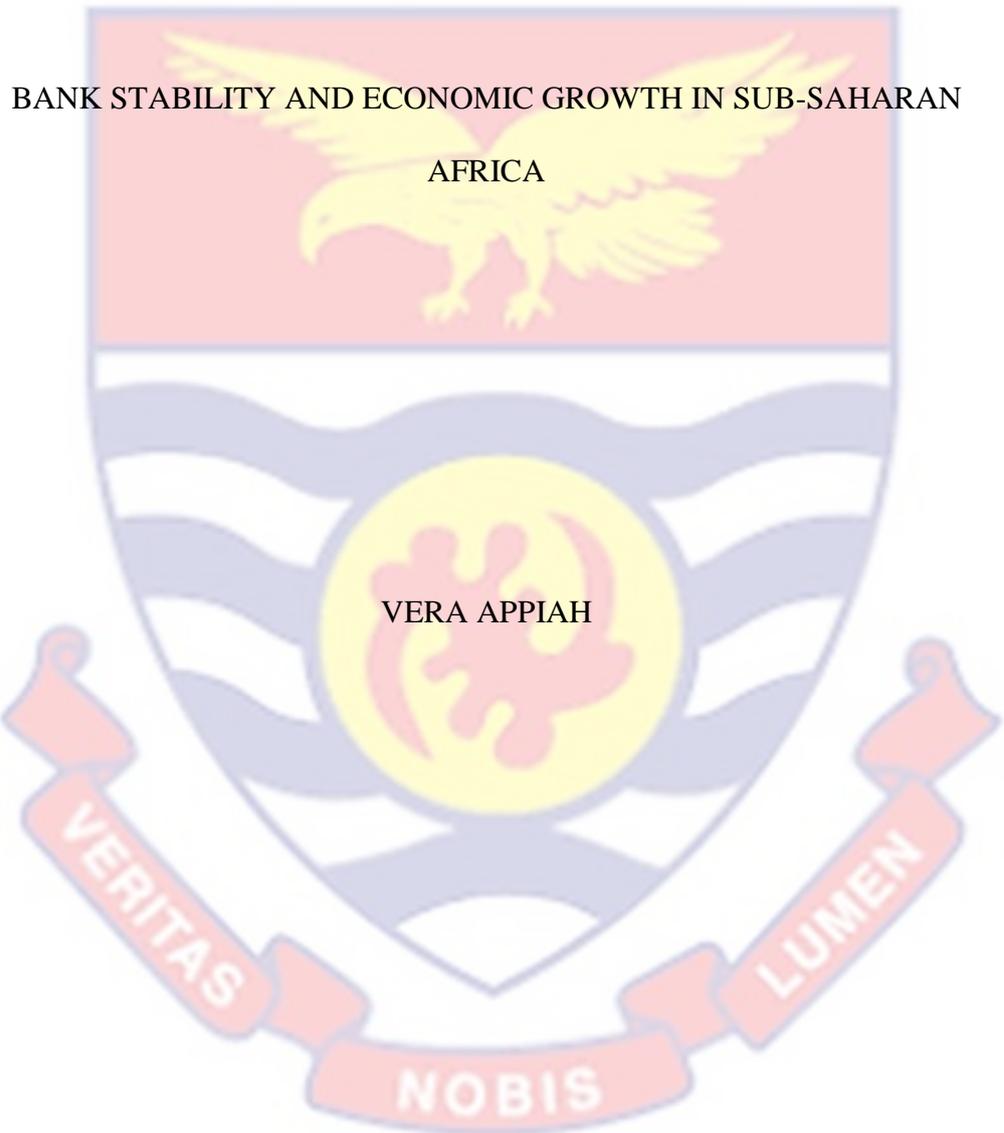


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BANK STABILITY AND ECONOMIC GROWTH IN SUB-SAHARAN

AFRICA

BY

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Business, College of Humanities and Legal Studies University of Cape Coast  
in partial fulfilment of the requirements for the award of Master of Business  
Administration degree in Finance

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## DECLARATION

### Candidate's Declaration

I hereby declare that this dissertation is the result of my own original research and that no part of it has been presented for another degree in this university or elsewhere.

Candidate's Signature ..... Date .....

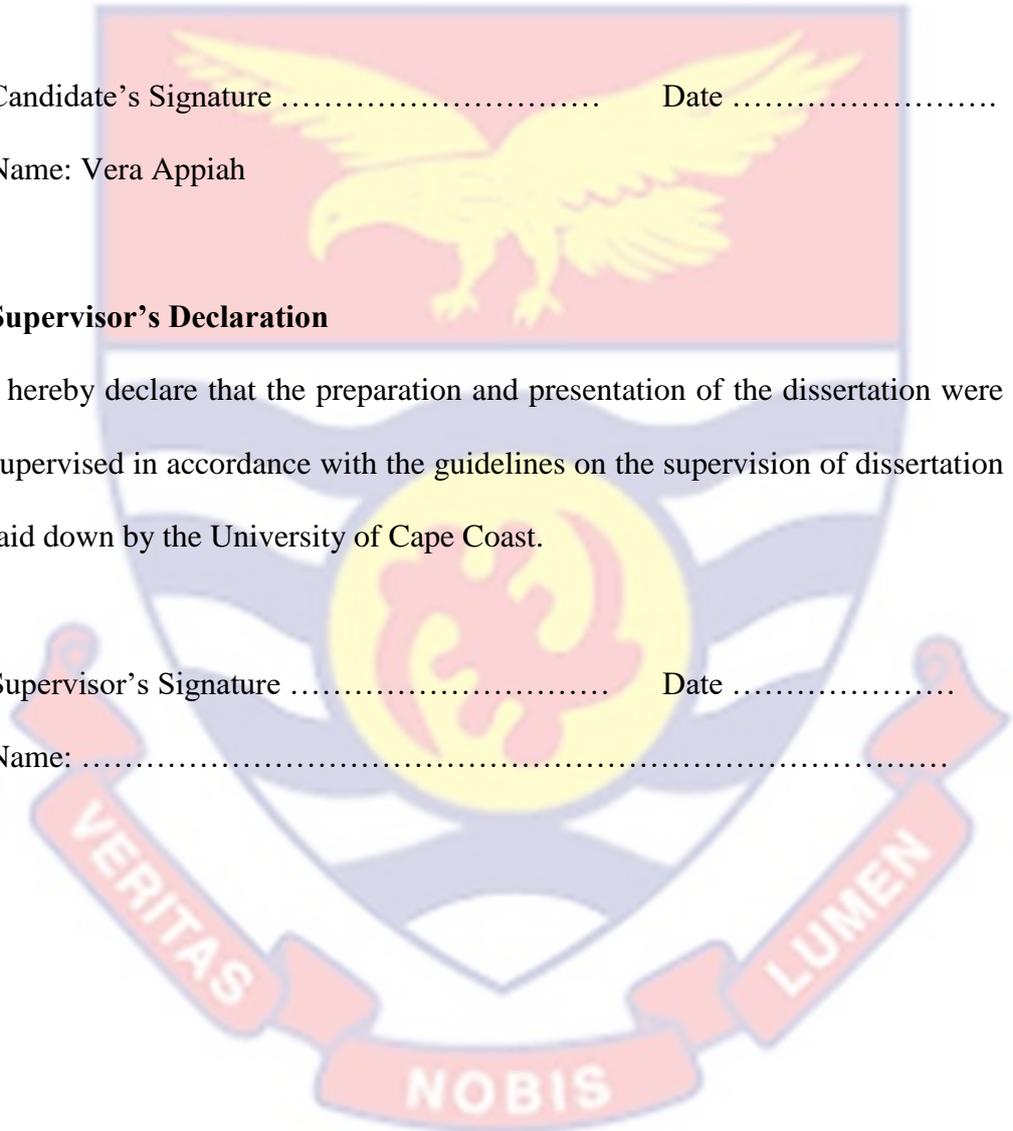
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### Supervisor's Declaration

I hereby declare that the preparation and presentation of the dissertation were supervised in accordance with the guidelines on the supervision of dissertation laid down by the University of Cape Coast.

Supervisor's Signature ..... Date .....

Name: .....



## ABSTRACT

The study determines the nexus between bank stability and economic growth in Sub-Saharan Africa. For the purpose of this study, both the short-run and long-run dimensions was captured to assess the influence of bank stability on economic growth. Through the explanatory research design and quantitative research approach, the analysis of the study were performed. The secondary data was utilised in a panel form, and span 2000 to 2017. Analysis of the study was conducted with the aid of the System Generalised Method of Moments (SGMM). The study sought to examine the role of bank stability in influencing economic growth. In this regard, the study's objectives were to examine the short-run and long-run relationships between bank stability and economic growth. The study reveals several findings that are significant and useful for policy. Findings from the study can be categorized into two: the short-run effect of bank stability on economic growth; and the long-run effect of bank stability on economic growth. Firstly, on the relationship between bank stability and economic growth, the study finds that the stability of the banking sector has a significant positive effect on economic activity. Secondly, the study finds that bank stability has a significant positive impact on economic growth in the long-run in SSA. It is recommended that governments in the Sub-Saharan African (SSA) countries and regulators must make attempts to improve regulations in the banking sector in terms of activity restriction and supervision to minimize bank risk taking behaviours in their economies so as to ensure a sustainable banking sector which can have a positive impact on economic growth.

## KEYWORDS

Stability

Economic growth

Sub-Saharan

Banking sector



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I am extremely grateful to my Supervisor for his invaluable advice, continuous support and patience during my academic study.



## DEDICATION

To my family



## TABLE OF CONTENTS

	Page
DECLARATION	ii
ABSTRACT	iii
KEYWORDS	iv
ACKNOWLEDGEMENT	v
DEDICATION	vi
LIST OF TABLES	ix
LIST OF FIGURE	x
CHAPTER ONE: INTRODUCTION	
Background to the Study	1
Statement of the Problem	8
Purpose of the Study	11
Research Objectives	11
Research Hypotheses	12
Significance of the Study	12
Organization of the Study	13
CHAPTER TWO: LITERATURE REVIEW	
Theoretical Review	15
Conceptual Review	18
Empirical Review	22
Conceptual Framework	33
Chapter Summary	33

CHAPTER THREE: RESEARCH METHODS

Introduction	35
Research Paradigm	35
Research Design	36
Research Approach	36
Data Collection Procedures	37
Data Source and Description	37
Estimation Procedures	37
Model Specification	38
Chapter Summary	39

CHAPTER FOUR: RESULTS AND DISCUSSION

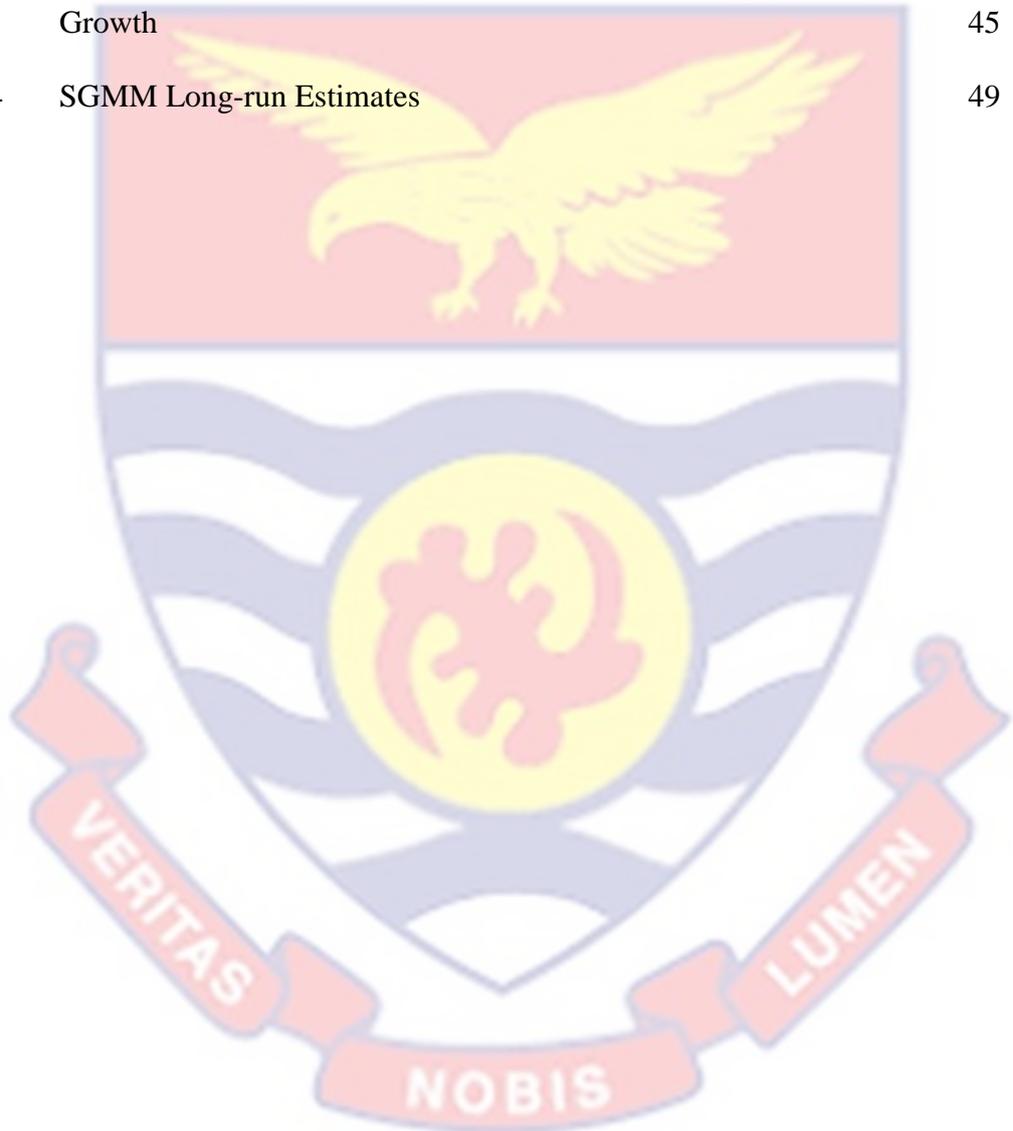
Introduction	40
Summary Statistics	40
Pairwise Correlation Analysis	42
SGMM Regression Estimates	44
Chapter Summary	51

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND  
RECOMMENDATIONS

Introduction	52
Summary of Findings	52
Conclusions	52
Recommendations of the Study	53
Suggestions for Future Research	53
REFERENCES	54

## LIST OF TABLES

Table	Page
1 Summary Statistics	41
2 Pairwise Correlation	43
3 SGMM Estimates of the Effect of Financial Stability and Economic Growth	45
4 SGMM Long-run Estimates	49



## LIST OF FIGURE

Figure	Page
1 Conceptual Framework of Bank Stability and Economic Growth	33



## CHAPTER ONE

### INTRODUCTION

With the proliferation of banking system interventions in recent years, the majority of researchers have channeled their efforts to understand the relationship between the banking system's stability and economic development. Stability in the banking sector of sub-Saharan Africa cannot be assessed outside the ambit of the Basel rules. The Basel rules are international rules on regulation and supervision which are set by the Basel Committee. The rules have evolved since its implementation coupled with the experience of the global financial crises in 2007-2008. In addition, the economic growth of sub-Saharan countries are mainly driven by the level of financial soundness of banks due to less development in both other financial and non-financial markets such as stocks, bonds, real estate and many more (Storm, 2018).

Again, the nexus between stability and economic growth can be found in both short-term and long-term perspectives, and may likely influence the possible outcomes of the study (Pradhan, Arvin, Nair, Bennett & Bahmani, 2019). The study therefore determines the nexus between bank stability and economic growth (EG) in sub-Saharan Africa. For the purpose of this study, both the short-run and long-run dimensions are captured to assess the influence of bank stability on economic growth.

#### **Background to the Study**

After the global financial crisis in 2008, the banking system has been vulnerable, and considered adverse to the wider economy. Wyman (2015) asserted that after the financial crisis, there has been advanced initiatives to reshape the rules governing the financial system. As a result, Monnin and

Jokipii (2013) posited that the banking system stability is imperative for future growth and sustainability. Extant literature has referred to the financial system of sub-Saharan Africa as bank-based due to the dominance of depository institutions in the region compared to the financial markets. This dominance has been a result of the presence of domestic banks, foreign banks and Pan-African Banks allowed by the financial liberalization policies implemented in the region.

Banks fulfill the role of intermediary by issuing surplus funds to borrowers. This implies that businesses and governments rely on banks to obtain credit. Banks, for example, tend to act as quality controls for capital seeking viable projects in successful economies, ensuring higher returns and boosting growth. It is for central bankers to do whatever they believe is required to achieve their monetary goals if the financial system is in crisis. Because of the less established capital markets in Africa and many developing nations, the banking sector remains the most important sector of the financial system and hence the primary source of risk for the entire financial system. The banking sector's stability is consequently critical in order to ensure the financial system's overall stability. Recent worldwide financial crises, which have resulted in bank failures, have prompted further discussion about industry stability.

According to Nyantakyi and Sy (2015), Africa's banking system has proved resilient. This resilience was characterised by the decrease in systemic banking crises since the late-nineties, its limited integration in international financial markets and improved governance. However, it was stated again that most regulatory and supervisory authorities are implementing Basel I

framework while other countries are implementing Basel III. In an assessment of the state of regulations of banks in Africa, they observed that: SSA banks' activities had restrictions although on relative grounds and that developing countries impose more regulations on capital compared to developed countries. On the assessment of policies regulating competition in the banking industry, it was observed that SSA (especially East Africa) has stringent rules towards foreign bank ownership and participation in the banking industry of countries; an implication that the SSA banking system has less competition unlike developed countries.

The stability of the banking sector in SSA as asserted in Nyantakyi et al. (2015) is true in the angle of the level of stringency on the level of completion. This was revealed by Dwumfour (2017) that stability in SSA could be threatened by the influx of foreign participation in the sector as less competition during crises period can help improve stability. It was again observed in Nyantakyi et al. (2015) that there are few restrictions on obtaining a banking license in all African regions. They also assessed the state of supervision of banks in Africa using three index measures of supervisory authority's effectiveness to supervise banks and implement structure measures; degree of independence from political influence, degree of protection on supervisory agency by legal systems from banking industry; and aggregate measure of the degree to which supervisory authority is independent of political inflow and legally protected from the banking industry. They found that supervisory authorities in SSA lack independence.

Stability in the banking sector of sub-Saharan Africa cannot be assessed outside the ambit of the Basel rules. The Basel rules are international

rules on regulation and supervision which are set by the Basel Committee. The rules have evolved since its implementation coupled with the experience of the global financial crisis in 2007-2008. Basel I, developed in 1988 and enforced in 1992, was published to regulate global banking by imposing a minimum capital requirement for banks. It focused primarily on credit risk and the appropriate risk-weighting of assets. It required a regulatory capital of 8% of banks' risk-weighted assets (RWA) as banks' commitment to absorb unexpected negative shock without damaging the financial system.

The soundness of a financial institution, the stability of financial markets, the absence of turbulence, and low volatility within a sector are all examples of financial stability (Schinasi, 2004). These are essential components of a well-functioning financial system. Following the financial crisis of 2008, various changes aimed at restoring financial stability were implemented. Policymakers and the Basel Committee were driven by the financial crisis to enact regulations requiring financial firms to maintain adequate capital buffers.

The Basel Committee on Banking Supervision produced a document in December 2009 titled "Strengthening the Resilience of the Banking Sector" with the goal of preventing a repeat of the global financial crisis that occurred in 2008. (BCBS, 2009). Practitioners in the financial sectors dubbed the document "Basel III" later on. After it was discovered that an insufficient level of quality capital contributed to and intensified the global financial crisis in 2008, Basel III legislation was enacted.

Following consultation meetings and surveys, the member countries of the International Monetary Fund (IMF) agreed a set of basic measures known

as Financial Soundness Indicators (FSI) in 2001, which was later amended by the IMF in 2015. The idea of financial system stability or soundness plays a vital role in economic development, according to the FSI. Capital adequacy ratio, asset quality (i.e. NPL), and liquidity are among the FSI indicators. A strong financial sector is thought to be more resilient and less likely to trigger a crisis that puts pressure on income levels, which has thrown economic activity into turmoil.

Restraining stability in the banking sector to the framework of the Basel regulations, it could be viewed as the condition where financial institutions in the banking industry meet their regulatory capital requirement. Thus, the higher a bank's capital adequacy ratio beyond the regulatory capital, the more stable the bank becomes. If a bank is stable it is able to loan to businesses and individuals for investment. It is also able to enter into risky ventures that generate higher returns. These facilitate economic growth measured by Gross Domestic Product (GDP).

Hence, bank failures entail high social costs. Bank failures will cause the real economy to halt its credit financing, leading to macroeconomic failures (Bernanke, 1983). The payment processes and monetary policy mechanisms may also be affected by serious financial failures (Bernanke & Blinder, 1988). Additionally, along the lines of new growth theory, stability of the financial system can contribute to the effectiveness of FDI into economic growth either in the short-term or long-term depending on the nature of the economy (Stiglitz, 2000; Manu, Adjasi, Abor, and Harvey, 2011; Aizenman, Jinjara, & Park, 2013). However, in line with the endogenous growth theory, it may be difficult to tell for sure either what all of the growth factors are and

how they contribute to growth, or what is key to achieving and sustaining stability or a low rate of inflation (Bayar, Gündüz, & Sezgin, 2019). This indicates that studying the impact of bank stability directly on economic growth is of considerable value.

Empirical studies conducted on the relationship between financial stability and economic growth is blatant both in developed and developing countries. But the outcome has demonstrated some inconsistency highlighting the lack of consensus. For instance, Ijaz, Hassan, Tarazi, and Fraz (2020) investigated the impact of bank rivalry and financial stability on economic growth. In Europe, bank stability improves EG, according to the study. Economic growth slows during times of crisis, emphasising the importance of a strong banking system. Increased banking rivalry also boosts economic growth and financial stability, according to empirical evidence. This study provides a framework for banks and regulators to use to improve economic growth through financial stability.

Also, Stewart, Chowdhury and Arjoon (2021) probed into the impact of bank stability and economic growth. Findings from the study were surprising and provided major insights into the stability-EG relationship. The findings from the study underscored that regulatory capital-induced trade-off does not enhance the relationship between bank stability and EG. But when the innovative approach on the trade-off metric was employed, they documented strong support for the function played by regulatory capital in sustaining high levels of economic growth and stability. Findings on institutional quality reveals that it does not enhance the relationship between stability and EG, but improves the positive impact of regulatory capital.

Rakshit and Bardhan (2019) examined the influence of bank competition and financial stability on EG in Asia. Findings from the study divulge that the banking arena of South Asia is competitive as indicated by the projected values of the Lerner index and adjusted index. In addition, the combined effect of the interaction of banking competition and stability reveals a positive and significant impact on EG.

Furthermore, Bayer, Gunduz, and Sezgin (2019) examined the impact of banking sector instability and development on economic growth in a Turkish developing market. The banking sector's instability has been demonstrated to have a negative influence on a long-term economic growth. The rise of the banking industry, on the other hand, had a favourable impact on economic growth in the long run.

From the overwhelming results obtained by extant literature on the relationship between bank stability and economic growth, empirical studies have also been conducted in Africa with similar notion of inconsistency. For example, Ahulu, MacCarthy and Muda (2021), Ntarmah, Kong, and Gyan (2019), Balcilar, Gupta, Lee, and Olasehinde-Williams (2018), Anarfo and Abor (2020), in addition to other studies in Africa have provided tremendous outcome on the bank stability and economic growth relationship. This study aims to look explicitly at the influence of bank stability on SSA's economic growth that is demonstrating rapid growth convergence to provide more insights. For this reason, the short-term and long-term dynamics of the bank stability and economic growth nexus would be extensively considered in this study.

### Statement of the Problem

With the proliferation of banking system interventions in recent years, the majority of researchers have channeled their efforts to understand the relationship between the banking system's stability and economic development. Although some research focus on the economic growth impacts of banking system stability (Jayakumar, Pradhan, Dash, Maradana & Gaurav, 2018), others concentrate on the reverse or double-edge effects (Tongurai & Vithessonthi, 2018; Ajayi & Aluko, 2017). Jayakumar et al. (2018), for example, revealed that banking stability in European countries is a major driver of economic growth. Tongurai and Vithessonthi (2018) found a bidirectional relationship between the development of the agricultural sector and the development of the banking sector, but a unidirectional impact of the development of the industrial sector on the growth of the banking sector. The study therefore showed that the growth of the banking sector had a substantial influence on the development of the manufacturing sector, but not the other way around.

In addition, a number of empirical literature on the relationship between bank stability and economic growth have been conducted in Africa. Using the World Development Indicators, Ahulu, MacCarthy, and Muda (2021) examined the impact of financial stability on economic growth in Sub-Saharan Africa. The study found that, all other things being equal, financial stability accounted for 71.8% of the difference in a country's economic growth.

Also, Ntarmah, Kong, and Gyan (2019) used panel data models to examine the implications of banking system stability on economic

sustainability in 37 developing countries, focusing on fixed and random effects. It was discovered that banking system z-scores have a favourable impact on economic sustainability, whereas banking system regulatory capital and bank credit have a negative impact. Griffith-Jones (2016) also looked at how African low-income countries (LICs) may achieve financial stability and inclusive growth by looking at their financial systems and how they are regulated. It finds that, while financial sectors in African LICs may need to be developed to provide access to credit for small businesses and the poor, the pace of expansion should be moderate to prevent economically costly crises.

Balcilar, Gupta, Lee and Olasehinde-Williams (2018) investigated the influence of bank sectors on economic growth through a panel of 11 African countries. Panel causality tests were also used to investigate the insurance-banking-growth nexus. The findings revealed that the life insurance market and the banking industry complement each other, as well as the non-life insurance market and the banking sector. They discovered that, on the whole, the insurance and banking industries in Africa complement one other and have a favourable synergistic impact on economic growth.

A dynamic fixed-effect model was used by Manu, Adjasi, Abor, and Harvey (2011) to investigate the relationship between financial stability and economic growth in Africa. According to the report, financial stability aids economic growth. That instance, the outcomes of the study showed that capital sufficiency, liquidity, and asset quality all had significant long- and short-term effects on economic activity. The institutions involved, notably central banks and governments of African countries, should embrace measures that contribute to the financial system's stability, according to the paper.

The impact of financial regulation on financial inclusion in sub-Saharan Africa was explored by Anarfo and Abor (2020), who took into account the moderating role of financial stability. They discovered that strengthening prudential regulations could have a negative influence on access to finance, therefore contradicting with sub-Saharan African economies' financial inclusion aspirations, after examining the relationship between financial inclusion and the most prominent macro-prudential regulation. Financial inclusion is positively influenced by the relationship of financial regulation and financial stability, according to the findings. As a result, financial stability works in tandem with financial regulation to boost financial inclusion.

Despite researchers' attempts to assess the effects of banking stability on macroeconomic stability indicators, the literature is much less explicit as to whether or not the stability of the banking sector is a significant driver of economic growth or a slowdown in the short or long-term (Bayar, Gündüz, & Sezgin, 2019). Examining the nexus in the short as well as long-term would inform periodic policy decisions.

It is also difficult to differentiate cause and effect in the association between the financial sector and the real economy (Hilbers & Snellen, 2005). However, these studies show that the correlation between the stability of the banking sector and economic activity is of particular importance to policymakers as it is one of their foundations for making economic forecast decisions on monetary policy.

Based on five different variables that overlap macroeconomics and finance (Christiano, Motto & Rostagno, 2010), financial stability and

economic growth interactions are said to occur. The factors are asymmetric knowledge and agency issues in financial contracts, the probability of rapid and drastic re-appreciation of market risk, credit supply changes as a vital mechanism through which systemic market risk becomes, conditions of bank financing as major determinants of Bank lending decisions, and central banks' liquidity as a market substitute. Such shifts in the liquidity priorities of banks can become a major cause of disruption to the broader economy.

These studies looked at the financial sector as a whole. But, given the recent banking crises in some countries, such as Ghana, it would be of great benefit to narrow down the banking industry's ability to figure out how the stabilization systems that could arise in the sector can continue to influence other sectors within the financial industry as well as the economy as a whole. The effort to narrow down explicitly to the banking sector would also help to assess the degree to which economic growth across the country is influenced by stability in the sector. Therefore, this study aims to look explicitly at the influence of bank stability on SSA's economic growth.

### **Purpose of the Study**

The purpose of this study is to examine the effect of bank stability on economic growth in sub-Saharan Africa in both short-run and long-run perspective.

### **Research Objectives**

The research would be guided by the following research objectives to:

1. Analyse the short-run relationship between financial stability and economic growth.

2. Examine the long-run relationship between financial stability and economic growth.

### **Research Hypotheses**

The following research hypotheses are to be tested:

1.  $H_0$ : There is a significant positive short-run relationship between financial stability and economic growth.
2.  $H_0$ : There is a significant positive long-run relationship between financial stability and economic growth.

### **Significance of the Study**

The significance of this study is of interest to several stakeholders which include research analysts, investors and regulators. The first point is that this study contributes to empirical literature that explore the relationship between financial stability and economic growth. The second point is that panel analysis is used to examine how economic growth is affected by financial stability of banks. This would enable the study reveal the extent of short-run or long-run relationship between banking sector stability and economic growth, and further address the presence of dependence among countries of interest. Moreover, by assessing the influence of banking stability within the framework of sub-Saharan countries, the paper provides novel insights in the field by taking into consideration the impact of uncertainties in the financial system. The final point is that the findings of this study should inform sub-Saharan central banks and other financial regulatory authorities on policies that would result in the successful operation of the banking system and the advancement of economic growth respectively.

### **Delimitation**

The study is conducted on SSA economies without considering other countries found in other parts of Africa. Analysis of the study covers the period between 2000 and 2017. This ignores most recent years in the analysis. However, the period is selected based on consistent data availability for the selected SSA economies. The study included variables such as economic growth, financial stability, foreign direct investment, inflation, exchange rates, labour, gross fixed capital formation and energy consumption. Consequently, it ignores all other variables that have a corresponding direct influence on economic growth. The study did not also interact the relationship between financial stability and economic growth with any other variable. It however, examined the short-run and long-run relationship between economic growth and financial stability in SSA.

### **Limitation**

Analysis of the study are performed with the aid of the System Generalized Methods of Moments (GMM). However, the study could have also tested for fixed and random effect in addition to the GMM to reveal hidden relationships. In addition, the pooled mean group estimation of dynamic heterogeneous panel could have been employed. However, the GMM estimation technique was selected for the analysis due to minimal number of years employed for the analysis as found in prior studies (Kahouli, 2019; Kahouli, 2017; Shahbaz & Lean, 2012).

### **Organization of the Study**

This study would be structured into five chapters. Chapter One of the study presents problem description, research issue, research goals, study

significance. The related literature review on bank stability and economic growth in SSA and the theoretical context are presented in Chapter Two. The selection of the most effective research methodology for this research is discussed in Chapter Three. Data interpretation, observations and discussions are discussed in Chapter Four. Finally, Chapter Five includes a description of the observations, conclusions and suggestion.



## CHAPTER TWO

### LITERATURE REVIEW

The related literature was based on theoretical, conceptual and empirical reviews. The theory of economic growth and stability were analysed to have a clear connection between financial stability and economic growth. The chapter further provided the conceptual framework based on the research objectives and the related theoretical justifications. Chapter summary was then presented in relation to the overall discussion of the chapter under consideration.

#### **Theoretical Review**

##### **New Growth Theory**

According to the new growth hypothesis, a country's economy can grow quicker towards its long-term goals if its internal structures are sensitive and responsive to attracting foreign direct investment (FDI) (Greenwald & Stiglitz, 1987). The FDI will not boost economic growth unless the country has established the ability to absorb foreign direct investment and channel it into growth (Idun, Aboagye, & Bokpin, 2020). FDI can also take the form of transfer of new knowledge and technology, which can boost economic growth (EG). Weak governance and inflexible financial systems can stifle the impact of FDI on EG. On the other hand, stability of the financial system can contribute to the effectiveness of FDI into economic growth either in the short-term or long-term depending on the nature of the economy (Stiglitz, 2000; Manu, Adjasi, Abor, and Harvey, 2011; Aizenman, Jinjara, & Park, 2013). In this regard, the study examines both the short-run and long-run impact of financial stability on EG.

## Endogenous Growth Theory

Thanks to Romer (1986) and Lucas (1988), endogenous growth theory (EGT) has prompted a welcome renaissance of interest in the drivers of long-term growth. In contrast to neoclassical theory, which assumes that technological development is external, EGT has the advantage of articulating the mechanisms that cause technological progress (Pack, 1994). In particular, the formulations of Romer (1990) provide important insights into the link between R&D and growth and place them inside a general equilibrium growth model. They create an internally consistent relationship between aggregate growth theory and the R&D literature pioneered by Griliches (1958). Capital and labor markets, as well as imperfect markets for manufactured inputs that allow enterprises to obtain rents from R&D, and the economy's now endogenous growth rate, are all related, according to Pack (1994).

Long-term economic growth output, according to Maddison (1995), is due to three key causal factors that increase per capita production: technological advancements; physical capital accumulation; and integration of global economies in terms of trade in goods and services, investment, and entrepreneurial engagement. The fourth aspect includes the following elements: the relative scarcity or abundance of natural resources; economic size; systemic change. The theoretical treatment of how economic growth could be promoted through financial intermediation was carried out through studies from several unique perspectives (Trew, 2008; Bayar, Gündüz, & Sezgin, 2019; Bayar, Borozan, & Gavriletea, 2021). The relationship between financial uncertainty and economic progress has been the subject of some theoretical investigations (Čihák, Bauducco & Bulíř, 2008). Greenwood and

Jovanovic (1990) created a model for financial intermediation that describes the processes by which financial intermediaries can invest more productively than individuals because they are better equipped to spot investment opportunities that enable economic growth. Trew (2008) established a conservative finance and growth model that included microeconomic friction in entrepreneurship as well as a position for credit limits. This demonstrates that while there will always be an efficiency-growth correlation, there may not be an efficiency-depth-growth relationship.

Economic growth and stability are two extremely complex phenomena, such that even today, in spite of a highly established economic theory, it is difficult to tell for sure either what all of the growth factors are and how they contribute to growth, or what is key to achieving and sustaining stability or a low rate of inflation (Bayar, Gündüz, & Sezgin, 2019). The advancement of the endogenous growth theory has specifically integrated human capital into conventional growth theories, and the advancement of the institutional economy.

In the absence of a possibly universal growth theory, all governments attempting to raise the growth rate while preserving stability are trying to find their way into this largely unknown region, theoretically and empirically (Sobiech, 2019). The same is true of international financial institutions seeking to ensure the global economy's growth and stability (Lane & Milesi-Ferretti, 2018). In this context, a relatively firm position has been established, which is empirical rather than theoretical. It is necessary that attention is paid to macroeconomic stability and structural adjustment policies at all levels of economic policy implementation, which are used in an attempt to influence

main growth drivers such as savings, physical and human capital expenditures, capital efficiency and technological innovation.

From the aforementioned theoretical justifications, the economic growth of sub-Saharan countries is mainly driven by the level of financial soundness of banks due to less development in both other financial and non-financial markets such as stocks, bonds, real estate and many more (Storm, 2018). Again, the nexus between stability and economic growth can be found in both short-term and long-term perspectives, and may likely influence the possible outcomes of the study (Pradhan et al., 2019). Therefore, the study presents both the short-run and long-run nexus between financial stability of banks and economic growth.

## **Conceptual Review**

### **Banking sector stability**

Since the 18th century, literature has recognized the role of the banking sector in economic growth (Mhadhbi, Terzi, & Bouchrika, 2017). However, since the 1990s, there has been a new empirical literature in this area (Petkovski & Kjosevski, 2014; Bayar, Borozan, & Gavriletea, 2021). Levine (2005) identified five financial sector functions that aid economic growth: (i) ex-ante details about potential acquisitions and capital allocation; (ii) after providing credit, controlling investments and enforcing corporate governance; (iii) facilitating risk diversification, risk assessment, and trading; (iv) deposit mobilization and pooling, and (v) facilitation of goods and services trade.

As a result, it is commonly agreed in the literature that a stable banking sector mobilizes and allocates essential savings for enterprises' investment activities, so serving as a conduit for capital supply for economic development

(King & Levine, 1993). Albulescu and Ionescu (2018) confirmed that investor access to finance and investment decisions are made easier when the banking sector is stable. Its importance is magnified in post-transition Sub-Saharan African countries, which are more vulnerable to economic instability than developed countries (Bayar, Borozan, & Gavriletea, 2021). In countries with less banking market competition or a strong bank-firm relationship, banking stability contributes more to reducing economic uncertainty across lending and asset allocation networks (Fernández, González, & Suárez, 2016).

The soundness of a financial institution, the stability of financial markets, the absence of turbulence, and low volatility within a sector are all examples of financial stability (Schinasi, 2004). These are essential components of a well-functioning financial system. Following the financial crisis of 2008, various changes aiming at restoring financial stability were implemented. Policymakers and the Basel Committee were driven by the financial crisis to enact regulations requiring financial firms to maintain adequate capital buffers.

Financial crises are more likely to develop from an unstable financial sector, according to Schinasi (2004), while a stable financial sector is more robust and will greatly increase economic growth in numerous ways. A stable financial sector has a high capital adequacy ratio, increased liquidity, reduced investment risk, and increased capital accumulation. Economic growth will be aided greatly by financial stability.

García-Cicco and Kawamura (2014) separated the theoretical link between financial stability and economic growth into five macroeconomic and financial concerns. The five dimensions are as follows: information

asymmetry and agency issues in financial contracts; economic downturns caused by an unanticipated increase in market risk; credit supply changes that have a negative impact on market risk and make it systemic; the disadvantage of making internal money creation a key factor in lending decisions; and the long-term effect of central bank liquidity policy on bank liquidity preference changes, which was a major cause of the financial crisis (García-Cicco & Kawamura, 2014).

The significance of these five dimensions is that a developed financial sector that adopts appropriate technological innovation will attract foreign direct investment and can efficiently distribute economic resources between surplus and deficit entities while also pooling individual savings to positively affect economic growth (Havi & Enu, 2014). However, many of the SSA banking sectors have remained underdeveloped as a result of government-controlled policies that have stifled financial development in comparison to advanced economies (Ahulu, MacCarthy, & Muda, 2021). The advanced economies have well-developed and stable financial systems, which help them advance economically. Rather, financial stability necessitates the relaxation of controls, the restructuring of distressed banks to make them solvent, and the formulation of policies to provide proper sector oversight (Ahulu, MacCarthy, & Muda, 2021).

Several studies have found that a stable financial sector has a positive impact on economic development and growth. A sound financial system provides a conduit for channeling household resources into value-creating investments, monitoring borrowers to improve efficiency, assisting agents in pooling, sharing, and diversifying risk, and facilitating trade. Beck (2012) has

presented literature on the financial stability and economic growth nexus, (Levine, 2005; Demirgüç-Kunt, 2008; Levine, 1997).

### **Indicators of bank stability**

Most researchers use a variety of indicators to proxy for banking sector stability (Petkovski & Kjosevski, 2014; Kocisova, 2015; Creel, Hubert, & Labondance, 2015; Marwa & Zhanje, 2015; Prochniak & Wasiak, 2017; Asteriou & Spanos 2018). Banking sector stability represents the system's volatility or soundness in such circumstances by representing factors that would ensure banking stability. As a result, they take different approaches. The World Economic Forum, for example, measures the bank soundness index based on a public opinion survey in which respondents evaluate the banking sector's stability. Most analysts, however, consider macro-level data such as “capital adequacy or nonperforming loans”, as well as various measures of banking sector efficiency, for the same reason. The third research line aims to develop a composite metric that takes into account various “indicators of banking efficiency, asset quality, and management quality or the banking system's exposure to risk” (Kocisova, 2015, p. 7).

Financial sector domestic credit, market capitalization of listed enterprises, stock turnover ratio, and monetization ratio were used by Prochniak and Wasiak (2017) to measure financial growth and stability. The banking stability index was established by Kocisova (2015) based on measures of bank financial strength (performance). From 1996 to 2014, Jayakumar et al. (2018) examined the relationships between banking competition, banking stability, and economic growth using the following metrics: bank capitalization, Z-index, provision of non-performing loans, and private credit.

To summarize, banking sector stability is primarily studied in the context of financial stability in the literature.

### **The relationship between banking sector stability and economic growth**

Although banking development is well placed in the literature on economic growth, there has been a lack of attention to the banking stability dimension. Analysis has concentrated on the bases of banking crises, with minimal work in the discussion of economic growth bringing banking stability. Carbo-Valverde and Sanchez (2012) analyzed data from a restricted group of European countries to show that financial turmoil is slowing and, in some cases, reversing the influence of financial advancement on economic growth over the period 1980-2009. In the period from 1973 to 2007, Carlson, Lewis and Nelson (2014) used US data to demonstrate that “financial distress impedes economic growth by decreasing lending and investment.”

However, these studies lacked a direct examination of the impact of banking stability on EG. In addition, bank failures resulting in financial crises entail high social costs. Bank failures will cause the real economy to halt its credit financing, leading to macroeconomic failures (Bernanke, 1983). The payment processes and monetary policy mechanisms may also be affected by serious financial failures (Bernanke & Blinder, 1988). This indicates that studying the impact of bank stability directly on economic growth is of considerable value.

### **Empirical Review**

#### **Studies in Africa**

Using the World Development Indicators data, Ahulu, MacCarthy, and Muda (2021) examined the impact of financial stability on economic growth

in sub-Saharan Africa. The Hausman test was used to choose random effect estimator over fixed effect estimator to analyze the relationship between the variables in order to find the right model that best fits the data. The influence of financial stability on economic growth in sub-Saharan Africa was predicted using panel data collected from 2010 to 2019. The study found that, other things being equal, financial stability accounted for 71.8% of the difference in a country's economic growth. It was advised that financial regulators in sub-Saharan Africa develop prudential rules that target both monetary and fiscal policies, as well as market discipline, in order to achieve stronger economic growth.

Ntarmah, Kong, and Gyan (2019) used panel data models to examine the implications of banking system stability on economic sustainability in 37 developing countries, focusing on fixed and random effects. It has been discovered that banking system z-scores have a favourable impact on economic sustainability, whereas banking system regulatory capital and bank credit have a negative impact.

Griffith-Jones (2016) looked at how African low-income countries (LICs) may achieve financial stability and inclusive growth by looking at their financial systems and how they are regulated. The research is based on a review of the literature as well as in-depth case studies in Kenya, Nigeria, Ghana, and Ethiopia. It finds that, while financial sectors in African LICs may need to be developed to provide access to credit for small businesses and the poor, the pace of expansion should be moderate to prevent economically costly crises. Furthermore, public development banks must play a larger role in structuring transformation financing.

Balcilar, Gupta, Lee, and Olasehinde-Williams (2018) investigated the influence of bank sectors on economic growth through a panel of 11 African countries. The 11 African countries were selected based on the ones most responsible for the activities of the continents' financial sector. Panel causality tests were also used to investigate the insurance-banking-growth nexus. The findings revealed that the life insurance market and the banking industry complement each other, as well as the non-life insurance market and the banking sector. They discovered that, on the whole, the insurance and banking industries in Africa complement one another and have a favourable synergistic impact on economic growth. In the relationship between the insurance sector and economic growth, as well as the relationship between the banking sector and economic growth, the feedback hypothesis was validated.

El Menyari (2019) investigated the impact of financial development and foreign bank penetration on EG of Africa. Through the quantitative research approach, analysis of the study was performed through the system GMM from 1995 to 2015. Findings from the study divulge that the entry of foreign banks have a significant positive impact on economic growth from economies in North and Southern Africa. On the other hand, the impact on nations found at the West, Central and East Africa was assessed to be negative and rarely significant.

Ozili (2018) reevaluated the elements that determine the stability of African banks. The loan loss coverage ratio, and level of financial development of banks all include four measures of banking stability, allowing for analysis of banking stability determinants from four perspectives: protection against downside credit losses, bankruptcy law risk distress, non-

performing loans, and financial development. A regression technique was utilized to evaluate the impact of financial structure, institutional, and bank-level factors on bank stability. “Banking efficiency, foreign bank presence, banking concentration, banking sector size, government effectiveness, political stability, regulatory quality, investor protection, corruption control, and unemployment levels are all significant determinants of banking stability in Africa,” according to the study, and the significance of each determinant varies depending on the banking stability proxy used and the analysis period: pre-crisis, in-the-middle-of-a-crisis, or after-the-fact.

Batuo, Mlambo and Asongu (2018) investigated financial instability, financial liberalization, financial development, and economic growth. This study was conducted in 41 African nations between 1985 and 2010. According to the study, financial development and liberalization have a positive impact on financial instability. According to the findings, economic growth reduces financial instability, and the degree of reduction is greater in the pre-liberalisation period than in the post-liberalisation period.

A dynamic fixed-effect model was used by Manu, Adjasi, Abor, and Harvey (2011) to investigate the relationship between financial stability and economic growth in Africa. According to the report, financial stability aids economic growth. That instance, the outcomes of the study showed that capital sufficiency, liquidity, and asset quality all had significant long- and short-term effects on economic activity. The institutions involved, notably central banks and governments of African countries, should embrace measures that contribute to the financial system's stability, according to the paper.

The impact of financial regulation on financial inclusion in Sub-Saharan Africa was explored by Anarfo and Abor (2020), who took into account the moderating role of financial stability. They discovered that strengthening prudential regulations could have a negative influence on access to finance, therefore contradicting with Sub-Saharan African economies' financial inclusion aspirations, after examining the relationship between financial inclusion and the most prominent macro-prudential regulation. The capital adequacy requirement, in particular, severely limits banks' ability to provide financial services, potentially leading to credit rationing and a reduction in financial inclusion. Financial inclusion is positively influenced by the relationship of financial regulation and financial stability, according to the findings. As a result, financial stability works in tandem with financial regulation to boost financial inclusion. One of the ways central governments and policymakers in Sub-Saharan African nations can promote and maximize financial inclusion is to establish policies aimed at lowering capital adequacy requirements and other restraints that limit financial institutions' operations and efficiency.

Anyanwu (2014) assessed the impact of economic growth in the North and sub-Saharan Africa. The period considered include only five non-overlapping three-year averages of cross-sectional data amid 1996 and 2010. Similar analysis is performed on China as a basis for comparison on trade, investment and aid relations. Domestic investment, net ODA inflows, education, government performance, urban population, and metal prices all have a positive and significant impact on Africa's economic growth, according to the study. Domestic investment, trade openness, beginning income, and the

proportion of the population living in rural areas are the main drivers of China's economic growth. Inflation, domestic credit to the private sector, net ODA inflows, population growth, telephone density, and oil and agricultural/raw materials prices are all factors limiting China's growth.

The empirical study of Mensah, Abor, Aboagye and Adjasi (2012) provides insights into the relationship between banking sector efficiency and economic growth in Africa. To assess bank efficiency, the paper used the stochastic frontier approach, which stated the banking sector cost function as a Fourier flexible. They then investigated the association between banking sector efficiency and economic growth using the Arellano–Bond GMM estimator. Annual financial accounts from the banking sector were utilized to calculate efficiency scores. The study concluded that the banking industry was 69 percent efficient in the sample. They also discovered a link between banking sector efficiency and economic growth, demonstrating the importance of banks in the economy.

Mishati and Nyamongo (2012) used a bank crisis model and a growth model to investigate the impact of financial liberalization on EG. It uses panel econometric approaches to analyze data from 34 nations in Sub-Saharan Africa from 1983 to 2008. The findings suggest that the growth-depressing consequences of financial liberalization outnumber the growth-enhancing effects, which are mixed. Institutional variables, human capital accumulation, and foreign aid are also major elements in explaining growth in Sub-Saharan Africa, according to the findings. As a result, the report suggests implementing a strategy of "managed financial openness" as well as institutional reforms.

### Studies performed elsewhere

Ijaz, Hassan, Tarazi, and Fraz (2020) investigated the impact of bank rivalry and financial stability on economic growth. As a result, from 2001 to 2017, the Boone indicator was used to evaluate bank competition at the country level, while Z-scores and the non-performing loan ratio were used to evaluate bank soundness. The study employed two analytical methods in its estimation to control unobserved heterogeneity, endogeneity, the dynamic influence of economic growth, and reverse causality: the fixed-effect estimator and the system generalized method of moment (GMM) estimator. In Europe, bank stability improves EG, according to the study. Economic growth slows during times of crisis, emphasizing the importance of a strong banking system. Increased banking rivalry also boosts economic growth and financial stability, according to empirical evidence. This study provides a framework for banks and regulators to use to improve economic growth through financial stability.

Also, Stewart, Chowdhury and Arjoon (2021) probed the impact of bank stability and economic growth. The study was conducted in on a global panel of over 100 countries from the period of 1995 to 2015. For this reason, the GMM was employed to analyse the data quantitatively through the explanatory research design. The study in addition, examined the impact of regulatory capital and institutional quality on the relationship between bank stability and EG. Findings from the study were overwhelming and provided major insights into the stability-EG relationship. The findings from the study underscored that regulatory capital-induced trade-off does not enhance the relationship between bank stability and EG. But when the innovative approach on the trade-off metric was employed, they documented strong support for the

function played by regulatory capital in sustaining high levels of economic growth and stability. Findings on institutional quality reveals that it does not enhance the relationship between stability and EG, but improves the positive impact of regulatory capital.

Rakshit and Bardhan (2019) examined the influence of bank competition and financial stability on EG. The study considered selected Asian economies from the period of 1997 to 2016. For this reason, a two-step estimation technique was employed. Bank completion was initially estimated through the Lerner index and adjusted index. Second, the joint effect of bank competition and stability were examined on EG through both the panel regression model and system GMM. Findings from the study divulge that the banking arena of South Asia is competitive as indicated by the projected values of the Lerner index and adjusted index. In addition, the combined effect of the interaction of banking competition and stability reveals a positive and significant impact on EG. The study concluded that bank competition and stability have a synergistic and long-term impact on EG.

Furthermore, Bayer, Gunduz, and Sezgin (2019) examined the impact of banking sector instability and development on economic growth in a Turkish developing market using monthly data from 2006 to 2018. The banking sector's instability has been demonstrated to have a negative influence on long-term economic growth. The rise of the banking industry, on the other hand, had a favourable impact on economic growth in the long run. The outcomes of the study were found to be consistent with previous research.

Karim, Al-Habshi and Abduh (2016) examined the relationship between macroeconomic variables and bank stability in Indonesia. The bank

stability was estimated via the z-score, and analysis was performed with the aid of the Autoregressive distributed lag (ARDL). The macroeconomic variables employed were – gross domestic product, interest rates and inflation. Analysis were performed for both commercial banks and Islamic banks. Findings from the study divulged that long-run relationship existed between the stability of the overall banking industry and macroeconomic conditions. In addition, there existed a long-run relationship between stability of commercial banks and macroeconomic variables with no evidence of long-run relationship for Islamic banks.

Gavalas (2015) goes on to look at the impact of Basel III capital enhancements on bank lending rates and loan growth for a group of European nations from 2003 to 2010. The study divided banks into two categories: those that encountered a crisis between 2007 and 2010 and those that did not. The findings show that increasing capital increases lending rates for both classification groups, while the effect is smaller for countries that have not experienced a crisis than for nations that have. Similarly, in both sub-samples, capital had a negative impact on loan growth. Given that the study period concluded in 2010, when countries were still struggling to recover from the financial crisis, it's plausible to assume that these decreases in loan growth and increases in lending rates are predicted consequences of the credit crunch that followed the crisis.

While the regulatory environment is critical for lowering bank risk-taking, Klomp and de Haan (2015) show that institutional quality has a favourable impact on bank stability. At lower levels of regulatory capital, institutional integrity may lessen information asymmetry and hence increase

stability (Bermpei, Kalyvas & Nguyen, 2018). Furthermore, institutional quality has been mentioned as an important factor in economic growth (Cavallo & Cavallo 2010). Higher levels of institutional quality, according to Cavallo and Cavallo (2010), may not directly promote economic growth, but they do minimize the consequences of crises on economic growth. Furthermore, according to the International Monetary Fund in 2003, higher-quality institutions provide a developmental environment that can boost long-term economic growth and growth stability. These findings show that expanding the institutional space may help to improve the trade-off between economic production and financial stability.

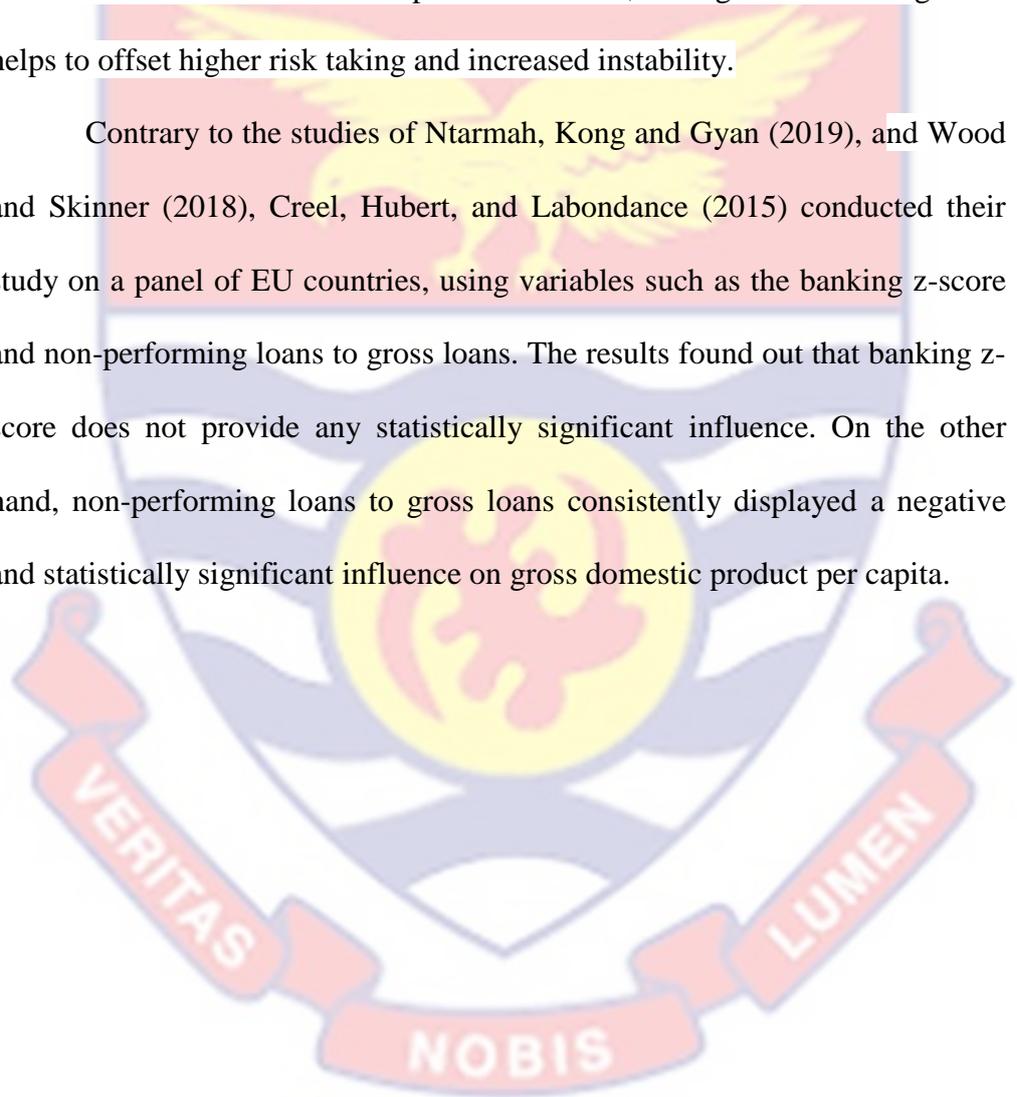
Similar to Bayer, Gunduz, and Sezgin (2019) employed a panel vector error-correction model (VECM) to explore the links between banking competitiveness, banking stability, and economic growth in a panel of 32 European countries from 1996 to 2014. The Granger causality direction between the variables was the focus of their study. According to the findings, both financial competitiveness and banking soundness have a significant long-term impact on economic growth.

Wood and Skinner (2018) studied the causes of non-performing loans in Barbados' commercial banks from 1991 to 2015, looking at both bank-specific and macroeconomic factors. Bank-specific features such as return on equity, return on assets, capital adequacy ratio, and loan-to-deposit ratio influence non-performing loans, while macroeconomic variables such as GDP growth, unemployment, and interest rate have a significant impact.

Soedarmono, Machrouh, and Tarazi (2011) investigated “whether Asian banks are still prone to moral hazard in the aftermath of the 1997 Asian

crisis.” Based on a sample of commercial banks from 12 Asian countries between 2001 and 2007, their findings suggest that increased market power in the banking industry leads to greater instability. In less competitive marketplaces, banks are more capitalized, yet their default risk is still higher. However, a closer look reveals that such behavior is influenced by the economic context. In less competitive markets, stronger economic growth helps to offset higher risk taking and increased instability.

Contrary to the studies of Ntarmah, Kong and Gyan (2019), and Wood and Skinner (2018), Creel, Hubert, and Labondance (2015) conducted their study on a panel of EU countries, using variables such as the banking z-score and non-performing loans to gross loans. The results found out that banking z-score does not provide any statistically significant influence. On the other hand, non-performing loans to gross loans consistently displayed a negative and statistically significant influence on gross domestic product per capita.



### Conceptual Framework

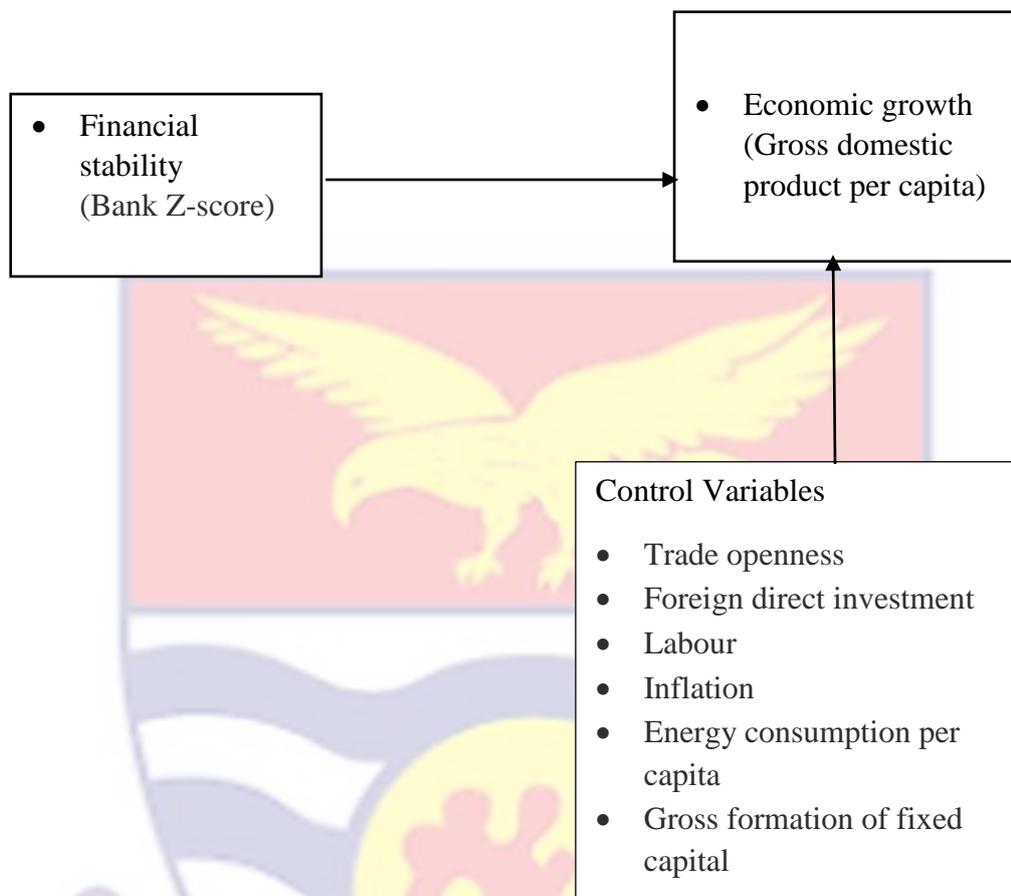


Figure 1: Conceptual framework of bank stability and economic growth

Source: Field work (2020)

### Chapter Summary

The chapter discussed the theory that links the objectives of the study, which is the theory of economic growth and stability. Also, conceptual reviews were performed to contribute to the conceptual definition of bank stability and economic growth. Moreover, various empirical studies, conducted both in Africa and elsewhere on the nexus between financial stability and economic growth were also considered. The study found diverse methodological techniques in assessing the relationship between stability and economic growth which had the tendency to influence most outcomes of

extant literature. To end with, the chapter presented the conceptual framework of the study which depicts the connection between bank stability and economic growth as well as the necessary control variables needed to facilitate reliable outcome.



## CHAPTER THREE

### RESEARCH METHODS

#### Introduction

This chapter presents the methodology the researcher employed for this study. The chapter deals with the systematic procedure the researcher employs to explain the bidirectional causality between financial stability and the economic growth nexus in SSA. To be precise, this chapter begins with the paradigm for this research, research design, research approach, definition, source and measurement of variables. The chapter also presents the model specifications and justifications as well as the method of data processing and analysis.

#### Research Paradigm

The research paradigm, according to Saunders, Lewis and Thornhill (2012), refers to the evolution of knowledge and the nature of knowledge. Simply said, a research paradigm is a set of assumptions about how researchers see the world, and these assumptions will drive the researcher's selected research strategy and methodologies. The positivist research paradigm is used in this study. The positivist approach to scientific research, according to proponents, entails conducting research into an observable social reality and then making law-like generalizations, similar to what physical and natural scientists do (Saunders et al., 2012).

Positivism is concerned with explaining social reality. The study uses positivism to assess financial stability and economic growth in Sub-Saharan Africa. Individuals' subjective opinions are not taken into account in the research. As a result, the mind that generates research questions, tests them

using statistical programs, and generates explanations for laws corresponds to the positivist perspective.

### **Research Design**

The study design might be descriptive, exploratory, or explanatory, depending on how researchers ask their questions, establish their hypothesis, and communicate their goal (Saunders et al., 2009). The explanatory research design is used in this study. Explanatory design is also known as "causal research design" in some books (Hair et al., 2011). The researcher's job is to distinguish such causes and determine how much they contribute to such consequences (Ghuri & Gronhaug, 2005). The goal of explanatory research, according to Saunders et al. (2009), is to explain the causal relationship between variables. The goal of this study is to determine the causal relationship between financial stability and economic growth in SSA, hence it uses an explanatory design.

### **Research Approach**

Every study requires a specific research strategy. According to Saunders et al. (2009), the research approach is the overall configuration of the research question/hypothesis and what types of subjects are obtained, from where and how to interpret them in order to produce a response or results to the hypothesis/questions. Creswell (2014) also identifies three key study methodologies. There are three types of approaches: qualitative, quantitative, and combined. Variables on financial stability and economic growth indicators are measured quantitatively in this study, therefore it takes a quantitative approach.

### **Data Collection Procedures**

The study illustrates how financial stability affects economic growth in sub-Saharan Africa. Secondary annual data on financial stability and other macroeconomic indicators for 45 SSA nations will be acquired from the Global Financial Development Database (GFDD) and the World Development Indicators (WDI), respectively, based on that premise. The 45 SSA nations were chosen based on the consistency of data availability for the variables of interest.

### **Data Source and Description**

The study employed annual panel time series data for sample of 45 SSA countries from 2000 to 2017. The data on the variables and the chosen countries were based on full data availability. The dataset was obtained from WDI includes gross domestic product per capita used as a proxy for economic growth. Financial stability is measured by Banks Z-score available on the GFDD. Data on the control variables, Trade Openness, FDI, Labour, Gross Fixed Capital Formation, and Energy Consumption were also obtained from the World Development Indicators (WDI).

### **Estimation Procedures**

Following extant studies of Kahouli (2019), Kahouli (2017), and Shahbaz, and Lean (2012), the study employs a dynamic panel estimation technique. This is because economic growth is affected by past year's behaviour and it is dynamic. Moreover, the study considers the reverse causality and control for endogeneity as well as country specific effect with our dynamic specification. Accordingly, this study employs the two-step system GMM estimators (Blundell, & Bond, 1998) with robust standard

errors. This is more efficient compared to the standard GMM (Baltagi, 2005). Additionally, the dynamic GMM is more efficient when the cross-sections are more than the time series ( $N > T$ ). The time period considered in this study is 18 years (2000 to 2017) which is lower than the 45 countries.

The GMM estimator solves the endogeneity problem by employing a set of instrumental variables. It also controls for heteroscedasticity and presents consistent estimates in the presence of heteroscedasticity. Nonetheless, the GMM estimator's consistency is dependent on the instruments' validity. There are two specification tests used: The Sargan/Hansen test of over-identifying limitations, for example, examines the null hypothesis that all of the instruments are exogenous and thus legitimate. Second, the investigation must test the null hypothesis that the differenced equation's error term is not serially correlated, especially at the second order (AR2). To reject these tests, the study must fail.

### Model Specification

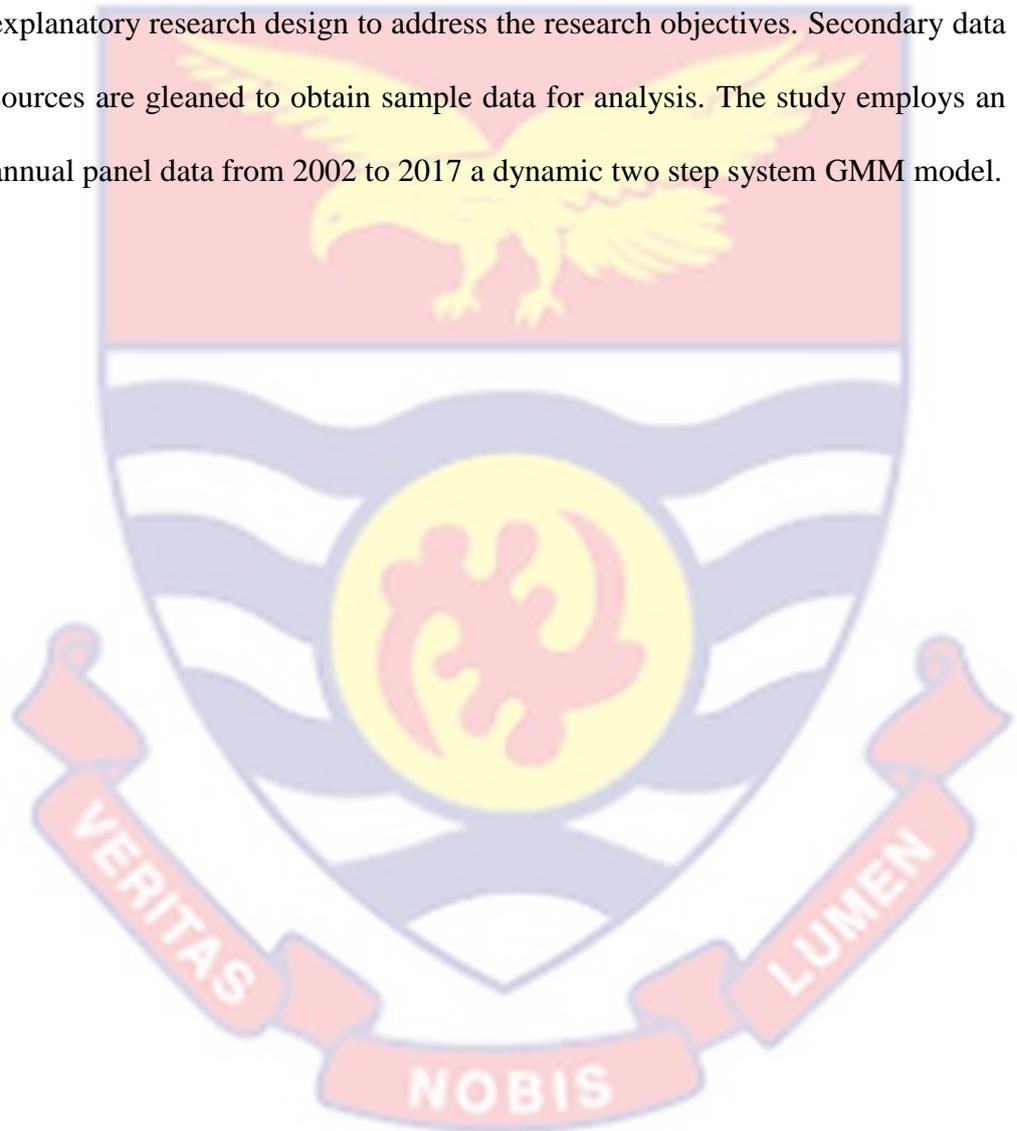
$$\begin{aligned} \ln GDPPC_{it} = & \alpha_{it} + \delta \ln GDPPC_{it-1} + B_1 \ln Bank\ Z\ Score_{it} + B_2 \ln TO_{it} + \\ & B_3 \ln FDI_{it} + B_4 \ln Labour\ Force_{it} + B_5 \ln GFCF_{it} + B_6 \ln INFL_{it} + \\ & B_7 \ln ECPC_{it} + u_i + \varepsilon_{it} \quad (1) \end{aligned}$$

Where  $\ln GDPPC$  is the natural log of Economic growth,  $GDPPC_{it-1}$  is first lag of Economic growth,  $\ln Bank\ Z\ Score$  is the log of financial stability,  $\ln FDI$  is the log of foreign direct investment,  $\ln TO$  is the log of trade openness,  $nLabour\ Force$  is the log of Labour,  $\ln GFCF$  is the log of Gross fixed Capital formation as a percentage of GDP,  $\ln INFL$  is the log of inflation, and  $\ln ECPC$  is the natural log of Energy Consumption. It should also be noted that  $i$  refers to the country ( $i = 1, 2, 3, \dots, 45$ );  $t$  refers to time

period from  $(t = 1, 2, 3, \dots, 18)$ ;  $u$  unobserved country-specific effect and  $\varepsilon$  is the error term assumed to be serially uncorrelated.

### Chapter Summary

The study aims at examining the effect of financial stability on EG of SSA countries. The study adopts a quantitative research approach and explanatory research design to address the research objectives. Secondary data sources are gleaned to obtain sample data for analysis. The study employs an annual panel data from 2002 to 2017 a dynamic two step system GMM model.



## CHAPTER FOUR

### RESULTS AND DISCUSSION

#### Introduction

This chapter primarily presents the results and the discussion of the outcome of the study. Specifically, the chapter begins with a presentation of the summary statistics on all the variables employed in the study. Next, the chapter reports the correlation matrix to explain the degree and direction of the association between the variables which aids in avoiding issues of multicollinearity in the empirical specification. Finally, the chapter presents the results and the discussion of the results estimated from the two-step SGMM model specified in the Chapter three.

The main variables considered in this study are Bank Z score as a proxy for bank stability and gross domestic product per capita as a proxy for economic growth. In addition to this, the study would control for trade openness, foreign direct investment, labour force, gross fixed capital formation, inflation and exchange rate which also have an impact on the determination of economic growth in economies.

#### Summary Statistics

The summary statistics of the variables are reported in Table 1 for the sampled 45 SSA countries from 2000 to 2017. This provides a glance of the state of the variables employed in the empirical analysis. It allows the researcher to ascertain the nature and distribution of these macroeconomic variables within the selected SSA economies. Specifically, the study reports the mean, standard deviation (Std. Dev), minimum (Min) and maximum (Max) of the variables that are employed in the study as shown in Table 1. As

a result, the outcome from Table 1 only provides descriptive account of the variables employed in this study rather than give an inferential outcome.

**Table 1: Summary Statistics**

Variable	Obs	Mean	Std. Dev.	Min	Max
Bank Z score	737	11.228	6.328	1.071	47.341
FDI	803	4.899	8.714	-6.057	103.337
TO	763	73.42	38.037	19.101	311.354
GDPPC	803	2026.653	3125.723	111.927	22942.583
ECPC	378	669.57	647.651	9.548	3129.079
Labour Force	792	7219428.1	9997605.1	43677	57856178
GFCF	736	21.703	9.351	1.097	79.462
INFL	741	9.162	27.401	-9.616	513.907

Source: Field Data (2021)

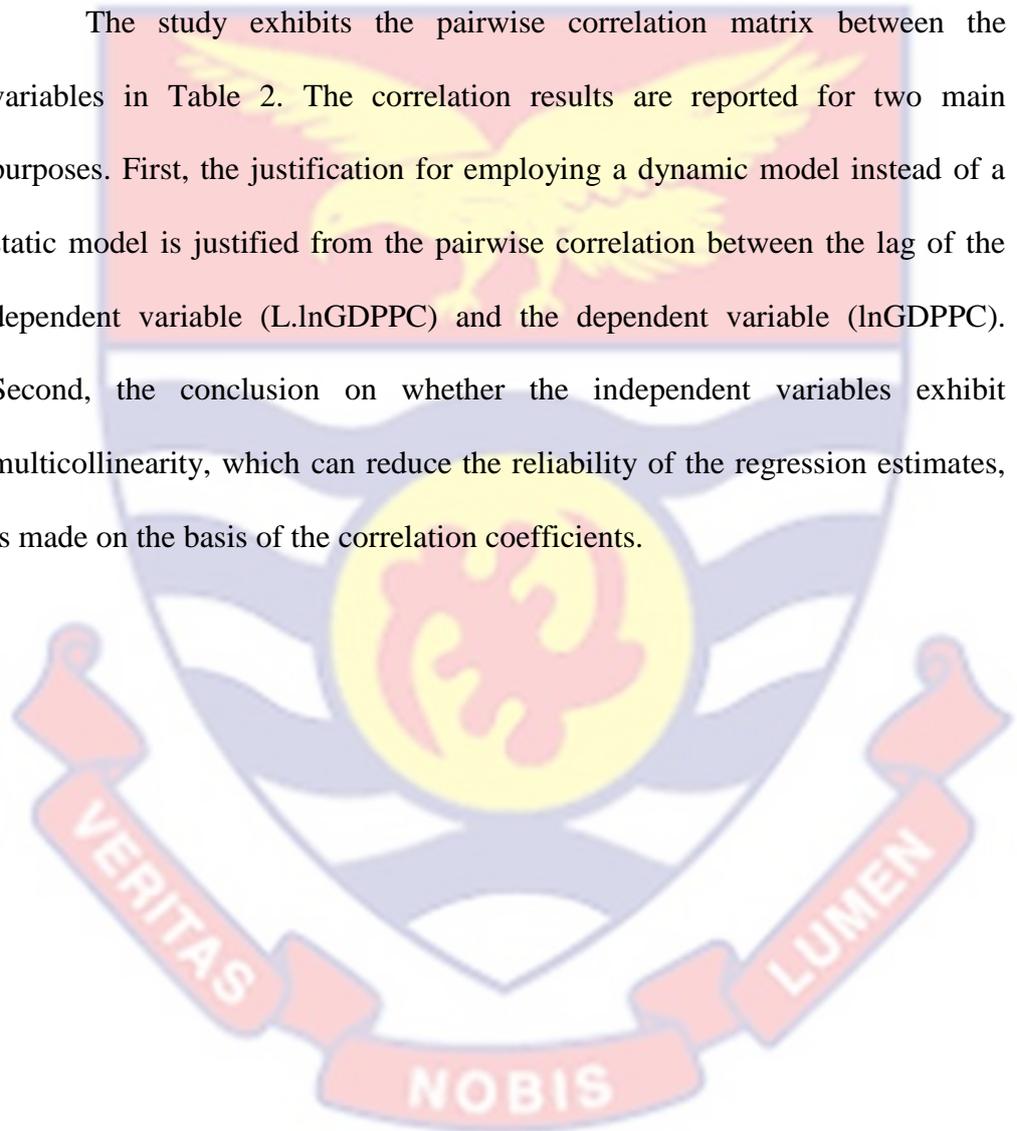
Note: TO represents Trade openness, GDPPC represents GDP per capita, ECPC represents Energy Consumption Per Capita, GFCFGDP represents Gross Capital Fixed Formation, and INFL represents Inflation.

The results exhibited in Table 1 show the average Bank Z-score (the proxy for financial stability) to be 11.228. This was within a range of about 1.07 and 47.34. Moreover, GDPPC had a mean of 2026.653 with a variation of 3125.723. Concerning the control variables, FDI inflows as a percentage of GDP in the selected countries approximates 5% which is also low. Prior studies of Agyemang, Gbettey, Gatsi and Acquah (2019) and Bokpin (2017) had documented an average FDI to GDP ratio of approximately 5% for the periods 2009-2015 and 1996-2011 respectively for African economies. Furthermore, trade openness (TO) as a percentage of GDP was about 73% for the sampled countries. Overall, the total labour force had the highest average and variation in the dataset. Followed by GDPPC. Finally, the mean of

Inflation (INFL) and energy consumption (ECPC) were 9.162 and 669.57 respectively. Following the study of Kahouli (2019), Kahouli (2017), and Shahbaz and Lean (2012), the logs of all the variables to take care of the non-linearity of the model and also to take control of the variations and outliers.

### **Pairwise Correlation Analysis**

The study exhibits the pairwise correlation matrix between the variables in Table 2. The correlation results are reported for two main purposes. First, the justification for employing a dynamic model instead of a static model is justified from the pairwise correlation between the lag of the dependent variable (L.lnGDPPC) and the dependent variable (lnGDPPC). Second, the conclusion on whether the independent variables exhibit multicollinearity, which can reduce the reliability of the regression estimates, is made on the basis of the correlation coefficients.



**Table 2: Pairwise Correlation**

Variables	lnGDPPC	L.lnGDPPC	lnBankZ Score	lnTO	lnFDI	Labour	lnGFCF	lnINF	lnECPC
lnGDPPC	1.000								
L.lnGDPPC	0.992***	1.000							
lnBankZ Score	0.178***	0.193***	1.000						
lnTO	0.520***	0.506***	-0.022	1.000					
lnFDI	0.210***	0.198***	-0.044	0.401***	1.000				
Labour	-0.344***	-0.347***	0.000	-0.476***	-0.169***	1.000			
lnGFCF	0.403***	0.384***	0.102***	0.374***	0.351***	-0.025	1.000		
lnINF	-0.171***	-0.178***	-0.038	-0.068*	0.089**	0.168***	-0.042	1.000	
lnECPC	0.616***	0.624***	0.041	0.300***	-0.036	0.025	0.151***	0.045	1.000

Source: Field Data (2021)

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

Note: TO represents Trade openness, GDPPC represents GDP per capita, ECPC represents Energy Consumption Per Capita, GFCFGDP represents Gross Capital Fixed Formation, and INFL represents Inflation. Finally, ln is the natural logarithm of all the variables.

Table 2 reveals that the dependent variable (lnGDPPC) exhibit a significant positive relationship with the lag of the dependent variable (L.lnGDPPC). The magnitude of the relationship (0.992) is very high. This implies that previous GDP is highly related to current GDP and therefore, static models cannot be employed to examine the phenomenon as GDP is very persistent and these models do not take into account the possibility that the lag of the dependent variable can influence the dependent variable (Idun, 2018). Furthermore, Table 3 also show that bank stability (Z-Score) exhibit a positive relationship with economic growth (lnGDPPC).

Further, it can be observed that the relationship between the control variables are quite low and do not also pose concern for multicollinearity. This is because the strength of the relationships are lower than 0.9 as suggested by Kennedy (2008). Also, the relationship between GDPPC and all the independent variables is statistically significant at 1%.

#### **SGMM Regression Estimates**

Following the pairwise correlation analysis, the study reports the two-step system GMM results. First, the study exhibits the results on the effect of financial stability on economic growth. Then the results of the long-run estimates are further reported. Lastly, the study presents a robustness test with a three stage least squares estimator.

**Table 3: SGMM Estimates of the Effect of Financial Stability and Economic Growth**

	(1) lnGDPPC
_constant	2.968*** (0.688)
L.lnGDPPC	0.858*** (0.0352)
lnBankZ Score	0.229*** (0.0244)
lnTO	0.243*** (0.0344)
lnFDI	0.0431*** (0.0150)
lnLabour	-0.167*** (0.0495)
lnGFCF	0.454*** (0.0802)
lnINF	-0.0156** (0.00593)
lnECPC	-0.354*** (0.0736)
AR(1)	0.032
AR(2)	<b>0.182</b>
Sargan OIR	<b>0.118</b>
Hansen OIR	<b>0.642</b>
<b>DHT for Instruments</b>	
(a)GMM instruments for levels:	
Hansen test excluding group	0.087
Difference (null H = exogenous)	<b>0.974</b>
(b)iv(Time, eq. (diff)):	
Hansen test excluding group	<b>0.632</b>
Difference (null H = exogenous)	<b>0.370</b>
Instruments	24
Groups	28
Countries	45
<i>N</i>	239

Source: Field Data (2020)

“Standard errors in parentheses”

“\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ ”

Note: TO represents Trade openness, GDPPC represents GDP per capita, ECPC represents Energy Consumption Per Capita, GFCFGDP represents Gross Capital Fixed Formation, and INFL represents Inflation. Finally, ln is the natural logarithm of all the variables. OIR represent Overriding Restrictions

### **Diagnostics of the model**

Although the GMM estimator solves the endogeneity problem by employing a set of instrumental variables and also presents consistent estimates in the presence of heteroscedasticity, the validity of the instruments determines the GMM estimator's efficacy and consistency. There are two specification tests used: The Sargan/Hansen test of over-identifying limitations, for example, examines the null hypothesis that all of the instruments are exogenous and thus legitimate. Second, the investigation must test the “null hypothesis that the differenced equation's error term is not serially correlated, especially at the second order (AR2).”

From the diagnostics shown in Table 3, the p-values for the Hansen and Sargan OIR are greater than 0.1. As a result, the study's null hypothesis that the instruments are valid is not rejected. Also, the study investigates the null hypothesis that the differenced equation's error term is not serially correlated, especially at the second order (AR2). The AR2 as shown in Table 3 also has the p-value above 0.1. Thus, the study concludes that there is no serial correlation. Further, it can be observed that the lag of GDPPC (1.lnGDPPC) exhibits a significant positive effect on GDPPC. The result also signifies that the GMM estimator is appropriate to examine the nexus.

### **Effect of Bank Stability and Economic Growth**

The SGMM short-run coefficient for the role of bank stability on EG is positive and statistically significant at 1% ( $\beta = 0.229$ ,  $p < 0.01\%$ ). This means that financial stability exhibits a positive influence on economic growth. The finding is not startling as the financial sector ensures efficient allocation of financial resources by facilitating the transfer of financial resources to

undertake productive investments in an economy. Hence, a stable financial sector is needed to facilitate investment in the real sector, which ultimately leads to growth in economies (Schumpeter, 1911).

Moreover, in the financial intermediation process, financial intermediaries also reduce information asymmetry and carry the burden that individual investors will encounter in assessing firms, managers, and conditions in the macroeconomic environment (Levine, 2005). Due to this function, they can identify and direct funds to entrepreneurs with higher chances of introducing a new production process and goods (King & Levine, 1993; Acemoglu, Aghion, & Zilibotti, 2003). In addition, banks also play a key role in corporate governance (Jensen, & Meckling, 1976). The monitoring role of banks through debt covenants with firms strengthens corporate governance structures which can affect economic growth. Aside from economizing the monitoring process, Anser et al. (2021) show that institutional monitoring by financial intermediaries ensures that capital rationing is reduced, resulting in increased productivity and growth. Furthermore, financial intermediaries play a key role in ameliorating risk, facilitating exchanges, and pooling savings which, in turn, results in growth in the real sector. Thus, a stable banking sector is needed to boost economic activity in the short-run.

These findings corroborate with studies who find that financial crisis negatively affect economic growth and a stable financial sector is needed to boost economic activity (Carré & L'œillet, 2018; Naik & Padhi, 2015; Anser et al., 2021; Nyasha & Odhiambo, 2015; Tang, 2020). Ahulu, MacCarthy, and Muda (2021) also found that, other things being equal, financial stability

accounted for 71.8% of the difference in a country's economic growth. Ntarmah, Kong, and Gyan (2019) discovered that banking system z-scores have a favourable impact on economic sustainability, whereas banking system regulatory capital and bank credit have a negative impact.

A dynamic fixed-effect model was used by Manu, Adjasi, Abor, and Harvey (2011) to investigate the relationship between financial stability and economic growth in Africa. According to the report, financial stability aids economic growth. That instance, the outcomes of the study showed that capital sufficiency, liquidity, and asset quality all had significant long- and short-term effects on economic activity. The institutions involved, notably central banks and governments of African countries, should embrace measures that contribute to the financial system's stability, according to the paper.

The impact of financial regulation on financial inclusion in Sub-Saharan Africa was explored by Anarfo and Abor (2020), who took into account the moderating role of financial stability. They discovered that strengthening prudential regulations could have a negative influence on access to finance, therefore contradicting with Sub-Saharan African economies' financial inclusion aspirations, after examining the relationship between financial inclusion and the most prominent macro-prudential regulation. Financial inclusion is positively influenced by the relationship of financial regulation and financial stability, according to the findings. As a result, financial stability works in tandem with financial regulation to boost financial inclusion.

### Long-run SGMM Estimates of the influence of financial Stability and Economic Growth

Having established that a significant positive relationship exists between financial stability and EG using short-run estimates of the system GMM. The study proceeds further to examine whether a long-run relationship exists between the variables. Results of the SGMM long-run coefficients are reported in Table 4.

**Table 4: SGMM Long-run Estimates**

lnGDPPC	“Coefficient”	“Std. E.”	z	P> z	“[95% CI]”	
lnStability	1.61772	.471958	3.43	0.001***	.6926993	2.542741
lnTO	1.716332	.4062008	4.23	0.000***	.920193	2.512471
lnFDI	.3043674	.107764	2.82	0.005***	.0931537	.515581
lnLabour	-1.178795	.4204287	-2.80	0.005***	-2.00282	-.3547701
lnGFCF	3.199451	.5787196	5.53	0.000***	2.065181	4.33372
lnINF	-.1099897	.0407228	-2.70	0.007***	-.1898049	-.0301744
lnECPC	-2.500145	.9531632	-2.62	0.009***	-4.36831	-.6319792

Source: Field Data (2021)

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

Note: TO represents Trade openness, GDPPC represents GDP per capita, ECPC represents Energy Consumption Per Capita, GFCFGDP represents Gross Capital Fixed Formation, and INFL represents Inflation. Finally, ln is the natural logarithm of all the variables.

The long-run coefficients of the SGMM reveal that financial stability has a significant positive impact on economic growth in the long-run. Moreover, the study notes that the magnitude is stronger in the long-run compared to the short-run. Consistent with the findings of Jayakumar, Pradhan, Dash, Maradana, and Gaurav (2018), Tongurai and Vithessonthi (2018), Ajayi and Aluko (2017), and Jaylakumar et al. (2018), the present

study also finds that stability in the banking sector is paramount to economic growth in the long-run. These findings support the Schumpeterian theory of growth which reveals the supply-led growth stemming from the banking sector. This is not shocking as the banking sector is important for the efficiency of resource allocation into productive sectors of the economy. Thus, in the long-run, a stable financial sector is needed for investments into the real sector of economies, which is increasingly blatant for SSA.

Furthermore, banks also play a key role in corporate governance (Jensen, & Meckling, 1976). The monitoring role of banks through debt covenants with firms strengthens corporate governance structures which can affect economic growth. Aside from economizing the monitoring process, Anser et al. (2021) show that institutional monitoring by financial intermediaries ensures that capital rationing is reduced, resulting in increased productivity and growth. Furthermore, financial intermediaries play a key role in ameliorating risk, facilitating exchanges, and pooling savings which, in turn, results in growth in the real sector. Thus, a stable financial sector is needed to boost economic activity in the long-run.

### **Control Variables in the Study**

In line with the extant studies of Keho (2017), Alam and Sumon (2020), Saleem and Shabbir (2020), Rafndadi and Öztürk (2017) and Malefane (2018), Adedoyin, Bekun, Driha, and Balsalobre-Lorente (2020) and Siddique, Ansar, Naeem and Yaqoob (2017), trade openness and FDI exhibit a significant positive effect on economic growth. Trade openness and FDI can be important for economic growth because of the technological spill-over effects and potential human capacity development that arises from economic

openness. Further, the study finds gross capital formation to exhibit a significant positive impact on economic growth. This is also in line with the study of Kahouli (2019) and Kahouli (2017). However, the study documents startling results as regards the effect of energy consumption and Labour force on economic growth. The study attributes the negative effect of labour force on economic growth to unskilled labour that are more present in our sampled SSA, Moreover, the relationship between energy consumption and economic growth can be explained by the fact that a copious amount of energy consumed is non-renewable which results in pollution. Thus, governments of SSA will have to spend enormous amounts to cater for the negative impacts of the pollution, thereby negating the net impact on the economy.

#### **Chapter Summary**

The study employed the SGMM to examine the short-run coefficients and long-run relationships between bank stability and economic growth. The correlation analysis revealed that issues of multicollinearity are not present in the analysis because of the low correlation coefficients. Also, the correlation analysis confirmed the persistence of economic growth, giving impetus for the dynamic model. Furthermore, findings of the study revealed a significant positive effect on economic growth, even in the long-run.

## CHAPTER FIVE

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

#### Introduction

The chapter presents the main findings obtained from the study. The chapter presented a summary of the research. It then proceeded with conclusions, recommendations, and lastly, suggestions for future research.

The study sought to examine the role of financial stability in influencing economic growth. In this regard, the study objectives of the study were to first examine the short-run estimates of the SGMM to analyse the relationship and secondly, to examine the long-run coefficients of the nexus.

#### Summary of Findings

Findings from the study can be categorized into two: the short-run effect of bank stability on EG; and the long-run effect of bank stability and economic growth. Firstly, on the relationship between bank stability and economic growth, the study finds that the stability of the banking sector has a significant positive effect on economic activity. Secondly, the study finds that bank stability has a significant positive impact on EG in the long-run in SSA.

#### Conclusions

Findings of the study illuminates a significant positive role played by the banking sector in stimulating economic activity. Based on the findings, the study concludes that the allocative capacity of the banking sector has a positive effect on bank stability both in the long-run and in the short-run. Hence, differences in financial fragility can explain the growth disparities in the samples of SSA economies. Hence, attempts must be made to strengthen the stability of banks in SSA to ensure growth in their economies.

### **Recommendations of the Study**

Findings from the study revealed the crucial role of the banking sector in promoting economic activities towards economic growth. The practical and policy implications of the findings are enormous and thus, the study makes the following recommendations:

- Governments in the sub-Saharan Africa (SSA) countries and regulators must make attempts to improve regulations in the banking sector in terms of activity restriction and supervision in order to minimize bank risk taking behaviour in their economies so as to ensure a sustainable banking sector which can have a positive impact on economic growth.
- The study also recommends that SSA governments must attempt to improve economic openness so as to ensure stability of the banking sector with ultimate influence on economic growth.
- Lastly, Governments in SSA must establish policies aimed at reducing financial fragility to stimulate more growth in their economies.

### **Suggestions for Future Research**

A limitation in the current study has to do with the fact that the study does not consider methodologies that take into consideration the presence of cross-sectional dependence as this can be very clear for policy. Other studies can examine the long run and short run dynamics between the variables using panel PMG techniques. Other studies can also examine the effect of EG on bank stability.

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