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DEPARTMENT OF ACCOUNTING AND FINANCE

DETERMINANTS OF FINANCIAL STABILITY OF COMMERCIAL BANKS IN GHANA

By

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DECLARATION

I, Eugene Boaful, hereby declare that this submission is my own work towards a Master of Science in Accounting and Finance and that, to the best of my knowledge, it contains no material previously used by another person or any material which has been accepted for the award of any other degree of the University except where due acknowledgement had been in the text.

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DEDICATION

I wholeheartedly dedicate this work to God Almighty my creator, my strong pillar, my source of inspiration, wisdom, Knowledge and understanding. He has been the source of my strength throughout this program and on His Wings only I have soared.

I also dedicate this work to my family who encouraged me and ensured that I give it all takes to finish what I have started.

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ABSTRACT

The current Ghanaian banking crisis prompted the research to examine commercial bank financial stability determinants. (Seventeen) 17 selected commercial banks were selected based on available data and the panel research design was used to obtain data

for the selected banks between 2016 and 2019. The results from the model estimate show that the capital adequacy ratio negatively impacts financial stability, but was not significant. Interest cover ratio negatively and significantly affects financial stability. Bank lending rate is shown to negatively and significantly affect financial stability. In addition, financial stability is negatively and significantly impacted by the efficiency of banks. The result also shows that GDP, inflation, and interest rates negatively affected the stability of banks but were insignificant. The study thus concludes that concluded that bank efficiency, debt repayment and lending behavior are major factors that accounted for the general instability of the banks during the period.

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CHAPTER ONE

INTRODUCTION

1.1 Background of the study

Wikipedia defines financial stability as a financial system that removes indefinite financial market inequities or significant and unexpected occurrences. Financial stability is crucial to companies' short and long-term existence. Apart from corporate problems, financing drives firm development. A nation with solid financial institutions, infrastructure, and markets is another possibility. Most economic transactions occur in the financial sector, making financial stability essential to development. A financially stable system can efficiently allocate resources, evaluate and manage financial risks, keep employment levels close to the economy's natural rate of growth, and eliminate relative price movements of real or financial assets that affect monetary stability. The stability of the financial system is essential to economic growth because it accelerates exchange rates, according to Karim
et al. (2019).

Their work has allowed them to flow resources from residual households to low-income households, which has increased economic growth and development. In the lack of financial stability, banks are more likely to engage in significant initiatives that might raise asset prices and establish an unusual payment system. Therefore, financial stability is crucial to economic confidence.

Financial stability factors reduce the impact of potential international crises by pointing out a system of early warning of financial problems, while financial instability can affect the economy and financial markets, collapse the country's

financial system, and affect security and reputation over time. Financial institutions help Ghana thrive economically. Banks and wellorganized, strategic, and huge marketplaces support a financial system and improve Ghana's economy. Financial liaisons acquire and mobilize money for vital economic development firms and initiatives.

Commercial banks need a non-traditional regulatory framework to mitigate mortgage risk management systems (Huang & Ratnovski, 2011). In the company's efforts to improve the goal of increasing shareholders' wealth and profits, managers often adopt a variety of capital to achieve that goal. The firm can repay its investments on credit or equity or both.

Our financial institutions and in that regard, banks are heavily funded by debt. Where there is a strong grip on funding, it is often viewed as a reinvestment to maximize the return on investment. The rate allows for a high return on the potential investors as well as significant potential losses in the long run. The ability of business executives to maximize profits through debt demonstrates the importance of corporate business management. Corporate governance is an indicator of corporate performance in debt used to maximize profits (Botlhale, 2020).

Debt is always right if a company earns a high profit because it leads to a big return on the shareholders. The banks' performance depends on how well they use credit to finance their operations. Financial stability examines a situation in which the financial mediation method works well and thus builds trust between users (Mason &Merga, 2018). It also focuses on the effective implementation of the framework for home, industrial and government financial interventions in all the various financial institutions supported by a

wide range of financial infrastructure (Ullah, Muttakin, & Khan, 2019). Financial stability can be compromised by both internal processes, the external environment, internal macroeconomic changes, debtors and debtors of financial institutions , variations in the institutional environment or economic guidelines (Saha & Anjum, 2020).

Ghana's financial system has changed and restructured according to internal and global economic trends. In 2018, the Bank of Ghana (BoG) authorized multinational banks in Ghana to raise their minimum threshold to Ghc400 million, causing several banks to consolidate due to financial issues. According to the banking sector report/March 2019, total banking sector assets rose up from 13.7% in 2018 to 14.5% at the end of February 2019.

The banking industry's capital-absorbing capability increased in February 2019. The banking sector report/March 2019 showed the industry's Capital Adequacy Ratio (CAR) rose to 21.7% in February 2019 from 19.2% in February 2018.

The global bank's development indicators showed Ghana's banking industry contributed 26.07% in 2018.

The Banking sector in Ghana significantly contributes to the growth and development of the state. However, how stable are these banks financially? What determines their financial stability? The analysis of a bank‘s financial stability is of utmost importance to all its stakeholders, therefore in conducting this research to analyze the determinants of financial stability, the researchers used commercials banks in Ghana as of May 2019. The study employs a panel

data regression model in analyzing the results over a four (4) year period from 2016 to 2019.

This study examines factors that determine financial stability for commercial banks in Ghana and other financial institutions in and outside our borders to make recommendations that may help management decision-making and policy objectives.

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1.2 Statement of the problem

Financial stability is a vital performance and survival metric for Ghana's banks. Financial stability is a firm's daily process measured by solvency, efficiency, profitability, and liquidity. Financial stability helps banks serve stakeholders better.

The state cannot offer all commodities and services in the nation. Commercial banks provide products and services to residents and stakeholders domestically and internationally. Financial stability is needed for enterprises to achieve this.

Other nations have studied financial stability factors (Al Salamat & AlKharouf, 2021; Alshubiri, 2017; Chauhan & Ramesha, 2016; Pham, Dao & Nguyen, 2021). Commercial bank profitability has been studied in Ghana (Asare, 2019; Boateng, 2018; Boadu, 2015). However, there is no empirical investigation on commercial bank financial stability factors.

In light of the recent consolidation and downgrading of some financial institutions in Ghana because they lacked the Ghc400 million in stated capital required by the Bank of Ghana (BoG), the study's author set out to determine what factors affect the viability of Ghana's commercial banks.

1.3 Objectives of the study

The main objective of the study is to examine the determinants of the financial stability of commercial banks in Ghana. The specific objectives are as follows.

1. To assess the impact of bank lending behavior on the financial stability of commercial banks in Ghana.
2. To ascertain the impact of inflation on the financial stability of commercial banks in Ghana.
3. To evaluate the impact of GDP growth on the financial stability of commercial banks in Ghana.
4. To examine the impact of interest rates on the financial stability of commercial banks in Ghana.

1.4 Research questions

1. What is the impact of bank lending behavior on the financial stability of commercial banks in Ghana?
2. What is the impact of inflation on the financial stability of commercial banks in Ghana?
3. What is the impact of GDP growth on the financial stability of commercial banks in Ghana?
4. What is the impact of interest rates on the financial stability of commercial banks in Ghana?

1.5 Significance of the study

This research will first examine Ghanaian commercial banks‘ financial sector stability factors. The report provides valuable insights into financial soundness of commercial banks in Ghana, aiding investors in creating selection criteria. Also, assists Firm Managers understand the factors that affect their banks' financial performance and use their skills to develop financially sound organizations.

Finally, this study will help researchers comprehend commercial bank financial stability and guide future research.

1.6 Scope of the study

The study seeks to establish the financial stability of commercial banks in Ghana.

The study is limited to seventeen (17) commercial banks in Ghana over a four (4) year period from 2016 to 2019.

The audited financial statements of these firms were used in assessing their financial stability. The scope was confined to the defined objectives that describe the variables used.

1.7 Summary of methodology

The study uses panel data to investigate the hypothesis, considering a time dimension of four years spanning from 2016 to 2019. The research examined Ghanaian commercial bank financial stability drivers using quantitative and descriptive methods. The research examined Ghanaian commercial banks. STATA and Microsoft excel was the main statistical tool used to run the correlation, descriptive statistics, and regression.

1.8 Organization of study

Chapter one (1) covers the study's background, aims, problem statement, scope, research questions, and importance.

Chapter two (2) reviews dynamic and theoretical publications that analyzed prior or related work on Ghanaian commercial banks' financial stability choices. This section intentionally draws on corporate governance research.

Chapter three (3) covers study design, population and sample sizes, sampling procedures, data gathering instruments and processes, and data analysis.

Chapter four (4) contains the research findings, comprehensive analysis, discussion, and presentation of the data.

Chapter five (5) reviews major research results, conclusions, and suggestions.

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CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The conceptual review and theoretical literature discuss financial stability theories, the empirical literature examines scholars' applied works, and the conceptual framework highlights the hypothesized model under study and the relationship between the dependent and independent variables.

2.2 Conceptual Review

2.2.1 Financial stability

A financial institution's ability to accelerate economic processes, absorb shocks, and manage risk is called "financial stability" (Golovnin & Oganesian, 2018).

Ahmad (2018) states that a stable financial system allows for resource allocation, risk management, and mitigation of unplanned fluctuations in real or financial asset values, which might harm the economy. Financial market turbulence in 2007-2008 undermined several concepts. Despite rating agencies' decreased risk classifications, numerous significant multinational financial institutions faced insolvency or governmental intervention. This was because several significant international financial banks went insolvent (Bencharles & Nwankwo, 2021). As a result, financial ratings have been criticized for their efficiency and trustworthiness in evaluating and monitoring commercial banks' stability to prevent informational imbalance-induced risk.

Financial institutions require a mechanism to assess their strengths and shortcomings to reduce systemic risk (—Lavrushin & Mamonova, 2011‖).

Bank stability requires strong profitability and adequate liquidity, which indicates a well-balanced asset-liability structure (Klaas & Vagizova, 2014). Insufficient capital, liabilities, and assets, as well as an aggressive credit strategy that raises credit risk and losses, could hurt banks' mediumterm financial stability. The poor credit portfolio suggests that certain banks are using underqualified credit portfolio management methods and lack
appropriate capitalization. However, a bank's capital determines its ability to remain stable during economic uncertainty, its reliance on the interbank credit market, and the proportion of demand liabilities that make up its liabilities (Klaas & Vagizova, 2014).

For the same reason that their recall or expenditure might cause bank bankruptcy and, therefore, loss of bank stability, Klaas and Vagizova "also

claim that the active growth of such mobile, difficult-to-predict resources is problematic." Capitalization, which measures risk asset safety, ensures bank trustworthiness and liquidity. High profitability also shows how credit organizations utilize their resources efficiently (Bencharles & Nwankwo, 2021). According to Vagizova, Klaas, and Batorshina (2013),commercial banks' inability to maintain financial stability can be attributed to a number of factors, such as a credit portfolio tainted by an excessive number of late payments and a high proportion of demand loans, a credit policy that is overly aggressive and a deposit base that is overly reliant on loans from other financial institutions (which, on the one hand, shows that other financial institutions have faith in the bank), and a general lack of quality in either assets or liabilities.

2.2.2 Bank lending behavior

The role of mediator that banks play in an economy is one of its most important functions. That is the condition under which banks take money from those who have more money than they need (depositors) and provide it to people who have too little money. The more successful banks are; the more money they have available to lend to various parts of the economy to stimulate growth in those areas. Rabab'ah (2015) states that the credit facilities supplied by banks to these sectors help the sectors to carry out dayto-day business operations and ultimately develop their business, this in turn, ultimately demonstrates a good growth rate in the economy. In other words, the sectors can contribute to the expansion of the economy. Bank lending and liquidity negatively impact bank lending, according to Alkhazaleh (2017)'s research on commercial credit risk variables. Bank lending is affected by internal and external factors. Return on

assets, bank size, inflation, assets, money supply, and domestic and GDP growth were shown to positively affect lending.

2.2.3 Factors' Influence on Financial Stability

GDP growth, inflation, interest rates, currency exchange rates, and macroeconomic policy consistency influence commercial bank finances. The GDP growth pattern affects bank asset demand. A dip in GDP hurts banks' profitability because consumer demand for loans diminishes. This section reviews published studies on how interest rates, inflation, and GDP growth affect Ghanaian commercial banks' financial stability.

2.2.3.1 Inflation

Commercial banks make more money when inflation is high because loan interest rates are also high. Swarnapali (2014) states that inflation's influence on the banking industry depends on how much it was projected. When a rise in inflation is fully foreseen and interest rates are adjusted accordingly, commercial banks' financial performance improves due to the positive impact of the interest rate change. When a rise in inflation rates is unexpected, it strains the finances of local borrowers. The issuing commercial bank may incur loan losses if the borrower defaults on a loan arrangement due to this circumstance. A situation where local borrowers are experiencing cash flow challenges might arise when an increase in inflation rates is not expected. It has been observed that when commercial banks take a significant amount of time to adjust their interest rates in response to shifts in the rates of inflation, this can result in a scenario in which the operating costs of the bank may rise at a rate that is greater than the rate at which the bank's revenues are increasing. Inflation that is both

high and volatile can make financial planning and the negotiation of loans more complex.

This means that people are shifting their focus from saving and investing in commercial banks to spending that money instead. As a result, commercial banks would have less cash on hand and be less able to lend money to people, as customers would be less likely to put money in their savings accounts (Rasiah, 2010). Since there is not enough money to go around owing to the low purchasing power, Samagaio, Matos and Manjate (2022) stated that customers will also tend to withdraw their savings from commercial banks during these periods. As a result, banks are in a position where they have less money to lend out to customers. Commercial banks get most of their revenue from loan interest, therefore one that cannot provide credit earns less. Because of this, it will be unable to maintain its current level of profitability. As a result, inflation rates and other macroeconomic factors affect commercial banks' profits.

2.2.3.2 GDP growth

Rich and developing nations have focused on financial development and economic expansion. This concern about bank financial stability and economic development is warranted by policy implications. Many governments aim to improve residents' quality of life and economic prosperity. Recent studies also demonstrate that countries with more sophisticated financial systems have stronger economic development. Bakang (2015) found that most discussions on financial depth and economic development have focused on causality. The supply-leading hypothesis states that "financial growth is driven by the presence of efficient markets," while the demand-leading hypothesis states that new financial markets and general advancement increase economic activity.

Several empirical studies, including cross-country studies, show a positive association between financial stability and economic growth, demonstrating that an economy's financial development level strongly predicts its economic growth. (Asongu, 2015) whereas others show that financial depth hurts development (De Gregorio, 2013). Crosscountry research generally ignores macroeconomic variations; therefore, policy findings are erroneous. Nguena and Abimbola (2014) examined financial stability dynamics and financial policy coordination in the West

African Economic and Monetary Union (WAEMU). They did an empirical study using static and dynamic panel data econometrics and a theoretical strategy based on supposition and deduction.

2.2.3.3 Interest rate

Maigua and Mouni (2016) define interest rate as a price of money that indicates how the market expects money's purchasing power or inflation to change soon. Economists say the interest rate is the price of allocating capital over time, and monetarists use it to attract more savings by raising it and encouraging investors to look for a higher-return investment (Murungi, 2014). Higher interest rates reduce inflation but hurt economic growth. The economy benefits from low interest rates, but inflation may result.

According to 2017 World Bank development indicators from official sources, Nigeria's annual percentage rate of lending interest was 17.58%. The rate increased somewhat from previous periods. —In Nigeria, Acha and Acha (2011) found that interest rates had little effect on savings and investment. Interest rate was a poor predictor of savings and investment. However, Obamuyi and Olorunfemi (2011) showed that banking reform and interest rate

fluctuations drove Nigeria's economic growth. Individually, Khan and Mahmood (2013) showed that the financial structure of certain businesses renders them more subject to interest rate swings than others. Mnang'at et al. (2016) found a strong correlation between Kenyan micro firms' interest rates and financial success. Barnor (2014) found a strong negative association between interest rates and Ghana-listed businesses' stock market performance.

2.3 Theoretical Literature

The topic is supported by a theoretical analysis. It develops and describes the theory behind the research issue. Alan (2008) states that concepts explain, forecast, and know occurrences and question and increase knowledge within crucial binding beliefs.

2.3.1 The Pecking Order Theory

Myers (1984) suggested the idea of a pecking order, which is thought to be another trading theory where firms face a full range of financial decisions. The theory suggests that, where possible, firms firstly will prefer to finance new investments with internally generated funds. Therefore, paying with debt and equity is the last resort.

The theory further argues that firms will borrow, rather than issue equity, when internal cash flows are insufficient to finance the costs.

A study by Baski (1989), proves that reputable companies tend to avoid new equitable issues and resort to financial demands when there is a reasonable and enough supply of savings. It is suggested that financial satisfaction is the most important factor determining the choice of financial structure in which the pecking model is used.

Therefore, from the point of view of the pecking order, the formation of a company's finances is driven by the company's willingness to fund its operations with internal funds rather than with external resources. However, if foreign currency is required, debt is required in addition to equity. Commercial banks in Ghana can use the Pecking order theory to find the most suitable source of funding that will enable them to become financially viable and continue to operate.

2.3.1 Monetarist Theory

The Monetarist Theory, which was pioneered by Milton Friedman in 1967, is one of the many hypotheses that have been proposed to explain the connection between rising prices, rising interest rates, and expanding economies. According to this idea, if the amount of money in circulation grows at a pace that is higher than the rate at which the economy expands, then inflation will occur, which will be detrimental to the expansion of the economy.

Tobin (1965) provides support for this theory by stating that money is a capital replacement and that inflation raises the opportunity cost of keeping money. This, in turn, increases the amount of capital accumulation and economic development. Because Stockman (1981) believes that money and capital are complementary to one another, he hypothesizes that inflation will have a deleterious influence on economic growth. This phenomenon is referred to as the anti-Tobin effect.

In contrast to all of these beliefs, Sidrauski (1967) demonstrated that money is both neutral and super neutral, which means that inflation does not affect the growth of the economy. It is possible to employ interest rate control as a tool to have an impact on both inflation and economic growth.

The Central Bank adjusts short-term loan interest rates under this control (Bain and Howells, 2003). Changing monetary policy has a range of indirect effects.

Expansionary monetary policy will lower real interest rates and boost investment expenditure, raising aggregate demand. Aggregate demand raised the price level economy's output. This shows that interest rates negatively affect economic growth and inflation, affecting financial stability.

2.4 Empirical literature

2.4.1 Bank lending behavior on the financial stability of the bank

Non-performing loans affected bank lending practices, according to Cucinelli (2015). The research investigated whether credit risk increased during the financial crisis would induce banks to cut lending. From 2007 to 2013, 488 Italian public and unlisted banks were monitored. Unlisted banks were included since they are the most prevalent in Italy. Credit risk negatively affected bank lending behavior in terms of nonperforming loans and loan loss provision ratio.

Naceur, Marton, and Roulet (2018) examined United State and European bank holding company data. Their research studied how capital and liquidity affected bank lending growth throughout the 2008 financial crisis and Basel III-inspired regulations. They found that United State banks increased riskabsorption when loan activity increased. During the post-2008 financial crisis deleveraging and "credit crunch" in Europe, capital ratios hurt bank-retailand-other-lendinggrowth for significant European banks. Liquidity indicators showed both good and negative impacts on bank lending growth, underlining the

necessity to consider diverse institutions' features and behaviors when adopting new regulatory requirements.

Trönnberg and Hemlin (2012) combined psychology and economics results on bankers' lending choices to provide a complete literature review. Data analysis is based on human decision-making research. The study found that loan officers' decision-making processes were influenced by bank characteristics, biases, and conscious and intuitive thinking.

In "on the Bank capital, lending, and financing behavior of dual banking systems," Louhichi and Boujelbene (2017) examined whether Islamic versus conventional banks' capital quality affected lending and financing. They used 123 banks from ten Middle Eastern and Asian countries. The sample period of 2005–2014 highlighted the 2008 Global Financial Crisis and distinguished bad and outstanding time periods. The research found that high-quality capital helps banks weather financial crises.

Heider, Saidi, and Schepens (2019) examined how negative policy rates affect bank lending. They showed that negative policy rates unexpectedly affected bank credit. High-deposit banks had a lower net value than low-deposit banks because they refused to pass on negative rates to depositors, which raised their financing costs. After the European Central Bank introduced negative policy rates in mid-2014, Eurozone banks have become more risk-taking, reduced lending, and relied more on deposit funding. If banks with large deposits lent, negative interest rates were less accommodative and may threaten financial stability.

Allen, Jackowicz, Kowalewski, and Kozowski (2017) examined "bank lending dynamics, ownership structures, and crisis occurrences in Central and Eastern European (CEE) banking systems." They showed that ownership structure affected CEE banks' lending operations according on the kind of crisis—host, domestic, or global. They used a 1994–2010 panel dataset with nearly

400 banks. However, they found that ―that bank-specific features, such as deposit growth and profitability ratios, were major predictors of loan growth during both normal economic times and crisis periods, irrespective of the sort of‖ crisis.

2.4.2 Inflation on the financial stability of banks.

Inflation targeting contributed to the government's incapacity to address financial imbalances during the current financial crisis, according to Fazio, Silva, Tabak, and Cajueiro (2018).

These scholars examined financial stability and inflation targeting. Comparing how institutional quality was evaluated by the national people effects financial stability in nations that implemented IT with those that did not was done using data from 66 banks from 1998 to 2014.

The "paradox of credibility" showed that this method benefited nations with medium-quality institutions but did not improve IT banks from high-quality institutions. Additionally, information technology was negatively correlated with financial stability in countries with poor institutional quality.

The findings support the premise that governments require public trust to achieve economic programs. In addition, Fouejieu (2017) examined inflation targeting and financial stability in emerging nations. To see whether

"developing market inflation targets were more financially vulnerable than non-targets." He examined how responsive targeted central banks were to financial imbalances compared to those pursuing other agendas.

A sample of 26 developing countries, including 13 targets, showed that monetary policy in target nations was more responsive to financial concerns.

The financial sector appears more sensitive to targeting despite central banks' increased responses to financial imbalances. He claimed that central banks' policy interest rates can stabilize the financial system. He also recommended keeping inflation control as the key monetary policy goal and a macro-prudential institution in charge of financial stability.

Ben Ali, Intissar, and Zeitun (2018) explored how banking concentration affects financial stability. Based on data from 156 industrialized and developing countries from 1980 to 2011, they found that concentration did not directly affect financial system stability

The study found that concentration stabilized financial stability via profitability and interest rates. They also found that concentration harmed financial stability directly and indirectly during crises but not during regular stability.

Mishra and Dubey (2022) examined whether inflation-targeting monetary policy affected financial stability in developing markets. They used data from 64 emerging market countries to create financial stability and sector-specific stability indices and found the impact using dynamic panel data models in a difference-in-difference framework.

Due to enhanced central bank transparency and responsibility, inflationtargeting improved banking system resilience and external capital inflows. According to their analysis, emerging market countries with inflationtargeting lite regimes should move to full-fledged monetary policy.

2.4.3 GDP growth on the financial stability of banks

Sunney (2020) examined Sub-Saharan African banking stability and economic growth using 2010–2015 global financial development database data.

The autoregressive distributed lag model was used to analyze goals using the explanatory design and quantitative method. The research found a short and long-term relationship between bank stability and economic progress. The research found that banking sector stability boosts regional development in the short and long run, whereas excessive bank instability reduces it.

Abbas, Ullah, Ali, Hussain, and Ashraf (2022) examined Pakistan's banking industry's yearly reports to determine how GDP growth affects financial stability. Our data will be analyzed from 2010 to 2016. The research study examined how GDP growth influences financial stability in Pakistan using STATA. Economic growth seems to have a significant influence on financial system stability. GDP increases bank stability since all three proxies are linked to stability.

Nguyen (2022) examined banking's influence on Vietnam's economic growth during the early 1990s transition. The empirical findings suggest that banking development has a positive longterm effect on growth, which is consistent with the banking system's function in mobilizing and distributing capital to the economy, which support growth throughout economic transition.

Empirical data show that banking development has a nonlinear and declining marginal effect from 2007 to 2020.

Tongurai and Vithessonthi (2018) examined how banking sector development affects economic structure and growth. They claimed that banking expansion affected industrial and agricultural growth differently. They explored if economic structure and growth boost banking development. They developed a 1960–2016 panel sample of all countries to test these assumptions. They found that banking sector growth hurts agriculture but not industry. Only countries with substantial banking sector development have a negative influence on agricultural growth. Their results also showed that agricultural sector growth hurts banking sector development, although industrial sector development helps.

2.4.4 The interest rate on the financial stability of banks.

Ngure (2014) examined how interest rates affect Kenya's commercial banks' profitability. This descriptive study used 2009–2013 Central Bank of Kenya secondary data. ANOVA was used to determine statistical significance after SPSS version 21 analyzed the data. Interest rates benefited Kenyan commercial banks' financial performance with 95% certainty. The linear relationship between interest rates and financial performance showed that higher rates improved financial performance. Commercial bank profitability was impacted by size and interest rate volatility. A model that incorporates interest rates and bank size can explain 64% of commercial bank earnings

Empirical gaps

According to Stock and Watson (2003), the Financial Stability Index is a delicate predictor of financial stability because all financial, company, and business operations

and economies are flexible to easily withstand financial crises and low losses, as many structural, financial, and behavior-based factors interact in developing a financial system. Menurut Nasreen, Anwar, and Ozturk (2017) and Tongurai and Vithessonthi (2018) financial stability variables reduce the power of financial crises in countries by providing a financial crisis early warning system, and vice versa, by having a system of early warning that financial instability will negatively impact economies and financial markets, destroying the country's financial system and affecting its size in the long run. The study argues that there has been research on the determinants of financial stability in other countries around the globe (Al Salamat & Al-Kharouf, 2021; Alshubiri, 2017; Chauhan & Ramesha, 2016; Pham, Dao & Nguyen, 2021). In Ghana, there have been studies done on the determinants of profitability of commercial banks (Asare, 2019; Boateng, 2018; Boadu, 2015). However, there is no empirical study on the factors of the financial stability of commercial banks.This study intends to contribute to the existing debate from an emerging market perspective by investigating the factors that influence financial stability in Ghana.

2.5 Conceptual Framework

A conceptual framework specifies the research model and the link between dependent and independent variables, according to Mugenda & Mugenda (2003). The factors considered for financial stability include inflation, GDP growth, and interest rate.

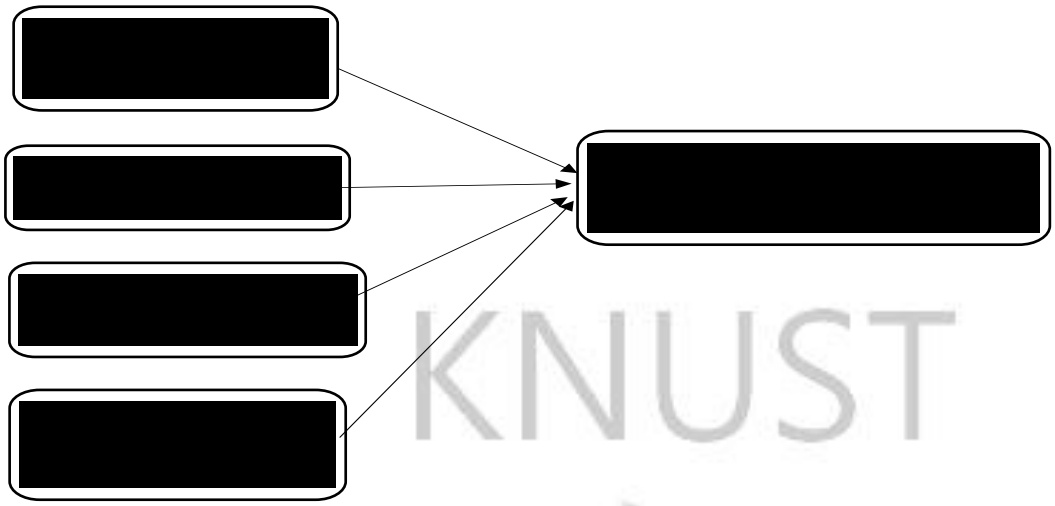

Figure 2. 1 Conceptual Framework

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Inflation

The average pace at which prices of goods and services rise in an economy is called inflation. Inflation happens when one currency unit buys less of another currency than before. The fall in a country's currency is measured by inflation, usually stated as a percentage. Cost of living rises lower the buying power of a currency unit. The public's growing cost of living and declining purchasing power impede economic growth. The economic consensus holds that stable inflation develops when national income growth surpasses economic growth.

GDP Growth

The GDP growth rate gauges economic growth. The rating compares the latest and prior quarters of GDP. If the rate is negative for two quarters, the nation is in recession. Growth is beneficial when the economy grows. The GDP growth rate also indicates population income changes.

Interest rate

Borrowers pay lenders interest. It is the lease payment to a borrower for a major asset like a building. A borrower's creditworthiness impacts borrowing rates. Businesses borrow for large projects and expansion.

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2.6 Summary

Ghana and other nations have studied commercial bank profitability. However, there is no empirical investigation on commercial bank financial stability drivers.

In light of the recent consolidation and downgrading of some financial institutions in Ghana because they lacked the Ghc400 million in stated capital required by the Bank of Ghana (BoG), the researcher sets out to determine what factors affect the viability of Ghana's commercial banks.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

As described in earlier chapters, this research examines Ghanaian commercial banks' financial stability drivers. This chapter discusses research

methodologies. It includes the study's design, demographic, sample selection, sampling strategies, data collecting, verification, ethical considerations, and methodological limitations.

3.2 Research design

3.2.1 Philosophical underpinning

The Positivism analysis model was employed in this work. The term paradigm refers to a strategy for studying society that is especially based on scientific data, such as experiments and statistics, to uncover the real nature of its functioning. Furthermore, positive studies restrict the researcher's work of gathering and objectively evaluating data, and they often examine and measure the study outcomes. In positivist investigations, the researcher is independent of the analysis, and no human interest clauses can be found in the study. The deductive technique is commonly used in positivist experiments. Positivist studies are fact-based and assume that the world is external and objective (O'Gorman and MacIntosh, 2014).

3.2.2 Research Approach

For this study, panel data were used to investigate the hypothesis, considering a time dimension of four years from 2016 to 2019. The research examined Ghanaian commercial bank financial stability drivers using quantitative and descriptive methods. The rationale for this design is that it helps to obtain meaningful statistical data and other characteristics of the data and helps forecast future values based on previously observed values. However, this design is complex because the observations are somewhat dependent on previous observations and are influenced by more than one previous

observation. Analysis was purely based on secondary sources of data. According to the study, mathematical models might be used to provide insight into how independent factors affect the dependent. So, the objective of this quantitative study was to create and evaluate mathematical models and theories that would support the study's central claim (Queiros, Faria, and Almeida, 2017).

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3.3 Data

3.3.1 Population

The study population consisted of all commercial banks in Ghana. According to Casteel and Bridier (2021). As of March 2020, 24 banks were operating in Ghana (BOG Report, March 2020). Only 17 commercial banks in Ghana were used in this study due to the easy accessibility of published data. The study gleaned relevant annual financial data (statement of comprehensive income, statement of financial position, statement of changes in equity and notes to the accounts) from the published financial reports of the selected banks. The data collected covers the period from 2016 to 2019.

3.3.2 Source of data

Secondary data came from 17 commercial bank annual reports from 2016–2019.

Content analysis was used to extract data for each research variable from each bank's financial reports. The researcher searched for bank capital adequacy, liquidity, and leverage statistics in the content analysis.

The data compilation created panel data sets for each variable.

3.3.3 Methods

SPSS 25 was used for data analysis. The raw data trajectory was described using descriptive statistics including mean, standard deviation, percentage, minimum, and maximum (Garson,

2012). A multiple linear regression model examined how financial stability determinants affected Ghanaian commercial banks.

Scholars that have examined the phenomena in the past have utilized the multiple linear regression model, most especially the panel regression (Ekinci and Poyra, 2019; Boahene, et al, 2012).

3.4 Measurement of variables

3.4.1Independent variable (internal factors)

This is the variable that changes or varies throughout the experiment. In an experiment, the independent variable either changes on its own or the experimenter purposely changes it. The value of the independent variable does not change following the value of the dependent value. For this study, determinants of financial stability were the independent variable which was measured by liquidity, capital adequacy and leverage.

3.4.2 Independent variables (macroeconomic factors)

This measure refers to the country's economic factors and their impact on the economic cycle and financial systems, as determined by the volatility of policies and procedures and the regulation of fiscal and monetary policy, which affects financial banking stability and is measured by: Inflation (IN) = Year-on-year percentage change of the consumer price protection, (CPI) index and GPD growth.

3.4.3 Dependent variable.

This variable is observable and likely to vary with the independent variable. An experiment or study measures and expects this variable to change. Financial stability was determined by operating profit margin in this research.

3.4.4 Control variable

That is a constant variable. This research seeks to determine how independent variables impact the dependent variable, hence other factors must be ruled out. The independent variable's influence is tested by holding the controlled variable constant. The controlled variable in this research was business size, assessed by log (total assets).

3.5 Model specification

Many studies have examined financial banking stability, including Gan (2004) and Fell and Schinas (2005). This research formulates an equation to analyze financial banking stability factors, which are described below;

$$FS_{it} = \beta_0 + \beta_1 CA_{it} + \beta_2 ICR_{it} + \beta_3 BLB_{it} + \beta_4 BFF_{it} + \beta_5 IN_{it} + \beta_6 GDPG_{it} + Size_{it} + \varepsilon_{it}.$$

FS=Financialstability(operatingincome/revenue)x100

CA=Capitaladequacy(tier1capital+tier2capital)/risk−weightedassets

ICR=Interestcoverratio(operatingprofit/operatingexpense)

BLB=Banklendingbehaviour(netloans/totalassets)

EFF=Efficiency(operatingexpense/operatingincome) Size=Log(TotalAsset)

IN = Inflation (Year-on-year percentage change of the CPI index)

GDPG = GDP growth

3.5.1 Diagnostic Testing

Hausman Test

A specification test determined random and fixed effect model success. If one estimate is presumed to be more accurate, the Durbin-Wu-Hausman test may identify which is better (Patrick, 2021). The correspondence between empirical and research data is assessed using this method. By comparing random and fixed effect efficacy in panel regression to describe the dependentindependent variable relationship.

The Hausman test may infer that the random effect is appropriate if one accepts the null hypothesis or the fixed effect if one accepts the alternative (Quayes, 2015). If the test result is statistically significant at 5%, the fixed effect estimate is correct.

However, a tiny test statistic shows that the random effect estimator is acceptable and does not reject the null hypothesis.

Multicollinearity

Multicollinearity occurs when there is a substantial correlation between the independent variables in a regression model (Jensen &Ramirez, 2013).

Before accepting a regression model, it is anticipated that the predictor variables do not exhibit multicollinearity (Daoud, 2017). The Variance Inflation Factor may be used to assess possible multicollinearity in a regression model (VIF). When the VIF is exceptionally high, both the occurrence of multicollinearity and the model's unreliability is argued to occur (Daoud, 2017). The Pearson correlation coefficient may be used to find variables with a high level of

association when creating a regression model. As a result, the VIF and Pearson correlation coefficient was utilized in this research to test for multicollinearity among the independent variables.

Heteroscedasticity Test

Standard error reliability must be assessed to fix effect regression. The regression equation does not require robustness in STATA if the standard errors are robust. For this, the research will investigate data heteroscedasticity and homoscedasticity. If the sample is homoscedastic, meaning the error term variance is constant, robust standard errors are superfluous in our regression. Regression will be biassed otherwise. Heteroscedasticity was determined via the Breusch-Pagan test. This test contrasts the null hypothesis (no heteroscedasticity) to the alternative hypothesis (heteroscedasticity in the error terms) and rejects the null if the test statistic is significant (at the 5% level) (Figueroa Reyes, 2013).

3.6 Chapter Summary

The research was carried out using the researcher's positivist assumptions. The calculations for, financial stability (dependent variable), bank lending behavior, interest rate, inflation, and GDP growth (independent variable), and the control variables, bank size, were all performed in Excel. To shed light on the relationship between the two variables of interest, descriptive statistics and regression models were created using SPSS v25. The mean, standard deviation, maximum, and lowest values were utilized to assess the descriptive statistics used to characterize the raw data. A panel regression examined commercial bank financial stability determinants.

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CHAPTER FOUR

DATA ANALYSIS AND DISCUSSIONS

4.1 Introduction

This chapter analyses the study's findings on Ghana's commercial banks' financial stability. The chapter provides descriptive analysis of the research variables, preliminary stationarity analysis, and Hausman test findings to decide whether to use fixed or random effects. Then comes postestimate analysis and final model estimation. The chapter concludes with results discussion.

4.2 Preliminary Analysis

The variables included in the study are financial stability (FS), capital adequacy ratio (CAR), interest cover ratio (CAR), bank lending behavior, efficiency (EFF), bank size (Size), inflation (INF), GDP growth (GDP) and interest rate (INT).

The variables' descriptive statistics are in Table 4.1.

Commercial banks' average financial stability between 2016 and 2019 was 1.02, suggesting financial stability. The overall average capital adequacy ratio is 29.5% which is above the acceptable ratio of 8% per the Basel III regulations, indicating, overall, the bank‘s capital requirement was adequate. The interest cover ratio was 6.69 on average, indicating that more operating profits are available to meet up with interest payments. The average loan to the total asset of the banks on average was 0.66, indicating that 66% of the bank‘s total assets are given as loans, which gives a rather risky outlook given that more than half of the commercial bank‘s assets may be at risk of credit defaults by debtors. The bank's cost-to-income ratio measurement for efficiency was 0.537, which

indicates about 54% profitability on average across commercial banks. The average inflation, interest rate and growth of the economy were 11.7%, 19.6% and

6.1% respectively over the years under review for commercial banks in Ghana.

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Table 4. 1: Descriptive Statistics

Variable		Mean	Std. Dev.	Min	Max	Observations
FS	overall	1.022262	0.35684	0.15	2.303	N = 68
	between	0.257285	0.668861	1.7375		n = 4
	within	0.253186	0.074012	2.227012		T = 17
CAR	overall	0.294843	0.330644	0.1013	2.4	N = 68
	between	0.279849	0.128475	1.3075		n = 4
	within	0.185787	-0.50266	1.387343		T = 17
ICR	overall	6.699992	17.04126	0.33	139.95	N = 68
	between	9.37083	1.33	40.775		n = 4
	within	14.37094	-27.625	105.875		T = 17
BLB	overall	0.66366	0.55372	0.02	2.73	N = 68
	between	0.454514	0.0625	1.4425		n = 4
	within	0.330564	-0.59884	1.95116		T = 17
EFF	overall	0.537288	0.426602	0.01	3.04	N = 68
	between	0.311791	0.1025	1.38		n = 4
	within	0.298544	-0.47271	2.197288		T = 17
Size	overall	16.69295	2.047635	11.98	21.74	N = 68
	between	1.820102	12.6875	21.3575		n = 4
	within	1.014086	13.47045	19.81045		T = 17
INF	overall	0.1172	0.038111	0.0721	0.1746	N = 68
	between	0	0.1172	0.1172		n = 4
	within	0.038111	0.0721	0.1746		T = 17

GDP =	overall between within	0.060825 0 0.016972	0.016972 0.060825 0.0345	0.0345 0.060825 0.0814	0.0814 68 n = 17 T = 4	N
INT	overall between within	0.19625	0.03725 0 0.03725	0.16 0.19625 0.16	0.255 0.19625 0.255	N = 68 n = 17 T = 4

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The descriptive statistics show that the commercial banks between 2016 and 2019 were financially stable, had enough capital for banking businesses, and had enough to meet up for interest payments. But there were too many loans given which was reflected in a 54% profitability or efficiency. The macroeconomic variables show that the interest rate was above the inflation rate on average, which may be due to the monetary policy by BOG to control inflation. The period also saw a 6.1% growth in GDP which is a better prospect for a middle-level income country.

4.3 Diagnostic Test

4.3.1 Stationarity Tests

Before the data was used for the analysis, they were examined for stationarity. This is important because subsequent analysis and estimation require this assumption to be met. Thus, the data were tested to ensure stationarity and in the case where the stationarity condition is violated, the data were transformed using the natural logarithm. This ensured that all the data variables were stationary before they were used for the analysis.

Table 4. 2: Results of Stationarity Tests

Variable	Augmented Dickey-Fuller (ADF) tests		Phillips-Perron (PP) tests	
	Statistics	P-value	Statistics	P-value
FS	46.42	0.08	88.88	0.00
CAR	161.40	0.00	161.40	0.00
ICR	217.47	0.00	217.47	0.00
BLB	97.66	0.00	97.66	0.00
EFF	119.19	0.00	119.19	0.00
Size	10.04	1.00	10.04	1.00
INF	81.15	0.00	81.15	0.00
GDP	1225.48	0.00	1225.48	0.00
INT	1223.77	0.00	1223.77	0.00

The stationarity analysis was done using the Fisher-type unit-root test which uses the Augmented Dicker-Fuller tests and Phillips-Perron tests for panel data. The null hypothesis states that there is the presence of unit root or stationarity is violated while the alternative means that the data points are stationary. The test was conducted at an acceptable 5% significance level which rejects the null

hypothesis when the test statistic is significant. From Table 4.2, all of the variables are stationary except the size variable. The ADF test for the FS variable was stationary at 10% but the PP test shows that it is stationary at 1%. Since size was not stationary, it was omitted from the model and the rest of the analysis was carried out without bank size.

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4.3.2 Hausman Tests

The Hausman test was conducted for the model selection by comparing the fixed and random effect models. The hypothesis is that one of the models compared gives consistent, and efficient results while the other gives inconsistent and inefficient results. The null hypothesis for panel data estimation is the random effect, which implies that the error term and independent variables are uncorrelated, while the alternative is the fixed effect model.

Table 4. 3: Hausman Test Results

	Coefficients		Difference	S.E.
	Fixed	Random		
CAR	0.22	0.11	0.11	0.06
ICR	0.00	0.00	0.00	0.00
BLB	-0.14	-0.15	0.01	0.03
EFF	-0.64	-0.57	-0.07	0.03
yr2	-0.02	-0.12	0.10	.

Chi-square Statistics = 6.32, DF= 5, p-value = 0.2760, Decision= Random Effect

Table 4.3 shows Hausman test findings. The findings show that chi-square statistics (6.32) was not significant at 5% (p=0.276).

Thus, the null hypothesis of fixed effect and random effect consistency is accepted. The random effect is chosen and suitable for the model.

4.3.3 Robustness Check

Before the model is finally estimated, three tests were conducted. The Breusch and Pagan Lagrangian multiplier test for random effects is used to confirm the random effect mode.

The model is then tested for heteroscedasticity and autocorrelation using the Breusch-Pagan test and Wooldridge test for panel data respectively.

Table 4. 4: Robustness Check

Post Diagnostic Tests	Statistics	P-value
Breusch and Pagan Lagrangian multiplier test for Random effect	27.85	0.00
Breusch-Pagan test for heteroscedasticity	15.87	0.00
Wooldridge test for autocorrelation	344.96	0.00

The Breusch and Pagan Lagrangian multiplier test for random effects verified the analysis's random effect model (Table 4.4). Test the null hypothesis of the unsuitable random effect model against the appropriate random effect hypothesis. Table 4.4 rejects the null hypothesis with test statistics and p-value (27.85, p-value=0.00). This suggests the data fits the random effect.

Next, heteroscedasticity was assessed on the random effect model. The null hypothesis of homoscedasticity (equal error variance) was tested against heteroscedasticity. The test results and p-value (15.87, 0.00) reject the null hypothesis, indicating that the error terms have unequal variance. The Wooldridge test for autocorrelation rejects the null hypothesis of no first-order autocorrelation, demonstrating autocorrelations.

4.4 Model Estimation

Based on the post-estimation analysis, the random effect model, the robust estimation of the model is evaluated since there is evidence of heteroscedasticity. The random effect model may likely give a biased estimation and hence the robust estimation of the model is conducted. The result of the final model is provided in Table 4.5.

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Table 4. 5: Robust Estimation of the Model

Variables	FS
CAR	-0.0644
	(0.111)
ICR	-0.00553**
	(0.00218)
BLB	-0.201***
	(0.0668)
EFF	-0.418***
	(0.0871)
INF	-1.436
	(1.199)
GDP	-1.874
	(2.667)
Constant	1.718***
	(0.285)
Wald chi2(6)	3.00
Prob > chi2	0.00
Observations	68
Number of groups	17

Robust Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

The results from the model estimate show that the capital adequacy ratio negatively impacts financial stability, but was not significant ($\beta = -0.0644, -value > 0.05$). Interest cover ratio negatively and significantly affects financial stability ($\beta = -0.00553, -value < 0.05$). Bank lending rate is shown to negatively and significantly affect financial stability ($\beta = -0.201, p - value < 0.05$). In addition, financial stability is negatively and significantly impacted by the efficiency of banks ($\beta = -0.201, -value < 0.05$). The result also shows that GDP, inflation and interest rates negatively affected the stability of banks but were insignificant.

4.5 Discussions

The financial stability determinant results are intriguing. All issues negatively affected commercial bank financial soundness throughout the time. However, interest cover ratio, bank lending behavior, and bank efficiency are major factors of bank financial stability and negatively affect it. This suggests that commercial banks' financial stability decreased as their ICR, lending behavior, and ―cost to income ratio‖ (efficiency) grew.

Bank lending rates affect credit risk because higher rates increase default risk. This suggests that when banks over lend, as in the research where 66% of commercial banks' assets are loaned, their capacity to satisfy financial commitments is weakened. Especially when bank loan default risk is significant. This may explain the negative link since loan repayment and default

rates affect the bank's financial soundness. Ameer (2015) and Sarita et al. (2012) found a negative link between bank lending and financial stability, contrary to Rozzani and Rahman (2013).

Bank financial health was mostly determined by debt repayment (Interest cover ratio). Bank debt might include interest payments from clients, debt from other banks, and other expenses.

Financial instability will emerge from banks' failure to service debt or having more debt. The unfavorable link between Ghana and the time may be due to high debt and poor payback rates. Pescatori and Laseen (2016) demonstrate a negative link, however Ajello et al. (2016) disagree.

Higher bank efficiency was associated with worse financial stability over the era. Higher efficiency is predicted to increase bank financial stability, yet Ghanaian commercial banks in this research may not be stable. Ullah et al. (2021) showed bank efficiency negatively correlated with financial stability.

Capital adequacy ratio, GDP, interest rate, and inflation were also examined but found no correlation. The capital adequacy ratio was negative but negligible.

Some research suggests a positive association between capital adequacy ratio and bank financial soundness, while others show a negative relationship (Sarita et al., 2012). Others have shown that bank size, interest rate, and GDP positively impact financial stability (Alshubiri, 2017; Kiemo et al., 2019), whereas inflation adversely affects it.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The chapter summarizes and draws conclusions from the study's principal results. It also makes good advice for stakeholders on how exchange rate variations affect their financial performance.

5.2 Summary

The current Ghanaian banking crisis prompted the research to examine commercial bank financial stability determinants. 17 selected commercial banks were selected based on available data and the panel research design was used to obtain data for the selected banks between 2016 and 2019. The variables used in the study included financial stability (FS), capital adequacy ratio (CAR), interest cover ratio (CAR), bank lending behavior, efficiency (EFF), bank size (Size), inflation (INF), GDP growth (GDP) and interest rate (INT).

The results from the model estimate show that the capital adequacy ratio negatively impacts financial stability, but was not significant ($\beta = -0.0644, -value > 0.05$). Interest cover ratio negatively and significantly affects financial stability ($\beta = -0.00553, -value < 0.05$). Bank lending rate is shown to negatively and significantly affect financial stability ($\beta = -0.201, p - value < 0.05$). In addition, financial stability is negatively and significantly impacted by the efficiency of banks ($\beta = -0.201, -value < 0.05$). The result also shows

that GDP, inflation and interest rates negatively affected the stability of banks but were insignificant.

Efficiency, bank lending behavior, and interest cover ratio determined bank financial stability. The financial crisis at the time also contributed to these factors' detrimental impact on bank stability.

Most of the banks were lending at very high rates risking their financial standing with too high default rates. High debt repayment of the commercial banks also contributed to the instability of the banks as well as the efficiency of the banks which was unexpectedly negatively related to bank financial stability.

5.3 Conclusion

The financial stability of banks in Ghana must be considered using empirical findings. As the banking sector crisis demonstrated a total review of the operations of banks, some of which the studies have covered.

Based on the findings, it is concluded that bank efficiency, debt repayment and lending behavior are major factors that accounted for the general instability of the banks during the period. For instance, as one expected the efficiency of the banks to positively impact financial; stability, the case was rather the opposite.

The negative impact of bank efficiency (a measure of profitability) of banks indicates some violations of the regulation which the study identifies may be due to high lending rates and debt repayment pile-up.

The regulatory bodies (BOG, and SEC) must pay key attention to the variables to avert the second occurrence of financial instability in the banking sector.

5.4 Policy Implications and Recommendation

Based on the study findings, the following has been recommended for banks and regulators in the banking sector.

- The BOG must reexamine and regulate the lending behavior of banks by introducing an acceptable cap. This is because of the high lending rate of the banks as banks were on a lending spree during the period accounting for the instability of the banks. For banks, appropriate risk default assessment of customers must be heightened.
- The study found that banks had high debt repayments during the period which negatively affected their financial stability. Banks in Ghana should therefore control their debt by engaging in prudent investment, financial risk management and control measures to minimize their debt to an acceptable threshold.
- Finally, the study found efficiency negatively related to financial stability, which contradicts the expected results. There seems to be general misappropriation of funds when banks begin to see some level of profit. As was indicated by the BOG assessment of the causes of the collapse of some banks within the period, the misapplication of financial profits could explain the negative efficiency and financial stability nexus. Thus, the board of directors of banks, shareholders and regulators of the bank must devise safety measures during times of excessive profitability so that funds are not diverted.

5.5 Limitations of the Study and Recommendations for Future Studies

The research examined 17 commercial banks' financial stability factors in 4 years. Although the study's motivation was to capture the banking sector crisis,

a limitation of the study will be the inadequate extension of the period that was captured. Future studies should extend the period. In addition, the inaccessibility of data for some of the commercials poses a limitation to the study.

Future studies should consider extending it to cover all banks.

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