall effectiveness of business enterprises, hence fostering excellent corporate governance. The fundamental objective of corporate governance is to enhance the performance of companies by establishing and maintaining incentives that motivate corporate managers to optimize the operational efficiency, return on assets, and long-term growth of the firm. This is achieved by implementing mechanisms that restrict managers from misusing their authority over corporate resources. For this reason, we test to find if there exist a causal relationship between corporate governance and stock returns as presented in our hypothesis four (4) below:

H_4: There is a causal relationship between corporate governance and stock returns.

III. DATA AND METHODOLOGY

This study utilized data of 11 listed Ghanaian banks given the license to operate the business of banking in Ghana over a period of fourteen years spanning from 2005 to 2019. The data was collected from the fact book of the Ghana Stock Exchange.

The general form of the panel data model can be specified more compactly as follows:

$$Y_{i,t} = \alpha + \beta X_{i,t} + e_{i,t}$$

The subscript i representing the cross-sectional dimension and t denoting the time-series dimension. The lefthand variable $Y_{i,t,}$ represents the dependent variable in the model and $X_{i,t}$ contains the set of independent variables in the estimation model, and is taken to be constant overtime t and specific to the individual cross-sectional unit i. If α is taken to be the same across units, ordinary least squares (OLS) provide a consistent and efficient of α and β. Researchers use multiple regression model to test the impact of independent variables on dependent variable.

The following specification was thus adopted:

$$SR_{i,t} = \beta_0 + \beta_1 ER_{i,t} + \beta_2 DR_{i,t} + \beta_3 DE_{i,t} + \beta_4 M^{m}{}_{t} + \beta_5 Ln\_TA_{i,t} + \varepsilon_{i,t} \quad (1)$$

$SR_{i,t}$ total stock return i in period t and β_0, β_1, β_2, β_3, β_4 are model coefficients . $ER_{i,t}$ is the ratio of total equity to total assets for firm i in period t. $DR_{i,t}$ is the ratio of long term debt to total assets for firm i in period t . $DE_{i,t}$ is the ratio of debt to equity for firm i in period t and M^m_t is the vector of macroeconomic variables (inflation and real GDP per capita). Ln_TA is the log of Total Assets and $\varepsilon_{i,t}$ is the Error term.

Table 1: Variables and Indicators

Concept	Variables	Indicators
Capital Structure	Equity ratio (ER)	Total Equity/ Total Assets
	Debt ratio (DR)	Total Debt/ Total Assets
	Debt to Equity Ratio (DE)	Total Debt / Total Equity
Corporate Governance	Governance processes	Scorecard
Bank Performance	Stock Return (SR)	$(P_1-P_0)+D/P_0$
		P_1=Pending Stock Price
		P_0=Initial Stock Price
		D= Dividend
Robust Checks	ROA	Net Income/Total Assets
	ROE	Net Income/Stockholder's Equity
	TOBIN'S Q	Equity Market Value/Equity Book Value
Controls	Macroeconomic Variables	Inflation and GDP
	Ln_TA	Firm size=log of Total Assets

The equity ratio is a financial indicator utilized to assess the level of leverage employed by a company. The evaluation of a company's debt management and asset funding is determined by analysing its investments in assets and the level of equity. A low equity ratio signifies that the corporation predominantly relied on debt for asset acquisition, a well-recognized indicator of heightened financial risk. Companies that possess higher equity ratios typically demonstrate adequate funding of their asset requirements while minimizing the use of debt.

The debt ratio measures a company's debt-based financing of assets, indicating its solvency. A high ratio signifies significant debt reliance, raising lending risk for creditors. Steady cash flows are essential to service debt, particularly in competitive or rapidly evolving industries. Oligopolistic or monopolistic firms may safely accumulate debt with reliable cash flows. Investors use this ratio to assess efficient debt utilization for business expansion. It holds critical importance for both company management and investors. The formula, as shown in Table 1.0, computes total debt, consisting of short-term (due within 12 months) and long-term liabilities. Total assets encompass all assets owned, including cash, marketable securities, accounts receivable, and more, categorized as current or long-term assets. Total assets result from adding liabilities and owner's equity.

The Debt-to-Equity ratio, also known as the "debt-equity ratio," measures the proportion of total debt to shareholders' equity. It reveals a company's capital structure preference for debt or equity financing. A higher ratio suggests leverage, favorable for stable, cash-rich firms but not for declining ones. Conversely, a lower ratio indicates less reliance on debt, nearing full equity financing. The ideal ratio varies by industry. A stock market return refers to the alteration in value, either positive or negative, of an investment or asset as observed over a specific period. A positive return signifies that a financial gain has been achieved on the investment. A negative return signifies a decline in the value of the investment, resulting in a financial loss.

The Return on Assets (ROA) is a financial indicator used to assess the profitability of a corporation by comparing its net income to its total assets. The ratio serves as a measure of a company's performance, as it compares the net income it generates to the capital invested in its assets. A positive correlation exists between the level of return and the degree of productivity and efficiency

demonstrated by management in the allocation and utilization of economic resources.

Return on Equity (ROE) assesses a company's profitability relative to its shareholders' equity. It calculates net income as a percentage of shareholders' equity, typically presented as a percentage. For instance, a 7% ROE means earning $7 for every $100 in shareholder equity. This percentage reveals how efficiently a firm utilizes its capital for profit generation. ROE can also gauge a company's self-sustaining growth potential, i.e., its ability to grow without additional borrowing. Comparing a company's ROE to the industry average can highlight its competitive advantage. A consistent, increasing ROE suggests a firm effectively reinvests earnings, enhancing productivity and gains. Conversely, a declining ROE may signal management's inefficiency in reinvesting capital. Companies surpassing their industry's ROE average are often preferred choices for investors.

The Q Ratio, also known as Tobin's Q Ratio, quantifies the relationship between the market value and replacement value of tangible assets. Developed by Nobel laureate James Tobin, it hypothesizes that the aggregate market value of listed corporations should approximate their replacement costs. This ratio is useful for evaluating individual companies and the overall stock market. To account for potential size-related impacts on profitability in the banking sector, we used the natural logarithm of total assets (Ln_TA). Larger banks can offer a broader range of services and operate more efficiently, potentially boosting profitability. They can also access cost-effective borrowing opportunities, enhancing profitability. We also considered the macroeconomic environment's impact on bank profitability, factoring in variables like inflation and real GDP per capita, which influence customer demand for banking products and services. The study's population included all 11 banks listed on the Ghana Stock Exchange, licensed and operating between 2005 and 2015. We collected data on corporate governance practices and financial performance from secondary sources, specifically annual reports provided by the Ghana Stock Exchange Fact Book. These reports offer detailed insights into a firm's activities and financial performance during the preceding year, benefiting investors and stakeholders.

Lastly, a scorecard methodology, inspired by Ebenezer Edward Arthur, evaluates corporate governance implementation in Ghana's banks. Scorecards, per the International Finance Corporation (IFC) in 2014, quantitatively assess adherence to governance codes. These tools gauge governance processes against predetermined benchmarks, aiding market analysts, policymakers, directors, shareholders, and others in assessing corporate governance levels. Rankings or ratings can be derived from scores to position a corporation relative to others. However, the mere existence of a local governance code does not guarantee improved practices. Adopted from private sector investors, scorecards offer a means to identify areas for performance enhancement in strategic planning, decision-making, risk management, controls, and organizational structures, as per the IFC (2014)

IV. EMPIRICAL RESULTS AND DISCUSSION

Table 2 provides a summary of the descriptive statistics of the dependent and independent and control variables and shows the average indicators of variables computed from the financial statements. The mean equity of the banks is 0.21 which means around 21 per cent of the total assets consists of equity. The average of debt ratio of 84 percent suggests that 84% of banks assets are financed by debt. Given a standard deviation of 6%, the table tells us that majority of the Ghanaian listed banks achieved this mean. The mean Debt to equity ratio is 6.34 with standard deviation of 1.26 suggesting that majority of banks could not attain the mean Debt-to equity ratio.

Table 2: Descriptive Statistics

Variables	Mean	Std. Dev.	Min	Max	Observations
ER	0.21	0.12	0.12	0.47	154
DR	0.84	0.06	0.72	0.90	154
DE	6.34	1.26	4.06	7.79	154
SR	0.09	0.25	0.06	0.14	154
Ln_TA	0.71	0.63	0.82	0.94	154
M^m_t	0.54	0.23	0.54	0.89	154

4.1 Diagnostic tests

In the domain of statistical modelling and data analysis, the presence of heteroscedastic errors introduces a captivating and intricate phenomenon. Heteroscedasticity, often characterized as a departure from the homoscedasticity assumption, adds layers of complexity

and nuance to our understanding of statistical relationships, demanding careful consideration. Robust estimation becomes imperative when there is a strong suspicion of heteroscedasticity. The homoscedastic model assumes constant error variance across all values of x, but in the real world, variance may vary with x, aligning more accurately with practical scenarios.

Another common scenario where robust estimation is crucial is when dealing with data containing outliers. In the presence of outliers originating from distinct data-generation processes, traditional least squares estimation becomes inefficient and biased. Least squares predictions are pulled towards outliers, inflating estimate variances, and potentially obscuring the true impact of outliers. Although least squares methods are considered robust in terms of not increasing the type I error rate under model violations, they often exhibit a lower type I error rate and a significant increase in type II errors when outliers are present, a phenomenon known as the conservatism of classical methods. To evaluate the presence of heteroscedasticity, we conducted a White Noise Test, with the results presented in Figure 1. The absence of data flaws has led us to proceed with robust regression, emphasizing the critical importance of robust estimation in addressing the complexities introduced by heteroscedastic errors.

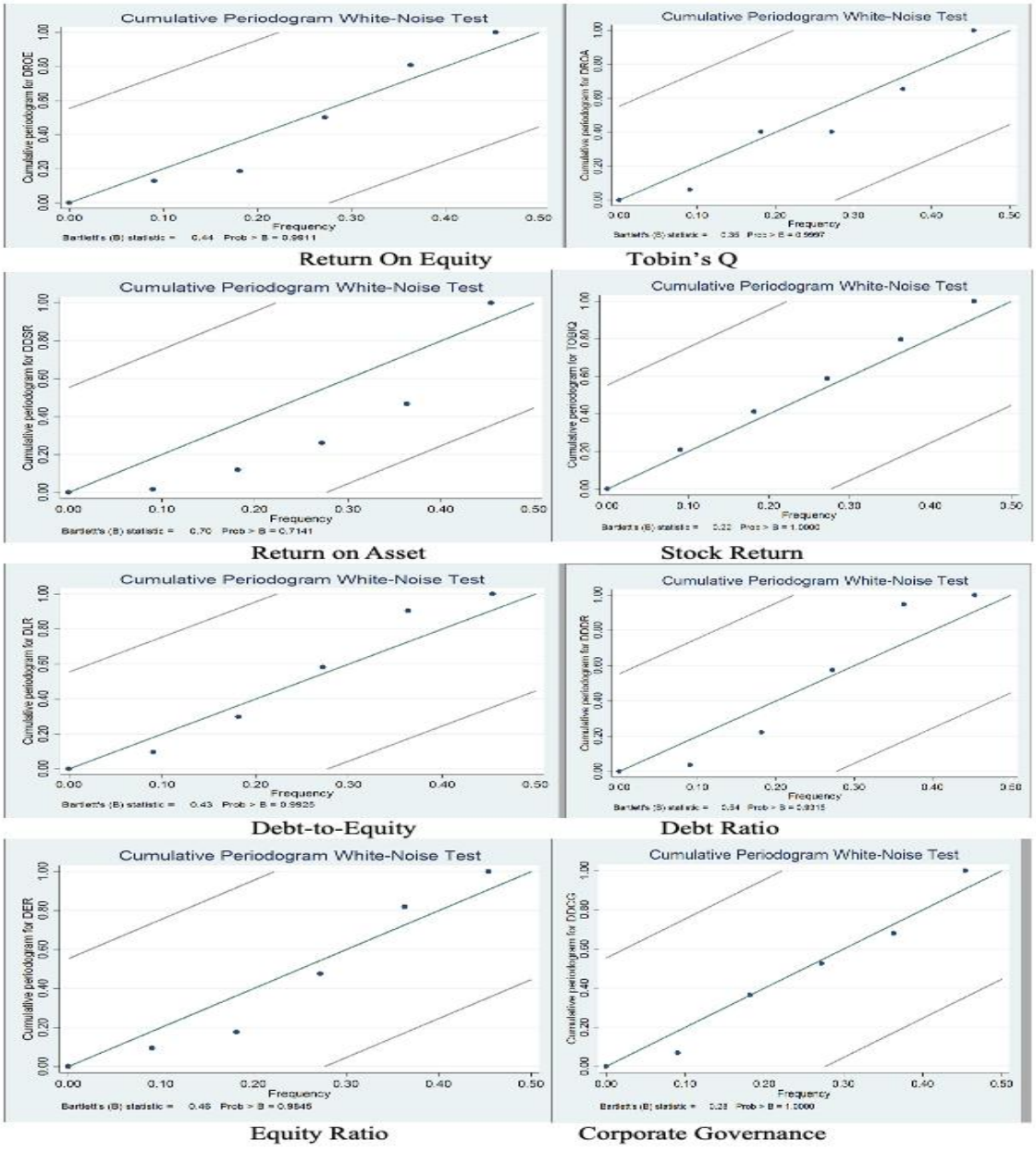

Fig.1: Heteroscedasticity test

The stationarity of variables in this study plays a critical role in its behavior and characteristics. If two variables exhibit trends over time, a regression of one on the other may yield a high R^2 even if they are unrelated. Furthermore, if the variables in the regression model are not stationary, it violates the standard assumptions for asymptotic analysis. In such cases, the typical "t-ratios" will not follow a t-distribution, rendering hypothesis tests on regression parameters invalid. To mitigate these issues, we conducted an Augmented Dickey Fuller (ADF) test to ensure the variables' stationarity. The ADF test results are presented in Table 3. If the t-statistic exceeds the 5% critical value, we reject the stationarity assumption. At the initial level, all our variables have absolute t-statistics greater than the 5% critical value (absolute value) of 3.000. Consequently, we take a first difference. After differencing, only two variables (equity ratio and debt-to-equity ratio) exhibit t-statistics conforming to stationarity. Therefore, we proceed to take a second difference for the remaining non-stationary variables. At this stage, all our variables are stationary, enabling us to move to the next step: investigating whether these variables move together in the long run. To accomplish this, we conducted a Johansen test for cointegration, as detailed in Table 3.

Table 3: Unit Root Test using Augmented Dickey-Fuller Test

Variable	Test	Test statistics	5% Critical Value	Conclusion
Equity ratio	Level	-2.326	-3.00	N
	1st diff	-3.971	-3.00	Y
Debt ratio	Level	-1.851	-3.00	N
	1st diff	-2.660	-3.00	N
	2nd diff	-3.589	-3.00	Y
De ratio	Level	-2.518	-3.00	N
	1st diff	-3.364	-3.00	Y
Corporate Governance	Level	-1.834	-3.00	N
	1st diff	-2.254	-3.00	N
	2nd diff	-3.574	-3.00	Y
Stock return	Level	-1.450	-3.00	N
	1st diff	-2.640	-3.00	N
	2nd diff	-5.742	-3.00	Y
Ln_TA	Level	-2.813	-3.00	N
	1st diff	-3.615	-3.00	Y
M^m_t	Level	-1.642	-3.00	N
	1st diff	-4.283	-3.00	Y
ROA	Level	-0.695	3.00	N
	1st diff	-3.999	3.00	Y
	Level	-0.316	3.00	N
	1st diff	-3.918	3.00	Y
TOBIN'S ^{Q}	Level	-3.168	3.0	Y

NOTES: 1% critical value of -3.750 and 10% critical value of -2.630. In the conclusion, N indicates non- stationery and Y indicates stationary.

Once variables have been classified as integrated of order *I (0), I (1), I(2)* etc., it is then possible to set up models that lead to stationary relations among the variables, and where standard inference is possible. Johansen co-integration test was used to find a broader classification of co-integration for the variables, it follows that:

$$x1,t = \beta 1 + \beta 2x2,t + \ldots + \beta pxp,t + ut \quad (2)$$

Where, p is the number of variables in the equation. We assumed that I (1) might cointegrate to form a stationary relationship, and a stationary residual term $\hat{}ut = x1,t-\beta1-\beta2x2,t-\ldots-\beta pxp,t.$ This equation represents the assumed economically understanding of steady state or equilibrium relationship among the variables. If the variables are cointegrating, they will share a common trend and form a stationary relationship in the long run.

Table 4: Johansen Tests for cointegration

Maximum rank	Parm	LL	Eigen value	Trace stats	5% critical valu
0	4	1.6114584	-0.9956	110.7300	47.21
1	11	26.019266	0.99241	61.9144	29.68
2	16	40.266099	0.94212	33.4207	33.4207
3	19	51.775911	0.89994	10.4011	3.76
4	20	56.976447	0.64658	27.6396	8.32
5	21	59.231780	0.62689	11.6591	7.45
6	23	61.534562	0.57243	79.6427	12.61

From our table 4, we see that our variables will cointegrate in the long run given that all six trace statistics are greater than their corresponding 5% critical value.

Table 5: Granger Causality Wald Tests

Variable	Hypothesis	Lag	Chi 2	P> chi2	Decision
ER on SR	ER Granger Causes SR	1	3.5756	0.059	Reject
	SR Granger Causes ER	1	23.139	0.000	Accept
DR on SR	DR Granger Causes SR	1	18.925	0.000	Accept
	SR Granger Causes DR	1	20.33	0.000	Accept
DE on SR	DE Granger Causes SR	1	1.1883	0.276	Reject
	SR Granger Causes DE	1	29.853	0.000	Accept
CORGOV on SR	CORGOV Granger Causes SR	1	39.149	0.000	Accept
SR on CORGOV	SR Granger Causes CORGOV	1	8.5031	0.004	Accept

After undergoing the series of test in tables 4 and 5 we finally conduct our causality to test to estimate the relationship between our variables. From our table above we realize that Equity ratio does not granger cause Stock return, however there is a granger cause of Stock return on Equity ratio. This means that a change in stock return is likely to have an impact on the percentage of total assets that is contributed by equity. Practically, when stock returns increase, more and more investors are likely to purchase the banks shares. The increase in capital for the company raised by selling additional shares of stock can finance additional company growth. If the bank invests the additional capital successfully, then the ultimate gains in stock price and dividend pay-outs realized by investors may be more than sufficient to compensate for the dilution of their shares.

From table 5, we once again realize that Debt Ratio granger causes Stock Return. Likewise, Stock Return also granger causes Debt Ratio. We can at this point establish a bi-directional causality between these two variables. By this, we can also boldly say that a change in either Debt Ratio or Stock return would cause a significant change in both variables respectively. The last bit of our table depicts a uni-directional causality. In the sense that, debt to equity ratio does not granger cause Stock return whereas Stock return granger causes debt to equity ratio. As earlier established an increase in stock return may increase equity holders of a bank, simultaneously, a bank may reduce its debt as opposed to equity just so to have more ownership interest. If equity is increased, possibility of the application of retained earnings may lead to more funding for the bank's activities.

The table 5 further revealed that there is a bi- causal relationship between Corporate Governance and Stock Return. Which means a change in corporate governance would cause a significant change in Stock return and vice versa. When stock returns are higher, the banks would in the long run attract more and more investors and hence reduce its debt and debt to equity ratios significantly. It is therefore imperative that all Ghanaian banks; not just the listed few drives towards achieving higher corporate governance scores and subsequently increase their performance.

4.2 Corporate Governance and Bank Performance

In the realm of banking, the concept of Corporate Governance Scores holds profound significance. These scores serve as a barometer, reflecting the level of adherence to governance standards and practices within financial institutions. In the vibrant landscape of Ghana's banking sector, these scores become particularly noteworthy, differentiating between listed and non-listed banks. Corporate Governance Scores for Listed and Non-Listed Banks in Ghana serve as a critical benchmark for evaluating how effectively financial institutions uphold principles of transparency, accountability, and ethical conduct. They offer a compelling glimpse into the governance strategies employed by banks, with a particular focus on those listed on the Ghana Stock Exchange, and those operating independently outside the formal listing framework.

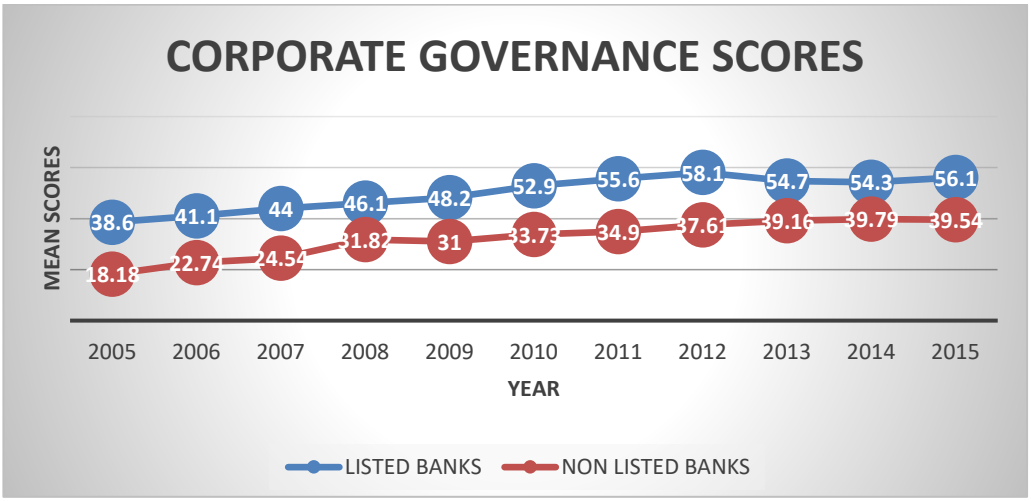

Fig.2: Corporate Governance Scores for Listed and Non-Listed Banks in Ghana

Figure 2 illustrates that listed banks tend to attain higher Corporate Governance scores compared to their non-listed counterparts, indicating that listed banks are more likely to implement rigorous corporate governance strategies outlined by the Ghana Stock Exchange. This observation prompts us to investigate whether these elevated corporate governance scores have any causal impact on bank performance, specifically measured as stock returns, and vice versa. This analysis aims to explore the interplay between corporate governance practices and stock returns, shedding light on whether high corporate governance scores contribute to better stock performance and, conversely, whether strong stock returns can influence corporate governance practices

Table 6: Capital Structure, Corporate Governance and Bank Performance

	ROA		ROE		TOBIN		SR	
	Coeff	Std Error	Coeff	Std Error	Coeff	Std Error	Coeff	Std Error
DR	-0.033	0.19	-0.14	0.04*	-0.00	0.11	-0.19	0.008
ER	0.00	0.01	0.00	0.19	0.00	0.00	-0.19	0.48*
LR	0.00	0.00	0.06	0.00	0.00	0.00	-0.01	0.10
CORGOV	0.00	0.00	-0.01	0.00*	-0.00	0.00	-0.11	0.00*

Note: Significant at 5% critical value

Our analysis suggests that only Return on Equity and Stock Returns have a significant impact as seen in Table 6. It's noteworthy that ROE and the Debt ratio exhibit a negative relationship, implying that as the Debt ratio increases, Return on Equity decreases. Our Johansen cointegration test reinforces this finding, indicating that this negative relationship holds in the long run. Furthermore, our robust regression results reveal that Stock Returns have a positive relationship with the Equity ratio. As ownership interest increases, stock returns are expected to rise in the long run. This observation aligns with our cointegration test, confirming their coexistence in the long term. Additionally, our robust analysis indicates that the relationship between Corporate Governance and Return on Equity is significant and positive. This implies that as more banks adopt better Corporate Governance measures as outlined by the Ghana Stock Exchange, Return on Equity is likely to increase.

V. CONCLUSION AND POLICY RECOMMENDATION

The Ghanaian banking sector has made commendable strides in embracing corporate governance principles, driven by the Securities and Exchange Commission's (SEC) guidelines. This shift towards improved corporate governance practices among banks in Ghana is a promising development. The robust correlation between corporate governance and bank performance underscores the industry's dedication to adhering to SEC directives. The commitment to ethical standards plays a pivotal role in fraud prevention, transforming it into a collective responsibility within these financial institutions. Enhanced corporate governance not only safeguards against fraud and conflicts of interest but also provides banks with a solid foundation to explore more lucrative opportunities.

Furthermore, it is imperative to acknowledge the consequential relationship between capital structure and banks' performance in Ghana. The heavy reliance on debt financing has led to a substantial debt ratio, hovering around 84%, with a corresponding negative association between Return on Equity (ROE) and Debt Ratio. The prevalent use of short-term customer deposits for debt financing further exacerbates this issue, adding a layer of expense. The study's findings emphasize that Ghanaian banks, on average, employ GH¢6.34 in debt for every GH¢1 of equity. This overdependence on short-term loans from customers necessitates a reevaluation of financing strategies.

In light of these findings, it is essential for banks to prioritize the utilization of internally generated funds to support their operational activities. When external debt becomes a requisite, banks should proactively seek low-interest loans to ensure that the benefits of tax advantages outweigh any potential financial distress. To mitigate the risks associated with heavy reliance on short-term, high-cost debt, the Government of Ghana should collaborate with financial sector stakeholders in fostering the development of a bond market. This initiative would provide banks with access to long-term debt, thereby reducing their dependence on short-term sources.

Moreover, increasing tax relief measures could substantially enhance banks' post-tax profits, leading to improved retained earnings for internal investments. Given the notable improvements in corporate governance scores across banks, it is strongly recommended that the Bank of Ghana, the industry regulator, harmonizes its regulations with those stipulated by the Ghana Stock Exchange. Specifically, the alignment should focus on disclosure requirements. Such regulatory cohesion would exert binding authority on banks to uphold governance standards, in stark contrast to the non-binding nature of the SEC code.

While this study has centered on the Ghanaian banking industry, it encourages future research to extend its scope to other sectors, including telecommunications, insurance, and pharmaceuticals. Additionally, researchers should consider diversifying data sources beyond annual reports to capture a more comprehensive dataset. Finally, there is a compelling need for future investigations into exploring the causal relationship between corporate governance and performance.

In summation, the findings of this study underscore the pivotal role played by corporate governance practices and capital structure decisions in the Ghanaian banking sector. By acting on the policy recommendations outlined above and prioritizing corporate governance enhancements while diversifying financing sources, Ghana's banking sector can strive for sustained growth, financial stability, and long-term success.

VI. LIMITATIONS AND SUGGESTIONS FOR FUTURE STUDY

Just as any paper, this study comes with its own limitations and hence should be taken into account when interpreting its findings of this study. The limitations cut across areas such as the sample size, data size and accuracy and use of primary data. For instance, this study had limited sample size of only eleven listed banks in Ghana which restricts the generalizability of the results to the entire banking industry in the country. This small sample size may not fully capture the diversity and complexities of the broader banking sector, potentially leading to biased or incomplete conclusions. Additionally, the study solely relied on annual reports as the primary data source and hence may overlook critical information that could

contribute to a more comprehensive analysis. Data accuracy and availability within annual reports may also vary among banks, affecting the overall quality of the study's findings.

Furthermore, the study's exclusion of banks whose annual reports were not obtained within the specified time frame introduces selection bias, as reporting schedules and delays can differ among financial institutions. Additionally, while the study explored relationships between variables, it did not establish causality. Future research could address these limitations by considering a more extensive and diverse sample, incorporating additional data sources, accounting for external factors, and conducting longitudinal analyses to provide a more robust understanding of the complex interplay between corporate governance, capital structure, and bank performance.

Furthermore, one promising area for future research is the exploration of how changes in regulatory frameworks and policies impact the relationship between corporate governance, capital structure, and bank performance. Regulatory changes, both at the national and international levels, can have profound effects on financial institutions. Investigating how shifts in regulatory environments influence the strategies and practices of banks in Ghana could provide valuable insights for policymakers, regulators, and industry stakeholders. Additionally, future could consider looking at a comparative analysis across different industries in Ghana, such as telecommunications, insurance, and pharmaceuticals, could shed light on whether the observed relationships between corporate governance, capital structure, and performance are unique to the banking sector or extend to other sectors. This comparative approach would contribute to a more comprehensive understanding of the broader implications of corporate governance practices on various industries within the Ghanaian economy.

Moreover, future studies could delve into the causal mechanisms underlying the identified relationships. By employing advanced statistical methods and longitudinal analyses, researchers can explore the causal pathways through which corporate governance decisions influence capital structure choices and, in turn, impact bank performance. This deeper exploration of causality would enhance our understanding of the dynamics at play in the financial sector and provide actionable insights for practitioners and policymakers.

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