

UNIVERSITY OF CAPE COAST

BANK STABILITY AND ECONOMIC GROWTH IN SUB-SAHARAN

AFRICA

BY

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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 supervision of dissertation laid down by the University of Cape Coast.

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ABSTRACT

Bank stability and growth of economies has gained considerable debate in recent times due to the overriding importance of the banking industry in providing and allocating financial resources to the various sectors of the economy. This study investigated the banking stability of Sub-Saharan Africa economies and its relation with the growth of the region by using six year data from 2010 to 2015 from the global financial development database. Bank stability was measured by the z-score which compares the buffer of a country's commercial banking system (capitalization and returns) with the volatility of those returns. The study investigated the short run and long run relationships between bank stability and economic growth. These objectives were investigated based on the explanatory design and quantitative approach and the autoregressive distributed lag model was used to analyse the objectives. The study found evidence of both short run and long run relationship between bank stability and economic growth. The study concluded that high levels of bank instability lower the regional growth while the stability of the banking sector on the other hand increases the growth of the region in both the short and long run. It was recommended that central banks and management of commercial banks of the Sub-Sahara Africa economies work on boosting the resilience of their respective banking sectors so as to influence the long term growth of the Sub-Saharan African economies.

KEY WORDS

Bank stability

Commercial banks

Economic growth

Instability

Z-score



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DEDICATION

To my family



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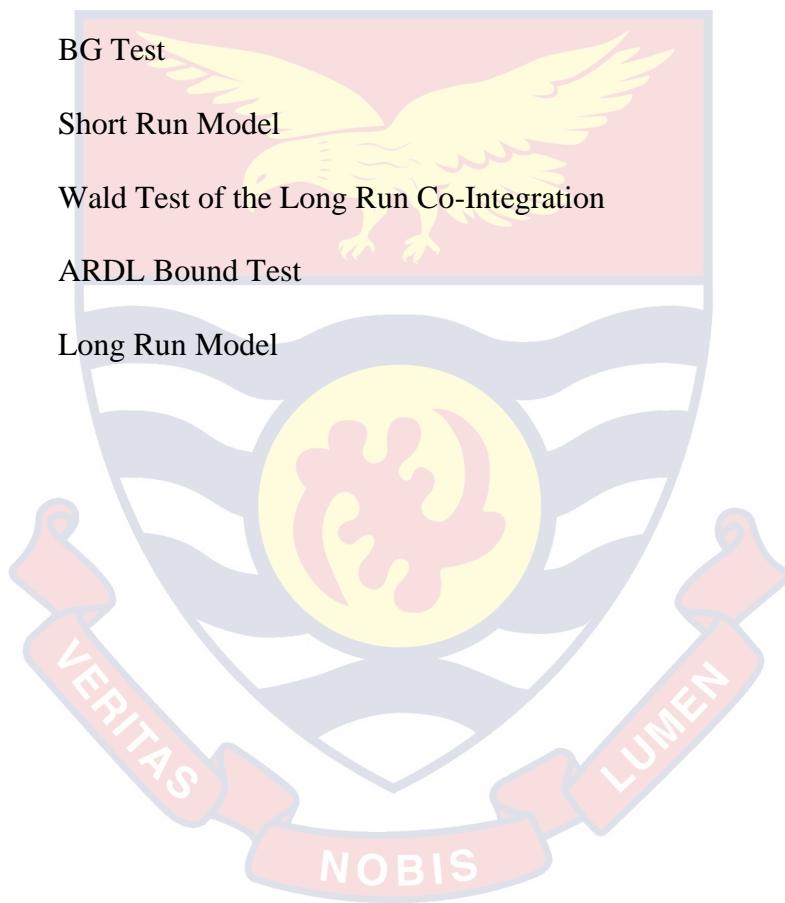
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LIST OF ACRONYMS/ABBREVIATIONS

Baccess	Bank Access
Bdepth	Bank Depth
Befficiency	Bank Efficiency
CUSUM	Cumulative Sum
EG	Economic Growth
INF	Inflation
LDEs	Less Developed Economies
MENA	Middle East and North Africa
SSA	Sub-Sahara Africa



CHAPTER ONE

INTRODUCTION

High level of financial development is one of the goals that every economy seeks to achieve. “Stability in the financial system; stability of the banking system is paramount in propelling the development and growth in the global financial sector” (Lakner & Milanovic, 2013, p. 9). Sound banking system is all about building resilience and ensuring confidence in the banking sector in such a way that the sector is able to withstand external pressures that arise by means of financial crises and adverse economic activities. Stable banking sector has the capability to allocate resources efficiently, manage risk, and “dissipating financial imbalances that occur as a result of unexpected events” (Lakner & Milanovic, 2013, p. 9). Consequently, banking stability is believed to be an important variable that drives growth. In this study, the role of banking system stability in promoting growth of economies of Sub-Saharan Africa was examined.

Background to the Study

Bank stability and growth of economies has gained considerable debate in recent times due to the overriding importance of the banking industry in providing and allocating financial resources to the sectors of the economy. Particularly, the stability of banks and growth of economies have gained much attention in research owing to the emergence of financial crises across the economies of the world and the volatile nature of risk in the financial environment (Lakner & Milanovic, 2013). Bank stability means building robust and resilient banking

sector that is capable of withstanding global financial pressures, regulatory rigidities, economies pressures and maintaining healthy competition in the guest to allocating financial and capital resources (Financial Stability Report, 2020).

According to Bozena (2013), a stable and resilient banking system is able to continue in the “provision of financial services to meet the financial needs of households, firms and government in the face of adverse economic events” (p. 11). An “unstable banking sector is more likely to be severely affected by shocks such as financial crises” (Bozena, 2013, p. 4). Furthermore, weak banking system affects the process of credit creation, distribution of capital and employment which in the long run impacts negatively overall production and growth of economies (Chant, 2003).

According to Adrian, Covitz and Liang (2015), bank instability is linked to vulnerabilities of banks which build up with the process of time; which invariably cause financial failures in the larger financial system. From the global perspective, the stability of banks is determined by myriad of forces from both domestic and external sources. According to the Financial Stability Report (2020), bank stability is defined by the degree of vulnerabilities of banks that runs on the shoulders of “asset valuations, borrowing by businesses and households, leverage in the financial sector and funding risk” (p. 13).

From the global stance, the Global Financial Stability Report (2018) reports that the global banking sector has bounced back very strong in terms of regulatory and supervisory standards and practices following the “failure of Lehman Brothers and the global financial crises during 2008” (Global Financial

Stability Report, 2018, p. 9). According to the report, the banking economy across the globe has improved in terms of capital adequacy, liquidity standards, and prudential policies for managing banking sector risks (Global Financial Stability Report, 2018). Furthermore, the report identifies that the global economy has been able to curb key infractions in the banking sector such as shadow-banking activities that destabilize the banking operations. However, the World Bank Group (2019) has found that the problem of bank instability has not been totally dealt with.

In line with the World Bank Group (2019) report that bank stability across the globe remains a challenge, the global economic growth rate seems to follow the trend of stability in the banking sector. For example, the World Economic Outlook (2019) reported a weakened global growth in Europe and Asia with estimated global growth rate of 3.7% in 2018 compared to 3.5% in 2019. The fall in the global growth rate could stem from the diminished optimism in the financial sector of advanced economies mainly arising out of fears of cycles of financial crises and increased monetary policy rates. The global banking sector is further described as having banking executives becoming more conservative to risk, together with declining feelings about growth prospects and central banks such as the likes of Germany, the United States of America, and United Kingdom are having shifts in policy expectations; these have contributed to drop in yields on sovereign securities. Furthermore, banks' spread in areas such as Italy and Europe have seen decline.

From the perspective of emerging economies and for that matter Sub-Saharan Africa, central bankers and “financial regulators in Sub-Saharan Africa (SSA) have always faced major institutional challenges in striking the right balance in their policy design to achieve financial stability, growth and equity” (Griffith-Jones, Karwowski, & Dafe, 2014, p. 12). During the last decade, Sub-Saharan Africa has encountered myriad of challenges in its banking and real sectors; these challenges include the rampant volatility of the exchange and interest rate and the problem of high cost of financial fragility (Akinsola, Foluso, Odhiambo & Nicholas, 2017).

According to Fowowe (2013), the problem of financial instability and by extension bank instability which is common in many SSA economies stems from the weak implementation of financial liberalization policies. It is thought that the banking sector of SSA economies is plagued with exchange rate exposures, large spread between lending and deposit rates, sharp decline in domestic credit access and the liquidity challenges which have led many banks to exit the banking industry (Ikhide, 2015). Misati and Nyamongo (2012) argues that bank instability is a major challenge confronting the SSA economies and add that weak banking system stifles capital formation and impedes on the efficient distribution and “allocation of capital to the various sectors of the economy” (Misati & Nyamongo, 2012, p. 12) which by extension could have implication on the growth of the Africa sub-region; even though the growth rate of the SSA is projected to rise to a modest 2.6% in 2019 from 2.5% in 2018 (World Bank, 2019).

It must be noted also that the growth of economies within the Sub-Saharan Economies is not even (World Bank, 2020). For example, data from the World Bank (2020) revealed that the growth rate of SSA economies for 2012 was 3.89 percent and 5 percent in 2013. The growth rate reduced to 4.66 percent in 2014, 2.84 percent in 2015, and further down to 1.72 percent in 2016. The trend picked up in 2017 with growth rate of 1.72 percent, 2.41 percent in 2018 and reversed to decline of 2.28 percent in 2019. The trend in the growth rate of the SSA tends to be generally declining and this appears to follow from the general bank instability in most SSA economies. Against this background it is important to assess the short run and long run effect of bank stability on the growth of SSA economies. Owing to this, the study investigated how the stability of banks in SSA impacts on the growth of economies with the SSA region.

Statement of the Problem

Sub-Saharan Africa is a regional block in Africa and the world with outstanding opportunities but not without challenges (World Bank, 2019). For example, Sub-Saharan Africa has the largest free trade area, 1.2 billion person market, and there is evidence of beaming “growth in the real sector of the respective economies within the sub-region” (World Bank, 2019, p. 4). During the year 2019, “countries in Sub-Saharan Africa such as Cote d’Ivoire, Ethiopia, Ghana, and Rwanda were among the fastest growing economies in the world” (World Bank, 2019, p. 4). Furthermore, the World Economic Outlook (2019) submits that the growth of Sub-Saharan Africa in 2018 was 2.9% with projected

increase in growth of 0.6% in 2019, with over one-third of the economies' growth rate marked above 5%; however, the growth among economies within the SSA region is not even.

By benchmarking the growth of the Sub-Saharan economies to the stability in its banking sector, it is observed that policies both conventional and regulatory are being made by central banks in sub-region to boost the “resilience of the banking sector” (European Investment Bank, 2016, p. 4). This is done against the background of underdeveloped banking system in most Sub-Saharan African economies; and financial deepening is recently the major agenda of most central banks in most economies (European Investment Bank, 2016). Some of the challenges of the confronting the banking sector in Sub-Saharan Africa include “low income levels, weak creditor rights, judicial enforcement mechanisms, and small size of national markets” (European Investment Bank, 2016, p. 8).

Within the past decade, there has been massive clean-up in the banking sector of most of the SSA economies with the objective of improving the resilience of the banking system. Regarding domestic credit provided by banks, the World Bank (2016) reported that domestic credit as percentage of gross domestic product average 47% for Sub-Saharan African economies compared to 21% for low-income economies, 44% “lower-middle income countries and 99% for middle-income countries” (World Bank, 2016, p. 11). With these figures, the comparable figures for some Sub-Saharan African economies are below the average of the sub-region with that of Ghana being 14% which is below one-third of the regional average (World Economic Outlook, 2019).

According to Diaconu and Oanea (2014), banking instability is caused by factors such as non-performing loans which for example constitute 22% of gross loans in Ghana, 15% in Nigeria, and 10% in Kenya. Weak competition particularly from the perspective of indigenous banks, poor governance, weak oversight, sectorial failings, weak capitalization and asset base, and diminishing optimism of the banking publics (World Bank, 2019). These occurrences in the banking sector could affect the short and long term growth of the SSA economies. Furthermore, other factors including high cost of operations, volatility in interest rate spread and the concentration of bank branches in few urban centers are among the problems that “have contributed to the banking instability in Sub-Saharan African banking sectors” (OECD, 2019, p. 13).

Regarding the “studies conducted on bank stability and growth” in Sub-Saharan Africa (Bozena, 2013; Diaconu & Oanea, 2014; Lakner & Milanovic, 2013, p.12), gaps are identified in the following areas: the short run and long run relationship between bank stability and growth in Sub-Saharan Africa. The dearth of evidence from the perspective of the aforementioned gaps could affect policy formulation of central banks in the SSA region. In other words, the lack of evidence on bank instability and economic growth relationship in literature impedes the progress of policy design for effective functioning of the banking sector. Also, findings on the “short and long run relationships between bank stability and economic growth” (Diaconu & Oanea, 2014, p. 6) will enhance policy implementation that will contribute to the short and long term stability and growth of the financial sector and the economies of SSA. This study fills the

above mentioned gaps by investigating the short and long run effects of banks stability on the economic growth of SSA economies.

Purpose of the Study

This study aims to examine the effect of bank stability on the economic growth of SSA economies.

Research Objectives

The study was based on the following objectives: to

1. Examine the nature of bank stability and economic growth in SSA economies
2. Assess the short run relationship between bank stability and growth of SSA economies
3. Investigate the long run relationship between bank stability and growth of SSA economies

Research Hypotheses

1. **H₀**: There is no short run relationship between bank stability and growth of Sub-Saharan African economies
H₁: There is a significant short run relationship between bank stability and growth of Sub-Saharan African economies
2. **H₀**: There is no long run relationship between bank stability and growth of Sub-Saharan African economies

H₁: There is a significant long run relationship between bank stability and growth of Sub-Saharan African economies

Research Question

1. What is the nature of bank stability and economic growth in SSA?

Significance of the Study

The study has value for the banking regulatory bodies in Sub-Saharan African economies, the executives of banks and the research community. First of all, the central banks of Sub-Saharan African economies will benefit from the study by formulating common policies that will contribute to the resilience of the banking sector. That is, the study revealed the extent to which bank stability differs among economies of Sub-Saharan Africa and how it impact on the growth of economies. Furthermore, the central banks of the Sub-Saharan African countries will be able to do comparison to know how they perform in terms of banks stability relative to other countries and the regional average. Secondly, the study will serve as a source of evidence from which bank executives will depend to design radical policies that will strengthen their banks. Thirdly, this study will contribute to the gaps identified in literature, by way of adding to existing knowledge regarding the short and long run relationship between bank stability and growth of Sub-Saharan Africa economies.

Delimitation

The study was conducted on 28 out of the 46 Sub-Saharan Africa economies which had complete data on bank stability and economic growth over the research period. The main variables included in this study were bank stability which is measured by the z-score and the economic growth. Based on literature, the study included other variables such as inflation, bank access, bank depth and bank efficiency. The study was conducted for a period of 6 years from 2010 to 2015, a period within which the banking sector in SSA has seen expansive liberalization, policy and regulatory reforms. Data for the analysis of the objectives are sourced from the global financial development database.

Limitation of the Study

The study measured bank stability by using only one indicator (the z-score) and not all the 46 SSA economies had complete data on the variable. Hence the result of this study was obtained based on only 28 SSA economies who had complete data from 2010 to 2015. This makes the application of the result limited and by this limitation; the generalisation of the result to all of SSA economies is not possible.

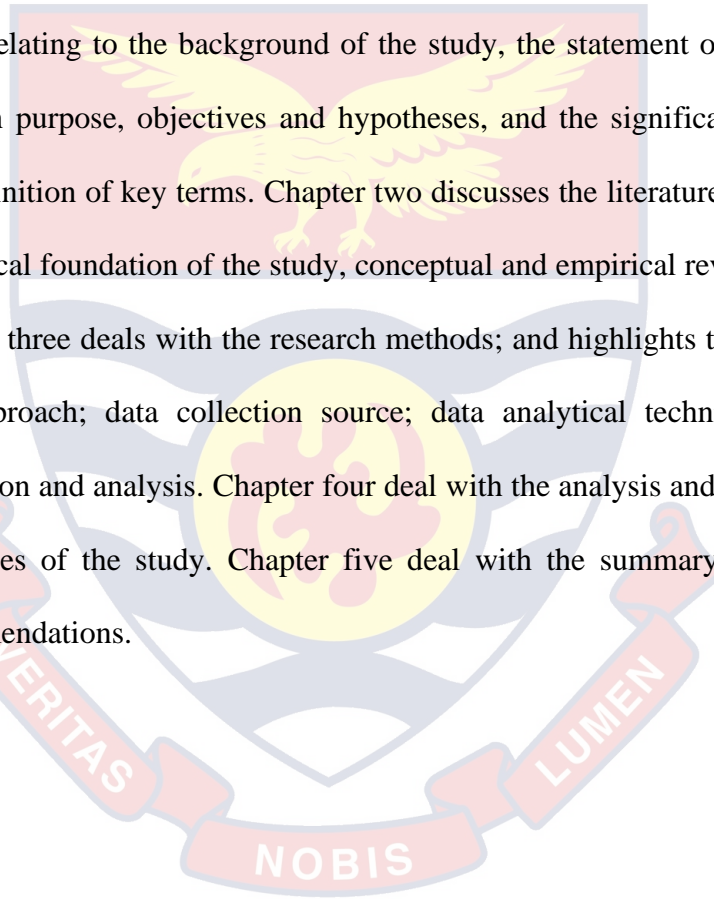
Definition of Terms

Bank Stability: Bank stability defines the robustness and resilience of the banking sector such that it is able to effectively perform its function of allocation of financial resources in times of economic crises.

Economic Growth: Economic growth is defined as the rate of change in the yearly national output which is measured by the gross domestic product of countries.

Organisation of the Study

This study is organized into five chapters; where chapter one deals with issues relating to the background of the study, the statement of the problem, the research purpose, objectives and hypotheses, and the significance, delimitations and definition of key terms. Chapter two discusses the literature review where the theoretical foundation of the study, conceptual and empirical reviews is presented. Chapter three deals with the research methods; and highlights the research design and approach; data collection source; data analytical techniques; and model estimation and analysis. Chapter four deal with the analysis and discussions of the objectives of the study. Chapter five deal with the summary, conclusions and recommendations.



CHAPTER TWO

LITERATURE REVIEW

Introduction

This chapter examines the literature review on the thematic areas of the objectives of the study. Key issues examined in this chapter include bank stability, causes of bank instability, economic growth of Sub-Saharan African economies, theoretical foundation of the study and the empirical review of the objectives. The purpose of the review of literal works in this chapter was to underscore the linkage between bank stability and economic growth and to provide the basis for providing evidence on the relationship from the Sub-Saharan African Economy's perspective.

Banking in Sub-Saharan Africa

The banking sector in Sub-Saharan Africa is noted for its contributions to individuals, firms and the regional economy as a whole. While effort is made to strengthen the banking industry there is report of slow development of the highly concentrated banking industry within the Sub-Saharan African region. The banking sectors further dominate the financial sector by actively playing the important intermediation role and proving capital to governments, businesses and individuals. Particularly, the lending activities of the banking industry within the Sub-Saharan African is mostly geared towards the real estate, manufacturing, general trade and the construction sectors (Pelletier, 2014).

There are cogent reasons that underpin the slower development of the banking sector of the Sub-Saharan economies. The European Investment Bank (2016) cited weak regulatory practices that falls short of international standards as the main driver of the slower pace of the banking sector development in Sub-Saharan Africa. Diaconu and Oanea (2014) had also cited that volatility of the banking environment pose much uncertainty to the extent that international investors are not induced to inject capital into the sector. The World Economic Outlook (2018) had further explained that the political influence in the activities of the regional central banks pose threats to the efficient supervision of banks and the effectiveness of monetary policies.

Banks in the Sub-Saharan African region have proven to express hope and resilience to the impacts of financial crises; and this is mainly due to the limited integration of the regional banking industry to the global financial landscape. The weak integration of the banking sector of Sub-Saharan Africa to that of the global economy makes the banking industry of the sub-region less exposed to the dangers of the financial crises. In terms of performance, the banking industry within the Sub-Saharan African regions has moderate capitalization levels with fairly good liquidity position and is quite profitable. The major however high levels of non-performing loans among economies within the sub-region.

Figure 1 shows performance indicators such as the capital asset ratio (CAR), non-performing loans (NPLs), return on assets (ROA) and return on equity (ROE) of some economies for Sub-Saharan African economies for 2018. From the financial soundness indicators depicted by Table 1 was based on data

available for Sub-Saharan economies. The average CAR for the Sub-Saharan Africa economies was 18.43% where six economies namely Ghana, Guinea, Kenya, Namibia, Nigeria, and South Africa falls below the regional average and Botswana, Burundi, Mauritius, Rwanda, and Uganda performing above the regional average. The regional average in terms of NPLs was 16.11% and Ghana, Kenya, Mauritius, Nigeria, and South Africa have rate more than the regional average. Furthermore, Ghana, Guinea, Mauritius, Nigeria, South Africa, and Uganda have return on equity which is above the regional average of 20.14%. On the basis of return on asset, Ghana, Kenya, Namibia, Nigeria and Uganda performed better than the regional average of 2.66%.

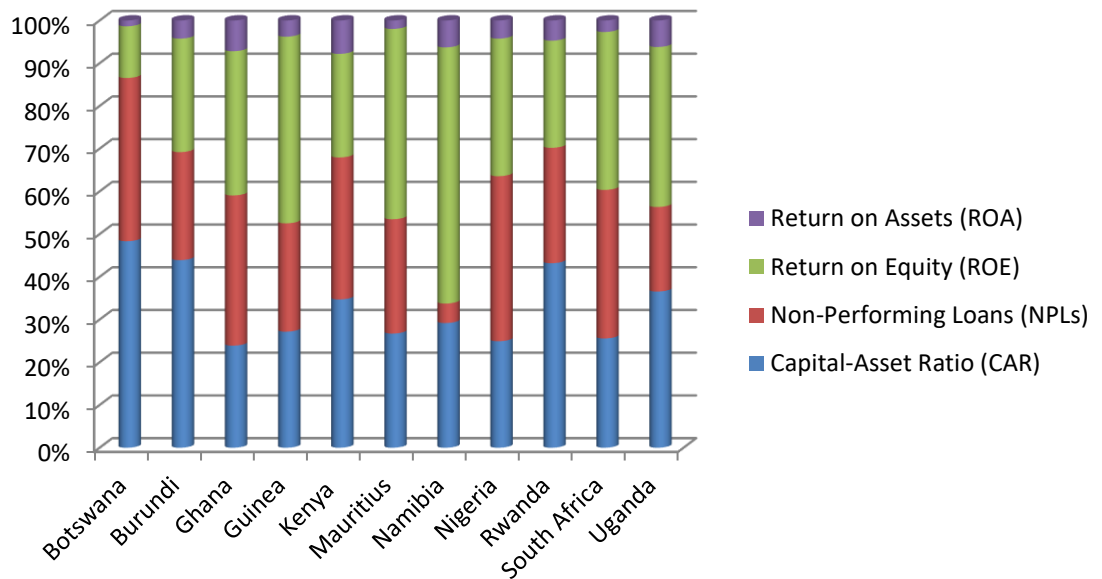


Figure 1: Financial Soundness Indicators of SSA Economies

Source: Author’s Construct (2020)

From another breadth, the emergence of financial crises from the global perspective has influenced the decision of central banks in Sub-Saharan African

economies to tighten regulatory requirements which has resulted in stricter supervision of banks. Owing to this, global banks have consequently retreated to from operating within the Sub-Saharan African sub region and that has also paved way for the strengthening of Pan-African banks across economies in the Sub-Saharan African region. One important development that has marked the activities of banks in the Sub-Saharan African region is the increased in the minimum capital requirements of banks and the rapid deployment of technology in the banking space. For example, Nigeria during its banking sector reforms in “2005 increased the minimum capital requirement from 2 billion Naira to 25 billion Naira” (Cook, 2011, p. 5) while “Ghana increased the minimum capital requirement of banks from GHS200 million to GHS400 million in 2017” (Bank of Ghana, 2018, p. 9). The World Bank (2018) believes that the recent strengthening of the banking institutions in some of the Sub-Saharan economies is geared towards achieving resilience and stability in the banking sectors.

A further analysis of the banking sector within the Sub-Saharan African economies revealed that there is “low level of depth and penetration of banking institutions in Sub-Saharan Africa” (King & Levine, 1993, p. 5). For example, “a common measure of depth and penetration of the banking sector is the amount of domestic credit to the private sector” (King & Levine, 1993, p. 5). Also, data from the Global Financial Development (2018) revealed that among other sub-regions, “Sub-Saharan Africa has the shallowest penetration and depth of the banking with 24% domestic credit to the private sector compared to 48.1% for North Africa and 43.1% for Southern Africa” (p. 8). This data compares with access to financial

banking institutions with Sub-Saharan Africa scoring 20.9% being the share of the population with bank account compared to 28.5% for North Africa, 36.7% for Southern Africa and 24.7% for Africa as a whole. These statistics which do not largely favour the Sub-Saharan Africa serve as pointers to the question the resilience and stability of the banking sector within the Sub-Saharan African sub-region.

Overview of Bank Stability

The financial sector and its development is one important aspect of the world's economy that drives the demand and supply of money and “allocates resources to the other sectors of the economy” (Sullivan, 2011, p. 5). The banking sector is however deemed to be the key institutional body that affects the “development of the financial sector” (Swamy, 2014, p. 2). Consequently, the stability and resilience of the banking sector is important in addressing the economic challenges of the world economies (Rajhi & Hassairi, 2013). Swamy (2014) defines bank stability as the ability of banks to function well and perform their core banking activities in the face of failure of the financial system, and it also include the degree of resilience of the banking sector.

Banking sector that is stable; “is capable of allocating financial resources efficiently, analysing, and managing financial risks to create value for stakeholders, particularly to investors and the economy” (Strobel, 2011, p. 11). Stable banking sector maintains the level of employment consonant to the natural rate level of the economy and ensures the stability in the prices of financial assets

and monetary policy (Rahman, 2010). A stable banking sector is strong enough to withstand financial imbalances that occurs from future uncertainties; it capable of absorbing internal and external shocks; self-correct itself and does not give room for unforeseen adverse events to disrupt its efficient functioning (Arachchie, 2018).

The World Bank (2013) asserts that stable banking sector is in a position to finance profitable projects even in times of financial crises, and it has the capacity to ensure that asset prices conform to their true intrinsic values (Diaconu & Oanea, 2014). Forker and Ward (2012) add that a resilient banking system is able to withstand bank runs, negative effect of inflation and stock market crash while instilling confidence in the general banking publics. Similarly, Mlachila and Montfort (2013) reported that strong banking system reports low levels of non-performing loans and in fact serves as the fulcrum on which the growth of an economy revolves. This means that weak banking system or a banking sector that is unstable performs its functions towards the growth of the economy inefficiently. It is in order that the European Investment Bank (2016) asserts that stability and growth of banking sectors in developed economies are strongly correlated to growth of economies.

Bank Stability in Sub-Saharan Africa

“A number of studies have shown that banking sector in Sub-Saharan African economies have offer great contributions to the financial systems and to the real economies” (Akinsola, Odhiambo, 2017, p. 21; Fowowe, 2013, p. 6).

Following banking reforms in post periods of the 1990s, Misati and Nyamongo (2012) believe that the capital base of banks has significantly strengthened; risk management policies and practices of banks have been enhanced; contribution of “credit to the private sector has picked up even though it is still in the lower range” (p. 17). According to Ikhide (2015), most of the Sub-Saharan African banking industries has proven to be more pragmatic, resilient to threats from the global financial shocks.

Coupled with the improved stability of the banking sector within the Sub-Saharan African economies, there has been expansion of mobile banking, moderately improved competition and strengthening of banking regulations across economies within the sub-region (Bempong & Sy, 2015). However, the significant improvement in technology based banking has offered new challenge to regulators and managers of banks particularly with reference to controlling and curbing banking fraud and such related activities (International Monetary Fund, 2016). There are other challenges that confront the banking industry within the Sub-Saharan African sub-region and these include weak banking regulations, low income levels, small market size and limited competition among others (Miklaszewska, Mikołajczyk, & Pawłowska, 2012).

Furthermore, variables that serves as pointers to measuring the strength and depth of banks such as access to finance to both firms and individuals reveal that resilience of banks in Sub-Saharan Africa remains “one of the lowest in the world” (European Investment Bank, 2016. p. 6). Weak “banking structures in the Sub-Saharan African economies are reported to have created challenge to the

growth of enterprises and economies within the sub region” (Ngendakuroyo, 2014, p. 19). There is the chronic problems of high credit risk with banks, inadequacy of physical infrastructure and capital. Afrika and Ajumbo (2012) argue that the largely unfavourable business environment makes banking business relatively risky in Sub-Saharan Africa compared to that of advanced economies. Consequently, banks generally resort to exacerbated lending rate to boost their profitability (IMF, 2015). It is also instructive to note that bank instability in the Sub-Saharan African sub region is as a result of host of factors discussed below.

Causes of Bank Instability in Sub-Saharan African Economies

Banking instability is the direct opposite of bank stability and for that matter the instability of banks means bank stability from its lowest level. Bank instability is described as the inability of banks to perform their function of granting credit to market players in times of recession and financial crises (IMF, 2017). Thus, assessment of the causes of bank instability contributes to understanding how different forces interplay to affect the resilience and the ability of banks to adequately “serve the financial needs of the individuals, firms and governments” (IMF, 2017, p. 8). Search in literature reveals some of the key causes of bank instability and these factors are presented forthwith.

Excessive borrowing by households and businesses is cited by the Financial Stability Report (2020) as a major contributor to banking sector instability. In particular, when the incomes and asset value of firms and households decline in times of economic repression, there is high probability of

loan payment default on the part of borrowers. This results in higher non-performing loans of banks which invariably affects their cash flows and deteriorates the strength of their balance sheet. In the long run, banks report losses and fails in their ability to support the public by providing funds for productive ventures.

Another contributor of banking instability is the excessive leverage (high gearing) within the banking sectors of Sub-Saharan African economies (World Economic Outlook, 2019). The excessive leverage raises the risk levels of banks in that they end up lacking the capability to absorb losses when the economy is hit by negative shocks. Situation of this nature compels banks to cut the amount of money they could lend to private enterprises and individuals; banks sometimes sell their assets to remain in business (Ngendakuroyo, 2014). According to Marchettini (2015), banks that are excessively leveraged have no other option to turn to except to shut down their operation by means of mergers or takeovers. Banks are therefore required to reduce the level of their leverage to moderate level to increase their level of resilience.

Funding risk is also identified by Stigns (2015) as an important cause that drives bank instability in Sub-Saharan African economies. The Financial Stability Report (2020, p.7) has indicated that, “funding risk exposes the banking system to the possibility that investors will run by withdrawing their funds from the banking sector to other sectors of the economies or to different economies.” Many banks in Sub-Saharan African promise the return of invested funds to depositors but they end up funding long term projects that require many years to produce cash

flows (Newiak & Awad, 2015). This tendency produces liquidity challenges to banking sectors within the Sub-Saharan Africa sub-region and banks are required to borrow at higher costs or sell their assets at sometimes lower values to meet up withdrawal needs of depositors (Beck & Maimbo, 2013).

Furthermore, weak regulatory regime of central banks within the Sub-Saharan African economies is driver of banking instability (World Bank, 2019). According to the World Bank (2019), central banks in Sub-Saharan African economies have weak regulatory system compared to that of other sub-regions such as Asian economies and western economies. Ostry, Berg, and Tsangarides (2014) argue that central banks in Sub-Saharan African economies allow for political interference in their operations and that has weakened their strength with which they supervise activities of banking activities in the respective economies. The low regulatory system has contributed to poor asset quality base of banks and the engagement of overly risky investments by banks which run down the profitability and efficiency of banks (Cecchetti & Kharoubi, 2015).

Measurement of Bank Stability

A generally accepted “measure of bank stability is the use of the z-score which compares banks capitalization and returns with the risk factor which measures the volatility of returns” (Demirgüç-Kunt, Detragiache & Tressel, 2008, p. 5; Beck, Demirgüç-Kunt & Levine, 2007, p. 9). Mathematically, the z-score “is defined as the ratio of the sum of equity capital as a percentage of assets and returns as a percentage of assets to the standard deviation of the returns on assets”

(Čihák & Hesse, 2010, p. 14). The standard deviation on the returns of the assets is an indicator which measures the solvency risk of banks. A z-score of higher value represents lower probability of bank insolvency which also reflects that there is high degree of instability in banks (Laeven & Levine, 2009).

Figure 2, provides the bank stability analysis for Sub-Saharan Africa economies based on available data from 2010 to 2015. From Figure 2, it can be observed that the z-score for some Sub-Saharan African economies such as Equatorial Guinea, South Sudan, Mali, Mauritius and Cape Verde among others are high providing an indication of lower stability of banks. On the other hand, economies such as Gambia, Angola, Congo Republic, Guinea, Zambia, Madagascar and Sao Tome and Principe among others have lower z-score reflecting higher bank stability. Generally, Equatorial Guinea records the higher z-score value of 44 indicating that banks are highly unstable in that economy.

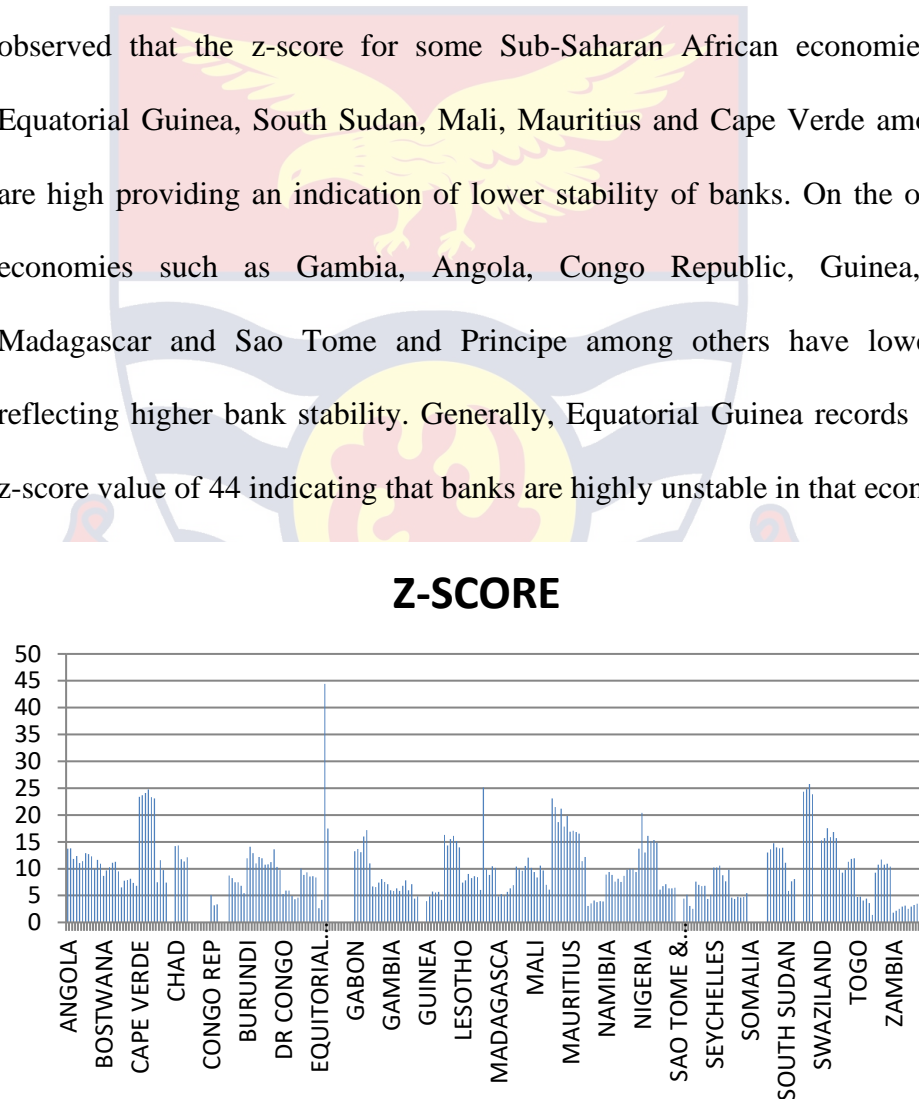


Figure 2: Z-Score for Sub-Saharan African Economies

Source: Constructed by Author based on Data from the World Bank (2020)

Economic Growth within Sub-Saharan African Economies

According to Muaza and Alagidede (2018), “economic growth represent the rate of change in the gross domestic product of an economy” (p. 12). Negative changes reflect negative economic growth while positive changes reflect positive economic growth. A report from the World Economic Outlook (2019) states that Sub-Saharan Africa recorded slower growth between 2015 and 2016 and is still in the process of recovering. During 2018, the average growth of Sub-Saharan African economies was recorded at 2.7% compared to 2.3% in 2017 (World Economic Outlook, 2019). Muaza and Alagidede (2018) argue that the recent slower growth of Sub-Saharan African economies is as a result of unfavourable external environment that negatively impacts the sub-region. The loss of industrial and trade activities across the globe, reduction in natural and agricultural related products and weakened demand prospects have been cited by Ibrahim and Alagidede (2017) as contributory factors causing the slower growth of Sub-Saharan Africa.

The growth rate in some economies within the “Sub-Saharan African region such as Angola, Nigeria and South Africa” has been found to be slower and they largely determine the growth patterns of the sub-region (World Economic Outlook, 2019, p. 16). Economies within the non-resource rich countries such as Kenya, Rwanda and Cote d’Ivoire over time have proven to be strong with regards to their investment in agricultural products and services. Figure 3 demonstrates the comparative analysis of economic growth of Sub-

Saharan Africa with Middle East and North Africa (MENA) and Least Developed Economies (LDE) based on the United Nations classifications from 2010 to 2019.

Based on Figure 3, it can be observed that there is generally a sharp decline growth for Sub-Saharan African economies from 2014 to 2016 and another decline from 2018 to 2019. A comparative analysis of Figure 3 reveals that the growth of least developed economies is quite impressive growing faster than “Sub-Saharan Africa and Middle East and North Africa economies” (World Bank, 2020, p. 6) despite the presence of minor deviations. Between 2010 and 2015, SSA grows faster than MENA states but falls below the growth rate of Least Developed Economies. This trend reoccurs after 2017 but between 2015 and 2017 Sub-Saharan African recorded the slowest growth within the comparative period with Middle East and North Africa growing faster than both Sub-Saharan African and Least Developed Economies. The downward trend in the growth of Sub-Saharan Africa should therefore be a major concern especially at the background where the peaks of growth rate successively low.

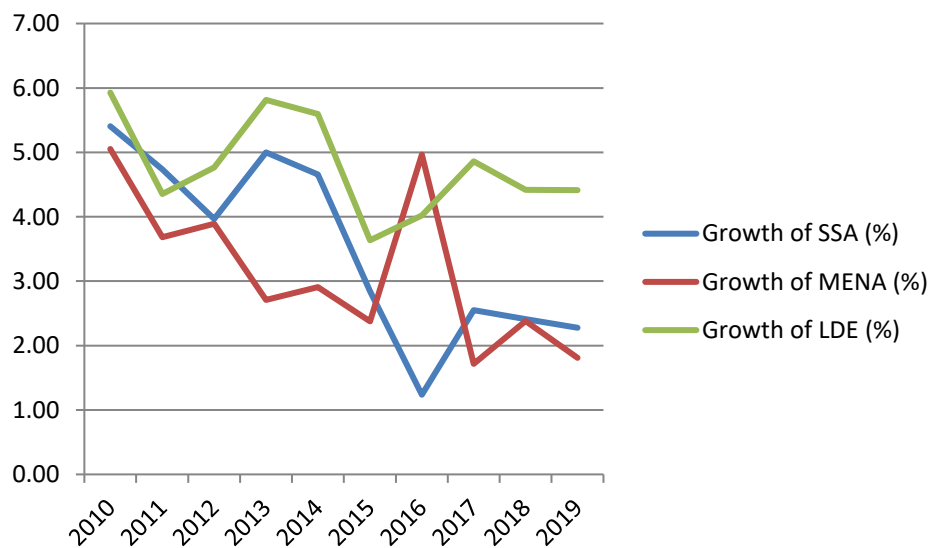


Figure 3: Comparative Growth Rates of SSA, MENA and LDE

Source: Constructed using Data from the World Bank (2020)

Determinants of Economic Growth

There are many factors that propel the growth of an economy and these factors ranges from micro to macroeconomic factors and even non-economic factors. Upon reviewing literature, the study found that inflation was a major economic factor that affects the growth of economies (Ibrahim & Alagidede, 2017). On the flip side, the bank specific indicators that affect the growth path of economies were found to include the degree to which banks operate efficiently, the depths of banks, and extend to which banks provide credit to the private sector (Dwonfour, 2017). This indicates that inflation, bank access, bank depth, and bank efficiency influence the growth path of economies. Other key variables that influence economic growth also include labour, capital, and other economic indicators such as exchange rate and interest rate (Ibrahim & Alagidede, 2017). This study however controlled for inflation (economic factor) and “bank specific factors such as bank access, bank depth, and bank efficiency in the process of assessing the relationship between bank stability and economic growth” (Ibrahim & Alagidede, 2017, p. 15).

Theoretical Review

This study is underpinned by the Endogenous Growth Theory (EGT) which offers explanation to the forces that determine the long run growth of a country. The endogenous growth theory contributes towards understanding the

linkage between stability of the banking sector and how such stabilities can lead to growth of economies. This theory was propounded by Romer (1987). According to the endogenous growth theory, the economic growth of a country “from the short run to the long run is determined by factors that are internal to the economic system” (Romer, 1987, p. 15). The theory further proposes that the long run economic growth of economies can be determined by economic forces as well as the resilience of the institutions that drive the allocation of capital (Grossman & Helpman, 1991).

The theory begins from the premises that technological advancement occurs through investment in new markets, ideas, processes and products which come about as a result of economic activities (Aghion & Howitt, 1992). For firms to acquire the required capital for production purposes there is the need for the banks to become stabilized so that they can continuously provide capital to both individuals and firms to expand on their productive agenda. A stronger banking sector contributes to the capital generation of firms which boost the productive sector and in turn speeds up the pace of growth of the economy.

Furthermore, the endogenous growth theory lays much emphasis on innovations, research and development. The stability of banks enables it possible for them to fund the research and development agenda of firms which positively affect the growth path of economies. It observes “long run economic growths as a function of rapid innovation” (Dwomfour, 2017, p. 16) that is backed by high capital provision leading to rigorous research and development. But it must be noted that research and development expenditures are enormous and the extent to

which firms can embark on research and development for innovations “depends on the soundness of the banking sector of the country” (Dwomfour, 2017, p. 12). “This is the point where the stability of the banking sector plays important role in affecting the long run growth prospects of the economy” (Dwomfour, 2017, p. 14).

High degree of banking sector instability weakens the strength of the productive sectors through lower attraction of capital and that negatively impacts on their ability to deploy research and development to discover new products and new markets. The inability to catch up with the technological trend, innovation and new products generally affects the growth path of the economy. On the contrary, stronger and resilient banking industry is capable of providing capital to the productive sectors during normal times and crises periods. This enables firms to invest in research and development to discover new products and markets; and the growth path of the economy is positively affected.

In summary, the endogenous growth theory suggests that the long run growth depend the rate of innovation of the market which is also determined by the economic conditions and the degree to which capital allocation can be done efficiently in the country by the banking sector. Hence, the stability and instability of banks affect the innovation process of an economy and the economic growth of economies respond accordingly to the strengths of the banking sectors. The theory of endogenous growth therefore serves as the basis to examine the influence of banking stability on the growth of Sub-Saharan African economies.

Empirical Review

This aspect of the study accesses the empirical views “on the linkage between bank stability and economic growth” (Sunney, 2020, p. 28). In order words, this section explores the asymmetric “effect of bank stability on economic growth as well as the short run and the long run relationship between the bank stability and economic growth” (Sunney, 2020, p. 28).

Nature of Bank Stability and Economic Growth

The study of Dwomfour (2017) centered on “explaining banking stability in Sub-Saharan Africa by measuring banking stability” (p. 12) with the z-score score. The study also found threshold effect among banks in terms of net interest margin, diversification, competition and bank concentration among banks within the Sub-Saharan African economies. Even though the study of Dwomfour (2017) did not spell out the “relationship between bank stability and economic growth” (p. 12), the evidence revealed suggests that bank stability is improved through competition and proper diversification which are also essential variables for propelling economic growth (Hallward-Driemeier, 2011). The study further revealed that bank stability significantly differs among economies within the Sub-Saharan African region.

Carbó-Valverde and Sánchez (2013) “examined the relationship between financial sector development and economic growth from the perspective of Sub-Saharan Africa and found that growth of economies is negatively affected during periods of instability in the banking sector and also economic growth was affected

differently by negative and positive shocks in development in the financial sector” (p. 14). The study also found that the growth and stability of countries in Sub-Saharan African economies are not even and this is largely due to the poor integration of the financial markets within the sub-region. Tugberk (2018) analysed the “relationship between bank stability and economic in Turkey as an emerging market by using the autoregressive distributed lag model” (p. 17). Importantly, “the study found stability variables that affect growth to include financial leverage, capital adequacy, asset quality and liquidity” (Tugberk, 2018, p. 12).

Short Run Relationship between Bank Stability and Economic Growth

The study of Narayan and Narayan (2013) “examined the short-run relationship between the financial system and economic growth for a panel of 65 developing countries” (p. 15). The “study revealed a negative short run relationship between bank stability and economic growth among the Middle East countries” (Narayan & Narayan, 2013, p. 11). However, it was found that bank stability do not contribute to growth in the short term, excluding Asia where bank stability moderately affected growth positively. In addition, the study of Korkmaz (2015) “investigated the relationship between bank credit and economic growth” (p. 13) and inflation from the perspective of 10 European countries by employing panel data analysis from the period of 2006 to 2012. The study investigated the impact of banks resilience by using the size of “domestic credit granted to the private sector” (Korkmaz, 2015, p. 11). The conclusion drawn from the study was

“that bank credit to the private sector (which also is a measure of bank stability) significantly influences the growth of the economy in the short run” (Korkmaz, 2015, p. 12).

Furthermore, the study of Tosunoglu (2018) examined “the relationship between financial stability and economic growth in Turkey as an emerging market” (p. 10). Financial stability was defined as the degree to which the banking sector was robust and resilient against disruptions in the financial system. Data was employed from 2002 to 2017 and the short run relationship between financial stability (similar to bank stability) and economic growth was analysed using the co-integration and ARDL model. The stability of the financial system was measured by asset quality, capital adequacy, and liquidity. The main findings from this study was that significantly cause the growth of the Turkey economy in the short term and hence the stability of the financial system was considered as important variable in affecting economic growth.

In Ghana, Manu, Adjasi, Abor and Harvey (2011) investigated a cross-country study on “financial stability and economic growth using a dynamic fixed-effect model” (p. 3). The result “from the study showed that financial stability positively impacts on economic growth in the short run” (Manu, Adjasi, Abor & Harvey, 2011, p. 13). More directly, the study pointed out that capital adequacy, liquidity and asset quality of banks positively affect economic growth in the short run. From this study, the indicators for measuring financial stability are the same as the ones used in measuring bank stability (Otchere, 2005). Hence, it can be concluded that bank stability positively influences economic growth. Founded on

literature, this present study expects a positive link between bank stability and economic in the short run among the Sub-Saharan African economies. This present study distinguishes itself from the study of Adjasi, Abor and Harvey (2011) by adopting a more robust measurement “of bank stability (the z-score) rather than the use of variables such as capital adequacy, liquidity and asset quality” (p. 12).

Long Run Relationship between Bank Stability and Economic Growth

Regarding “the relationship between bank stability and economic growth in the long run” Creel, Hubert and Labondance (2015, p. 12) assessed “the nexus between financial stability and economic performance of the European Union by estimating the causal relationship between the two variables”. The study employed the panel GMM as the estimation technique and in the end the study concluded that instability in the banking sector “as a component of the financial sector negatively affects the growth of the European Union in the long run” (Creel, Hubert & Labondance, 2015, p. 12). “This result means that in the long run, the stability of the banking system is significant in improving the growth of the European Union economies” (Creel, Hubert & Labondance, 2015, p. 12).

Furthermore, Dritsaki and Dritsaki-Bargiota (2005) investigated “the causal relationship among financial development, credit market and economic growth” (p. 1) in Greece by employing data on monthly frequency from 1988 to 2002 and using the autoregressive VAR. As part of the objectives of the study of Dritsaki and Dritsaki-Bargiota (2005), co-integration association between bank

stability (measured by the z-score) and economic growth was assessed. The co-integration result showed “that there is a long run relationship between bank stability and economic growth” (Dritsaki & Dritsaki-Bargiota, 2005, p. 4). In other words, stability of banking sector was found to significantly influence “economic growth in the long run” (Dritsaki & Dritsaki-Bargiota, 2005, p. 4).

Moreover, Furqani and Mulyany (2009) “used the co-integration technique and the vector error correction model to assess the relationship between bank stability in Islamic banking and economic growth in the long run” (p. 1). The conclusion drawn from their study was that there was “evidence of long run co-integration between bank stability in Islamic banking” (Furqani & Mulyany, 2009, p. 8) and economic from the perspective of Malaysia. The result in this study is in line with the study of Manu, Adjasi, Abor and Harvey (2011) and Otchere (2005) whose study “on the nexus between bank stability and economic growth revealed evidence of long run relationship” (p. 10).

Pradhan (2009) assessed the “relationship between financial development and economic growth in India by examining the impact stability in the” (p.13) banking industry as part of the objective of the paper. Bank stability was “measured by banks credit to domestic and private sector” (Pradhan, 2009, p. 5). A multivariate VAR model was employed and the analysis of the objective of the paper was based on the co-integration and granger causation test. The co-integration “test revealed the presence of long run relationship between bank stability and economic” (Pradhan, 2009, p. 8) in India. This finding is the same as the conclusion drawn from the study of Ghosh (2010) who employed data from

1996 to 2008 to examine the “long run effect of bank stability on economic growth” (Ghosh, 2010, p.12).

From the Nigerian perspective, Akpansung and Babalola (2011) “examined the relationship between banking sector credit as a measure of bank stability and economic growth” (p. 7) by employing data from 1970 to 2008 and using the “Granger causality test and a two-stage least square estimation method for the regression” (p. 5) model. The result of the study indicated the presence of significant long run “relationship between banking sector credit and economic growth” (Akpansung & Babalola, 2011, p. 9). Consequently, Rahimzadeh (2012) used data from 1990 to 2011 “to assess the importance of the banking sector to economic performance in Middle East and North Africa” (p. 1). The Kao panel co-integration test provide another “evidence of long run relationship between bank stability and economic growth” (Rahimzadeh, 2012, p. 13). Centered on the above evidence, this present study expects a significant association between bank stability and the growth of Sub-Saharan African economies.

Chapter Summary

Chapter two of this study assessed the relationship between bank stability and economic growth by further examining the banking sector within the Sub-Saharan Africa economies. The chapter reviewed literature from three key perspectives: conceptual, theoretical and empirical. From the empirical review, the study expected short run and long run relationship between bank stability and growth of Sub-Saharan African economies.

CHAPTER THREE

RESEARCH METHODS

Introduction

This chapter discusses the research methods employed in this study. The study examined the nature, short run and long run relationship between bank stability and growth of Sub-Saharan African economy. Therefore, this chapter discusses the research design, research approach, definition and measurement of variables, data analysis and presentation in light of the objectives of the study.

Research Design

The study employed the explanatory design in analysing the “relationship between bank stability and growth of Sub-Sahara Africa” (Sunney, 2020, p. 1). Research design apparently is the overall blueprint that the study follows is achieving the objectives of the study. The explanatory research design is also referred to as the causal research and it provides the extent to which one or more variables influence another variable (Zikmund, Babin, Carr, & Griffin, 2012). The explanatory “design focuses on an analysis of a situation or a specific problem to explain the patterns of relationships between variables” (Zikmund, Babin, Carr, & Griffin, 2012, p. 5).

There are some advantages related to the employment of explanatory design. Firstly, it plays important “role in terms of identifying reasons behind a wide range of processes” (Zikmund, Babin, Carr, & Griffin, 2012, p. 5), as well as, assessing the impacts of changes on existing norms, processes on another

variable. Explanatory design also offers the “advantages of replication if necessity arises” (Zikmund, Babin, Carr, & Griffin, 2012, p. 5). More so, the explanatory design “is associated with greater levels of internal validity due to systematic selection of subjects in the study” (Zikmund, Babin, Carr, & Griffin, 2012, p. 43). The main disadvantages associated with explanatory study are that coincidences in events may be perceived as cause-and-effect relationships. It can also be difficult to reach appropriate “conclusions on the basis of causal research findings. This is due to the impact of a wide range of factors and variables in social and economic environment. In other words, while casualty can be inferred, it cannot be proved with a high level of certainty. In certain cases, while correlation between two variables can be effectively established; identifying which variable is a cause and which one is the impact can be a difficult task to accomplish” (Zikmund, Babin, Carr, & Griffin, 2012, p. 15). Despite these limitations with the explanatory study, it is considered as ideal for the objective of this study since it allows for the measuring of the influence of one variable (bank stability) on another (economic growth).

The quantitative research approach is adopted by this study in achieving its objectives. The “quantitative research focuses on gathering numerical data and generalizing it across groups of people or to explain a particular phenomenon” (Babbie, 2010, p. 56). The main objective of “quantitative research is to assess the relationship between variables; and also to examine the cause and effect relationship between variables. It also underscores how a manipulated variable influences another variable under a defined condition and setting” (Mujis, 2010,

p. 34). The “quantitative research deals with numbers, logic, and an objective stance and also focuses on numeric and unchanging data and detailed, convergent reasoning rather than divergent reasoning” (Babbie, 2010, p. 43). The main advantage with the employment of quantitative approach is that it allows for replication of the same phenomenon and therefore has high reliability level. Given the study purpose of assessing the effect of bank stability and growth of Sub-Saharan Africa, the quantitative method is considered as ideal for this study.

Source of Data

The main variables used in this study include bank stability, and economic growth. Bank stability was measured using the z-score while “economic growth was measured using the rate of change in the gross domestic product” (Sunney, 2020, p. 36) between years. The study also controls for macroeconomic indicators (measured by inflation) and bank specific variables such as access (measured by bank accounts per 100 adults), depth of banks (measured by liquid liability of banks as “percentage of gross domestic product” (Sunney, 2020, p. 37), efficiency of banks (measured by banks’ net interest margin). Data on all the variables with the exception of economic growth was obtained from the GFD database (2019) from the period of 2010 to 2015 on annual frequency. Economic growth data was obtained from the World Development Indicators (2019). The six year period was selected because of the fact that data up to 2020 was not available for all the 48 SSA economies. The study had to select the period from which data was available for most of the SSA economies, and this period happened to be 2010 to 2015

where data was available for 28 of the SSA economies. In all, the study used data point of 168 (that is, 28 countries by 6 years) which is sufficient for panel regression analysis.

Definition and Measurement of Variables

The definition and measurement of the variables were based on the definition as contained in the database of the Global Financial Development (2019).

Bank Stability

Bank stability “captures the probability of default of a country's commercial banking system. Z-score compares the buffer of a country's commercial banking system (capitalization and returns) with the volatility of those returns. It is estimated as $(ROA + (equity/assets))/sd(ROA)$; $sd(ROA)$ is the standard deviation of ROA. ROA, equity, and assets are country-level aggregate figures calculated from underlying bank-by-bank unconsolidated data from Bankscope” (Global Financial Development, 2019, p. 34).

Economic Growth

Economic “growth is the annual percentage growth rate of GDP at market prices based on constant local currency. Aggregates are based on constant 2010 U.S. dollars. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation

of fabricated assets or for depletion and degradation of natural resources” (World Development Indicators, 2019, p. 23).

Inflation

Inflation was “measured by the average consumer price index with 2010 as base year. It measures the average change in the cost of typical basket of goods and services purchased by typical urban household from year to year” (Sunney, 2020, p. 38).

Bank Access

Bank access was “measured by the number of depositors with commercial banks per 1,000 adults. “This variable was computed for each country as the product of 1,000 and the reported number of depositors/adult population in the reporting country”” (Sunney, 2020, p. 38).

Bank Depth

The depth of banks was measured as the “ratio of liquid liabilities to GDP. Liquid liabilities are also known as broad money, or M3. They are the sum of currency and deposits in the central bank (M0), plus transferable deposits and electronic currency (M1), plus time and savings deposits, foreign currency transferable deposits, certificates of deposit, and securities repurchase agreements (M2), plus travelers checks, foreign currency time deposits, commercial paper,

and shares of mutual funds or market funds held by residents” (Sunney, 2020, p. 38).

Bank Efficiency

Bank efficiency was “measured by the percentage of net interest margin which is the accounting value of bank's net interest revenue as a share of its average interest-bearing (total earning) assets” (Sunney, 2020, p. 39).

Times Series Properties of the Variables

As a pretest, all the “variables are tested for their time series properties by using the unit root test” (Sunney, 2020, p. 39). The “tests for unit root in the” (Sunney, 2020, p. 39) variables were investigated by using the “Augmented Dickey Fuller (ADF) test and Phillips-Perron (PP) test” (Sunney, 2020, p. 39). The ADF and PP were tested on the null hypothesis that the “variable has a unit root (non-stationary)” (Sunney, 2020, p. 39). The preliminary test revealed that economic growth, bank stability (z-score), bank access, bank efficiency and inflation were stationary at level whereas bank depth was stationary at first difference. This means that economic growth, bank stability (z-score), bank access, bank efficiency and inflation are integrated at order zero while bank depth was integrated at order 1. Theoretically, variables that are integrated at I(0) and I(1) can be modeled together in the ARDL co-integration model.

The ADF test was defined as:

$$\Delta y_{i,t} = B_1 + B_2 i, t + B_3 y_{i,t-1} + \sum_{i=1}^m a_i \Delta y_{i,t-i} + e_t \quad (1)$$

The PP test was defined as:

$$\Delta y_{i,t} = B_1 + B_2 i, t + B_3 y_{i,t-1} + \pi y_{i,t-1} + \epsilon_{i,t}, \epsilon_{i,t} \sim I(0) \quad (2)$$

Model used for the Study

This study uses the “autoregressive distributed lag model to assess the short run and long run relationship between bank stability and economic growth” (Sunney, 2020, p. 40). The study also uses above the mean and below the mean statistics to access the nature of bank stability and “economic growth in SSA” (Sunney, 2020, p. 40). Discussed below is the detail of the ARDL model.

The Autoregressive Distributed Lag (ARDL) Model

To model the data for this study “appropriately and extract long run and short run relationships, the ARDL model is a good choice” (Owusu & Anokye, 2016, p. 33) since the variables for this study have the “combination of I(0) and I(1)” (Owusu & Anokye, 2016, p. 33). The ARDL model combines the features of both autoregressive (AR) and the distributed lag (DL) models to manage a more general dynamic regression model. The “lagged values of explanatory variables or of the dependent variable (or both) may capture important dynamic structure in the dependent variable that might be caused by a number of factors” (Owusu & Anokye, 2016, p. 33).

(Owusu & Anokye, 2016) itemised some features of the ARDL or bounds testing methodology of co-integration to include the following. They presented that the data being modeled “must be stationary at level I(0) or at first difference I(1) but not at the second difference I(2)” (Owusu & Anokye, 2016, p. 33). They

also captured that the model “involves just a single-equation set-up, making it simple to implement and interpret. Also, different values can be assigned different lag-lengths as they enter the model” (Owusu & Anokye, 2016, p. 33).

To use the ARDL model, the researcher ensured “that none of the variables are integrated at the second difference $I(2)$ and the unrestricted error correction model” (Owusu & Anokye, 2016, p. 36) is formulated. The “appropriate lag structure is determined for the ARDL model” (Owusu & Anokye, 2016, p. 33) by using the Akaike Information Criterion. Serial correlation test is checked to ensure “that the errors of the model are serially independent” (Owusu & Anokye, 2016, p. 35). Also, parameter “stability test is conducted by using the CUSUM test to ensure that the model is dynamically stable. Bound testing is performed to see if there is evidence of a long run relationship between the variables in question” (Owusu & Anokye, 2016, p. 35). When the evidence of long run relationship is found between the variables, the long run level models are estimated “as well as a separate restricted Error Correction Model (ECM)” (Owusu & Anokye, 2016, p. 40). Finally, the results of the long run levels model as well as the restricted ECM are “used to measure short run dynamic effects, and the long run equilibrating relationship between the variables” (Owusu & Anokye, 2016, p. 45). Primarily, the empirical justification for the use of the ARDL model for this study was based on work of Nkoro and Uko (2016) which indicated that small sample/data size can be modeled for their long run cointegration using the ARDL. Again, it was specified that endogeneity

is less of a problem “in the ARDL technique because it is free of residual correlation” (Owusu & Anokye, 2016, p. 33).

Model Specification

The ARDL model of co-integration is used to ascertain the “relationship between bank stability and economic growth” (Sunney, 2020, p. 34). The ARDL model is estimated using economic growth as the dependent variable, bank stability as the independent variable, and inflation, bank access, bank depth, and bank efficiency as control variables. The compact form of the ARDL model for analysing objectives is estimated as indicated in equation 3.

$$\begin{aligned}
 \Delta EG_{i,t} = & \beta_1 + \sum_{i,t=1}^a \beta_2 \Delta EG_{i,t-i} + \sum_{i,t=0}^b \beta_3 \Delta BS_{i,t-i} + \sum_{i,t=0}^c \beta_4 \Delta INF_{i,t-i} \\
 & + \sum_{i,t=0}^d \beta_5 \Delta BA_{i,t-i} + \sum_{i,t=0}^e \beta_6 \Delta BD_{i,t-i} + \sum_{i,t=0}^f \beta_7 \Delta BE_{i,t-i} + \phi_1 EG_{i,t-1} \\
 & + \phi_2 BS_{i,t-1} + \phi_3 INF_{i,t-1} + \phi_4 BA_{i,t-1} + \phi_5 BD_{i,t-1} + \phi_6 BE_{i,t-1} \\
 & + \mu_{i,t}
 \end{aligned} \tag{3}$$

Where EG = Economic Growth

BS = Bank Stability

INF = Inflation Rate

BA = Bank Access

BD = Bank Depth

BE = Bank Efficiency

i,t = panel indicator

β_1 to β_7 and ϕ_1 to ϕ_6 = Coefficient of dependent and independent variables

a to f represent the highest lag length for the variables

μ = Error term

Model Diagnostics

The study uses unit root test to ensure that at least “all the variables are either stationary at level of after first differencing” (Owusu & Anokye, 2016, p. 33), and that none is stationary after second differencing. The study also checks for the “goodness of fit of the ARDL model by checking the size of the R^2 and the adjusted R^2 and the probability value of the F-statistic” (Owusu & Anokye, 2016, p. 45). The study also checks the status of serial correlation in the residual of the model by checking the size of the Durbin-Watson statistic. If the Durbin-Watson statistic is approximately 2 then the model has no serial correlation. Other diagnostics such as multicollinearity and dynamic stability of the model will be tested. The study uses bounds testing and Wald test to confirm the presence of long run relationship between bank stability and economic growth.

Chapter Summary

This chapter identified explanatory research and quantitative research as the research design and research approach that is respectively applicable to this study. The chapter also indicated that the ARDL model is used in ascertaining the relationship between bank stability and economic growth. The chapter also discussed the variables used in the study as well as the time series properties of the variables.

CHAPTER FOUR

RESULTS AND DISCUSSIONS

Introduction

This chapter considered the analysis of the data on the variables defined in this study and the discussions of the results obtained. This chapter further sheds more light on the nexus between bank stability and growth of the Sub-Saharan African region. The nature of bank stability and economic growth was tested by the mean analysis while the autoregressive distributed lag model was used to access the short run and long run relationships between bank stability and economic growth in Sub-Saharan Africa. Based on data availability, analysis for the objectives of the study was based on twenty-eight countries within the Sub-Saharan African sub-region for six-year period covering 2010 to 2015. The countries whose data were employed for analysis include Angola, Botswana, Burkina Faso, Cape Verde, Cote d'Ivoire, Cameroon, Dr. Congo, Ethiopia, Gabon, Ghana, Kenya, Malawi, Mali, Mauritania, Mauritius, and Mozambique. The other countries involved Namibia, Nigeria, Rwanda, Senegal, Sierra Leon, South Africa, Sudan, Tanzania, Togo, Uganda, Zambia, and Zimbabwe.

Nature of Bank Stability among Sub-Saharan African Countries

Bank stability in literature is mostly captured by the z-score which informs the probability of commercial banks defaulting on its financial obligations. From Table 1, the average z-score for Sub-Saharan Africa is 10.09 and out of the 28 economies sampled for this study, 13 economies are above the regional average

while a greater of 15 SSA economies are below the regional average. The economies with high levels of bank stability that are above the regional average in succession are Cape Verde, Mauritania, Sudan, Nigeria, Kenya, Mauritius, Gabon, South Africa, Angola, Cameroon, Tanzania, Uganda, and Malawi. Economies that are less stable and are below the regional average begins with Botswana and end with Zambia. Other economies that are in the below average category include Ethiopia, Mali, Namibia, Burkina Faso, Cote d’viore, Ghana, Rwanda, Senegal, DR. Congo, Sierra Leone, Togo, Mozambique, Zimbabwe, and Zambia.

Table 1: Mean Z-Scores for Sub-Saharan African Economies

Economies	Mean Z-Score	Rank
Economies above the Mean (SSA Average =10.09)		
Cape Verde	23.72	1st
Mauritania	20.34	2nd
Sudan	16.46	3rd
Nigeria	15.80	4th
Kenya	15.24	5th
Mauritius	15.15	6th
Gabon	14.04	7th
South Africa	13.85	8th
Angola	12.36	9th
Cameroon	11.07	10th
Tanzania	10.70	11th

Continuation...

Uganda	10.63	12th
Malawi	10.45	13th

Economies below the SSA Average

Botswana	10.08	14th
Ethiopia	8.96	15th
Mali	8.52	16th
Namibia	8.39	17th
Burkina Faso	7.42	18th
Cote D'voire	7.37	19th
Ghana	7.23	20th
Rwanda	6.51	21st
Senegal	6.27	22nd
Dr. Congo	5.15	23rd
Sierra Leone	4.76	24th
Togo	3.84	25th
Mozambique	3.73	26th
Zimbabwe	3.31	27th
Zambia	2.52	28th

Source: E-views Output, Sunney (2020)

Nature of Economic Growth in Sub-Sahara Africa

The economic growth of Sub-Saharan African economies is less impressive with 12 economies growing above the regional average of 5.60% with a greater number of 16 economies growing below the regional average. Over the sampled period from 2010 to 2015, Ethiopia grew faster than other economies with average growth rate of 10.60% followed by Zimbabwe, Congo DR., Rwanda, Ghana, Mozambique, Tanzania, Togo, Zambia, Zambia, Cote d’Ivoire, and Namibia. Economies that performed below the regional average begins with Gabon with average growth rate of 5.54%, followed by Nigeria, Botswana, Uganda, Burkina Faso, Sierra Leon, Cameroon, Angola, Mauritania, Malawi, Senegal, Mali, Mauritius, South Africa, Sudan, and Cape Verde with the lowest growth rate of 1.49%. Table 2 provides the growth rate for the 28 sampled Sub-Saharan Economies with their corresponding ranking on the region from 2010 to 2015.

Table 2: Mean Economic Growth among SSA Economies

Economies	Mean Economic Growth (%)	Rank
Economies above the Mean (SSA Average = 5.60%)		
Ethiopia	10.60	1st
Zimbabwe	9.45	2nd
Dr. Congo	7.66	3rd
Rwanda	7.28	4th
Ghana	7.27	5th
Mozambique	7.04	6th

Continuation...

Tanzania	6.36	7th
Togo	6.14	8th
Zambia	6.02	9th
Kenya	6.01	10th
Cote d'voire	5.81	11th
Namibia	5.71	12th
Economies below the SSA Average of 5.60%		
Gabon	5.54	13th
Nigeria	5.53	14th
Botswana	5.48	15th
Uganda	5.46	16th
Burkina Faso	5.41	17th
Sierra Leon	5.25	18th
Cameroon	4.84	19th
Angola	4.60	20th
Mauritania	4.56	21st
Malawi	4.55	22nd
Senegal	4.32	23rd
Mali	3.85	24th
Mauritius	3.77	25th
South Africa	2.34	26th
Sudan	2.33	27th

Cape Verde

1.49

28th

Source: E-views, Irene Sunney (2020)

Unit Root Test

In order to test for the short run and long run relationship between bank stability and economic growth the study tested for the order of integration of the variables using the both Augmented Dickey Fuller (ADF) and Philip Perron test. The summary of the panel unit root tests is provided in Table 3.

Table 3: Panel Unit Root Test

Variable	ADF	PP	Order of Integration
Economic Growth	56.9375[0.0400]	74.3645[0.0408]	I(0)
Z-score	69.6026[0.0046]	78.5973[0.0249]	I(0)
Bank Depth	51.6294[0.0339]	59.9718[0.0151]	I(1)
Bank Access	65.5227[0.0036]	87.0475[0.0000]	I(0)
Bank Efficiency	49.7385[0.0033]	57.7618[0.0209]	I(0)
Inflation	107.998[0.0000]	182.438[0.0000]	I(0)

Note: Probability values are in parenthesis

Source: E-View Output, Sunney (2020)

The unit root tests for the variables of this study revealed that bank depth was stationary after the first difference but all other variables were stationary at level. For economic growth the ADF showed chi-square statistic = 56.9375, $p < 0.05$ and PP showed chi-square statistic = 74.3645, $p < 0.05$. For the z-score, the ADF indicated a chi-square statistic = 69.6026, $p < 0.05$ and PP chi-square statistic

= 78.5973, $p < 0.05$. Regarding the control variables and with respect to bank depth, the ADF had a chi-square statistic = 51.6294, $p < 0.05$, PP chi-square statistic = 59.9718, $p < 0.05$. With bank access, there was a chi-square statistic = 65.5227, $p < 0.05$ for ADF and a chi-square statistic = 87.0475, 0.05 for PP. Regarding bank efficiency, the chi-square statistic for ADF = 49.7385, $p < 0.05$ and a chi-square statistic for PP = 57.7618, $p < 0.05$. Finally, the chi-square statistic for inflation for ADF = 107.998, $p < 0.05$ and PP chi-square statistic = 182.438, $p < 0.05$. The conclusion from the unit root test is that none of the variables was integrated at order 2; hence the variables can be modeled together in a single equation to ascertain the long run co-integration between bank stability and economic growth.

Short Run Relationship between Bank Stability and Economic Growth

The study tested for evidence of short run relationship by examining the optimal ADRL output. From Table 4, the optimal ADRL output is ARDL(3,0,1,3,0,1). The lag length for economic growth (EG) is 3, for z-score (bank stability) is 0, for bank access (Baccess) is 1. For bank depth (Bdepth) is 3, for bank efficiency (Befficiency) is 0, and for 1 for inflation. Among these variables, the significant variables were the first lag of economic growth, the third lag of economic growth, the first and second lags of bank depth, the level of bank efficiency, the level of inflation and the first lag of inflation. The optimal ADRL model was produced based on the optimal lag selection graph which revealed the optimal lag length of (3,0,1,3,0,1) for the variables.

Table 4: The Optimal ARDL (3,0,1,3,0,1) Model

Variable	Coefficient	Std. Error	t-Statistic	Probability
EG(-1)	0.211544	0.098348	2.150970	0.0342
EG(-2)	-0.108286	0.093670	-1.156038	0.2508
EG(-3)	-0.262080	0.0926646	-2.828847	0.0058
Z-Score	-0.113478	0.072479	-1.565673	0.1210
Baccess	0.004150	0.002886	1.437862	0.1540
Baccess(-1)	-0.003619	0.002469	-1.465772	0.1463
Bdepth	-0.084311	0.071568	-1.178066	0.2419
Bdepth(-1)	0.173686	0.070723	2.455868	0.0160
Bdepth(-2)	-0.156532	0.043874	-3.567783	0.0006
Bdepth(-3)	0.036739	0.031948	1.149956	0.2533
Befficiency	0.463302	0.143225	3.234786	0.0017
Inflation	-0.075296	0.020767	-3.625769	0.0005
Inflation(-1)	0.032708	0.016058	2.036875	0.0447
C	10.23248	3.679837	2.780687	0.0066
R-square: 0.423950			Durbin-Watson: 1.843740	
Adjusted R-square: 0.338852				
F-statistic: 4.981893 (Pro. 0.000002)				

Source: E-View Output, Sunney (2020)

From Table 4, the R-square and the adjusted R-square were 42.40% and 33.89% respectively and the significance of these values is confirmed by the value of F-statistic = 4.98, $p < 0.05$. Thus, the R-square shows that the regressors in

the ARDL model are significantly able to explain the variation in the economic growth by 42.40%. The Durbin-Watson value of 1.84 is also a good indication that there is no serial correlation in the residual of the ARDL model. Table 5 and Figure 4 provide the other diagnostics in the form of test of test of heteroscedasticity and dynamic stability of the model. From Table 5, the Breuch-Godfrey test produced F-statistic = 0.393681 and Probability (2, 86) 0.6758 > 0.05 thereby concluding that there is constant variance in the error term of the ARDL model. This makes the ARDL(3,0,1,3,0,1) suitable for use in assessing the short run and long run relationships between bank stability and economic growth.

Table 5: Breuch-Godfrey Test of Heteroscedasticity in the ARDL Model

F-statistic	0.393681	Prob. (F2,86)	0.6758
Observed R-square	0.925375	Prob. Chi-Square (2)	0.6296

Source: E-View Output, Sunney (2020)

Figure 4 provides dynamic stability test on the ARDL (3,0,1,3,0,1) model and the pictorial observation of Figure 4 reveals that blue zig-zag line lies within the two diagonal dotted bounds. This reflects that the ARDL model is stable over the sample time period. Hence, the model is good to serve as the basis for performing short run and long run co-integration analysis on economic growth and bank stability among the economies within the Sub-Saharan African sub-region.

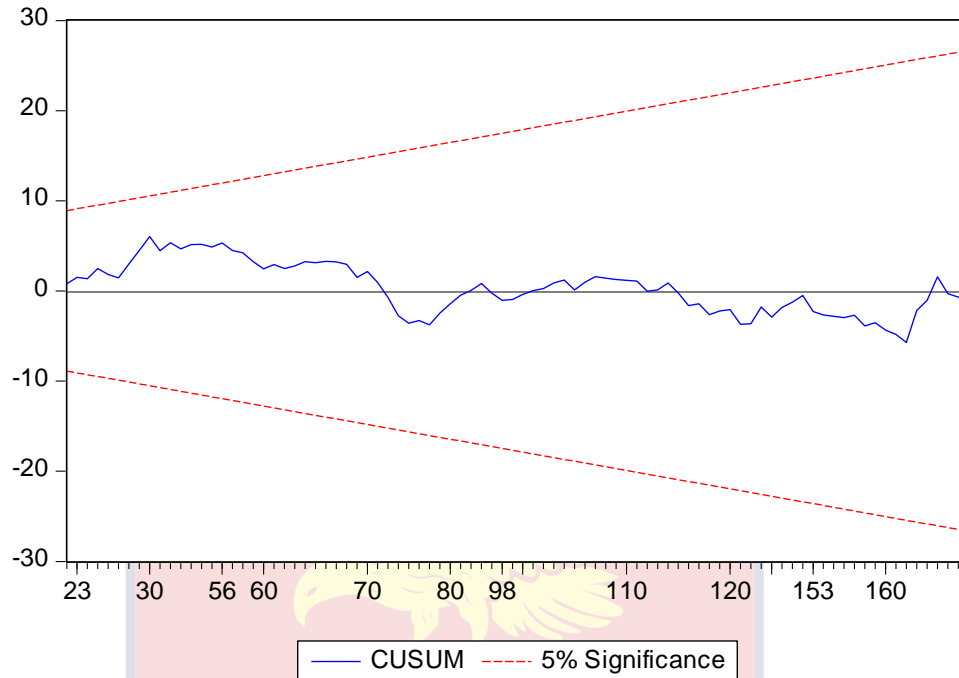


Figure 4: Dynamic stability of the ARDL(3,0,1,3,0,1) model

Source: E-View Output, Sunney (2020)

The short run model for the nexus between bank stability and economic growth is provided in Table 6. The short run model also contains the error correction term which represents the speed of adjustment that corrects short term deviation towards long run equilibrium. Based on the output shown in Table 6, it is observed that in the short run, z-score has a significant negative effect on economic growth. In other words, an increase in the probability of commercial banks defaulting on their legal claims decreases the growth of Sub-Saharan African economies by 0.102139. Thus, a unit increase in the default rate of commercial banks lowers economic growth of Sub-Saharan African economies by 0.102139 units.

The output in Table 6 further reveals that bank access and bank depth do not significantly affect economic growth in the short run even though bank access

and bank depth were found to positively and negatively affect economic growth respectively. Bank efficiency was found to significantly and positively influence economic growth with a unit increase in bank efficiency leading to 0.4137 increase in economic growth in the short run. On the contrary inflation which was a controlled variable was found to negatively impact economic growth in the short run with a unit increase in inflation causing a 0.06 unit decrease in economic growth of Sub-Saharan African economy.

Table 6: Short Run Model

Variable	Coefficient	Std. Error	t-Statistic	Probability
Z-score	-0.102139	0.041362	-2.469392	0.0092
Baccess	0.001226	0.002331	0.526064	0.6002
Bdepth	-0.024311	0.053199	-0.546985	0.6488
Befficiency	0.413663	0.157817	2.621148	0.0103
Inflation	-0.060621	0.022010	-2.754269	0.0071
ECT(-1)	-0.267853	0.123216	-2.173845	0.0324
C	11.20948	3.503578	3.199438	0.0019

Dependent variable: Economic Growth (EG)

R-square: 0.233230

Adjusted R-square: 0.180951

F-statistic: 4.461196

Probability of F-statistic: 0.000548

Durbin-Watson statistic: 1.904560

Source: E-View Output, Sunney (2020)

Table 6 further revealed that the error correction term (ECT) was negative and significant and this is rightfully so since there is an evidence of long run

equilibrium. The coefficient of the error correction term was 0.267853 and this value was significant at 5% alpha level. This implies that 26.79% of the short term deviation of the banking sector is corrected per year in achieving long run equilibrium. Furthermore, the size of the error correction term is interpreted to mean that it takes 3.73 years for the banking sector of the Sub-Saharan African economy to correct all short term deviations in the market.

With respect to the evidence of negative relationship between bank stability and economic growth, there are a number of studies whose findings agree with the evidence found in this study. For example, Ibrahim and Alagidede (2017) in their study submitted that bank stability positively affect economic growth while higher levels of instability reduces the level of growth of African economies. The findings in the study of Korkmaz (2015) further provides insight to justify the negative relationship between increase in the bank instability and economic growth by offering that economies in Sub-Saharan African whose banking sectors are less resilient are unable to discharge their debt obligations to their customers and they largely defaults in proving credit to the private sector. According to Tosunoglu (2018), this position can weaken the financial capacity of the private sector and the productive sector at large can suffer in terms of lower output. This trend when it continues unabated eventually affects the national productivity and consequently the growth of economies (Dwonfour, 2017).

Based on the short run result obtained from this present study, the diagnostics performed on the short run model includes the goodness of fit, test of autocorrelation, and the dynamic stability of the short run model. From Table 8, it

can be observed that the short run model produced an R-square of 0.23323 and an adjusted R-square of 0.180951 and the significance of these measures of goodness of fit of the short run model was confirmed by the probability of the F-statistic [$F = 4.461196$] which is $0.000548 < 0.05$. Furthermore, the size of the Durbin-Watson statistic which is 1.904 is a good indication that there is no autocorrelation in the error term of the short run model. The CUSUM test in Figure 5 also demonstrates that the short run model is stable over time and hence the diagnostic tests confirm the robustness of the short run model. In summary, the short run model revealed that increasing bank instability decreases economic growth, reflecting that bank stability increases economic growth in Sub-Saharan African economies.

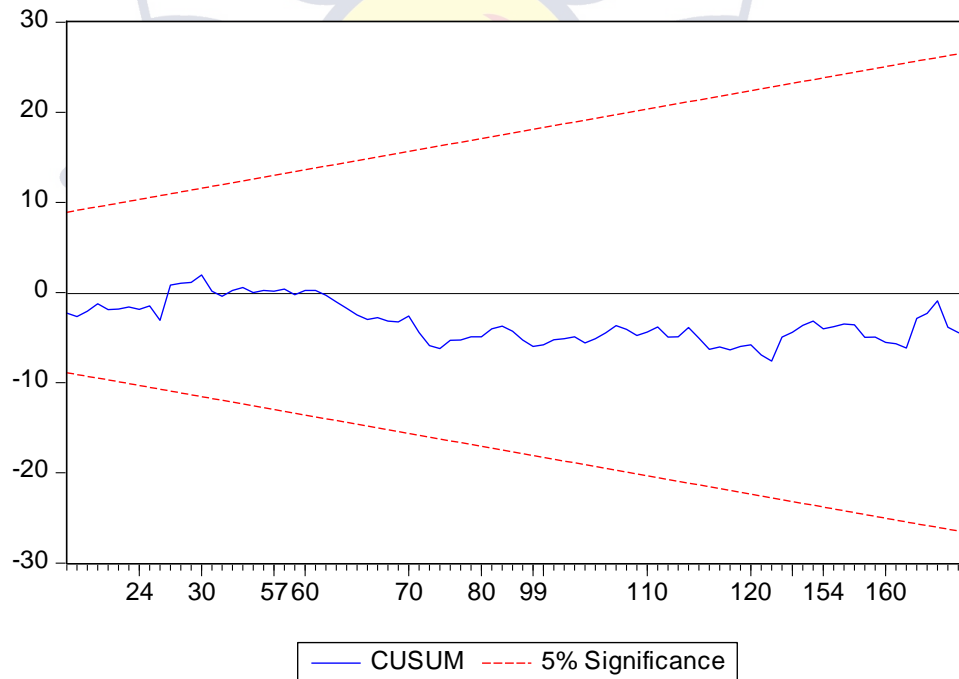


Figure 5: CUSUM Test

Source: E-View Output, Sunney (2020)

Long Run Effect of Bank Stability on Economic Growth

The present study tested for the evidence of long run relationship between bank stability and economic growth by using the ADRL bound test and the Wald test. The result from these two independent tests unanimously confirmed the presence of long run co-integration between the two variables. The result for the Wald test is indicated by Table 7 while that of the ADRL bound test is indicated by Table 10. From based on the result produced in Table 9, the F-statistic (4, 88) = 3.213837, $p < 0.05$ and the Chi-square value (4) = 12.85535, $p < 0.05$ both rejects the Wald test null hypothesis of no long run co-integration. It is therefore concluded that there is an evidence of long run relationship between bank stability and economic growth in Sub-Sahara Africa.

Table 7: Wald Test of Long Run Co-integration

Test Statistic	Value	Df	Probability
F-statistic	3.213837	(4, 88)	0.0164
Chi-square	12.85535	4	0.0120

Null Hypothesis: $C(1) = C(6) = C(8) = C(13) = 0$

Source: E-View Output, Sunney (2020)

From Table 7, the C(1), C(6), C(8) and C(13) represent the first period lags of economic growth, bank access, bank depth, and inflation which were produced in the optimal ADRL (3,0,1,3,0,1) in Table 7. From Table 8, the Bound test was conducted under the null hypothesis that there is no long run relationship among the variables. This null hypothesis was however rejected by the F-statistic whose value of 7.391979 is greater than the values lower bounds (I0) and the

upper bounds (I1) at all levels of significance (10%, 5%, 2.5% and 1%). This is a strong indication of long run co-integration.

Table 8: ARDL Bounds Test

Test Statistic	Value	k
F-statistic	7.391979	5

Critical Value Bounds:

Significance	I0 Bound	I1 Bound
10%	2.08	3
5%	2.39	3.38
2.5%	2.7	3.73
1%	3.06	4.15

Source: E-View Output, Sunney (2020)

The long run relationship between bank stability and economic growth and the control variables are produced in Table 11 showing their coefficients, standard errors, test-statistics, and the level of significance. Based on the result produced in Table 9, it was found that the Z-score which a proxy for bank stability is significant and negative, reflecting that higher levels of default in the obligations of commercial banks in Sub-Saharan African Economies reduces the growth of the sub-region. The Z-score has a coefficient of -0.132575 with probability level of 0.0457 which is less than 5% alpha level. This means that a unit increase in the level of default obligations by commercial banks decreases the rate of growth of the Sub-Saharan African economies by 0.132575 in the long run.

Other variables such as inflation negatively and significantly influence economic growth of the region in the long run while bank efficiency positive influence economic growth. Bank access and bank depth had respectively positive and negative effect on economic growth but the effect were not significant.

Table 9: Long Run Model

Variable	Coefficient	Std. Error	t-Statistic	Probability
Z-score	-0.132575	0.065635	-2.019870	0.0457
Baccess	0.000770	0.001559	0.493629	0.6225
Bdepth	-0.027787	0.035475	-0.780462	0.4367
Befficiency	0.360182	0.127878	2.816604	0.0057
Inflation	-0.047134	0.014439	-3.264344	0.0014
C	10.60347	2.318289	4.573837	0.0000

Dependent variable: Economic Growth (EG)

R-square: 0.228834 Adjusted R-square: 0.195594

F-statistic: 6.884328 Probability of F-statistic: 0.000012

Durbin-Watson statistic: 1.647215

Source: E-View Output, Sunney (2020)

Based on the long run result obtained from this present study, the diagnostics performed on the short run model includes the goodness of fit, test of autocorrelation, and the dynamic stability of the short run model. From Table 9, it can be observed that the short run model produced an R-square of 0.228834 and an adjusted R-square of 0.195594 and the significance of these measures of goodness of fit of the short run model was confirmed by the probability of the F-

statistic [$F = 6.884328$] which is $0.000012 < 0.05$. Furthermore, the size of the Durbin-Watson statistic which is 1.65 is a good indication that there is no autocorrelation in the error term of the short run model. The CUSUM test in Figure 6 also demonstrates that the long run model is stable over time and hence the diagnostic tests confirm the robustness of the long run model. In summary, the long run model revealed that increasing bank instability decreases economic growth, reflecting that bank stability increases economic growth in Sub-Saharan African economies.

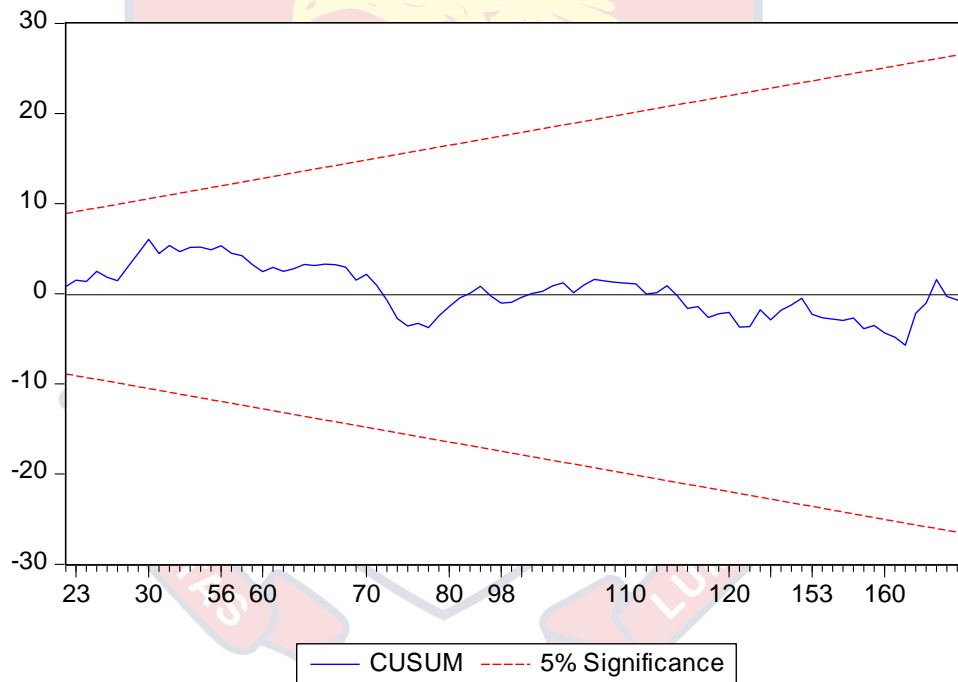


Figure 6: CUSUM Test

Source: E-View Output, Sunney (2020)

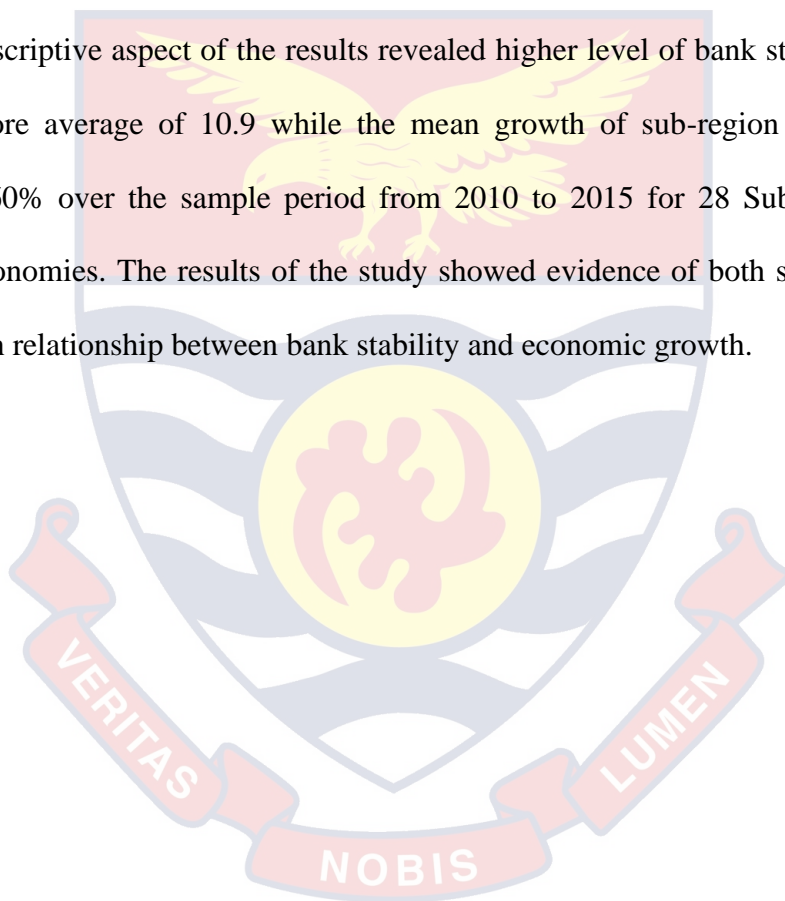
Regarding the findings on the long run relationship between bank stability and economic growth, the negative effect of the Z-score on economic growth has received empirical backing from economies within the Sub-Saharan African region. For example, in Nigeria, Akpansun and Babalola (2011) whose study on

the financial sector's impact on economic growth revealed that bank instability in Nigeria negatively affects economic growth in the long run. According to Ghosh (2010), bank instability has negative effect on economic growth in the long term due to the direct impact of the banking sector on the various sectors of economies. The banking sector provides financial assistance to the productive sector and the ability of commercial banks to provide continual financial support to the productive sector has direct bearing on the national output and growth (Pradhan, 2009).

Furthermore, while increasing bank instability negatively affect the growth of Sub-Sahara Africa, the reverse is also true. That is, improved stability of the banking sector positively affects the growth of Sub-Sahara Africa. Intuitively, stable banking sector implies a strong and resilient banking sector with little to no probability of defaulting on its mandate of providing credit to borrowers in times of crises (Otchere, 2005). In this present study, it was found that the average z-score of banks in the Sub-Saharan African economies is 10.9 representing high rate of bank stability. The study of Manu, Adjasi, Abor and Harvey (2011) and Furqani and Mulyany (2009) all agree that bank stability positively influence economic growth in the long run. In summary, it can be submitted that bank instability retards the growth of Sub-Sahara Africa while effort to increase the stability of the banking sector improves the growth of the region. The study also rejected the null hypotheses for second and third objectives which state no short run and long run relationship between bank stability and economic growth of Sub-Sahara African.

Chapter Summary

Chapter four of this study analysed the results based on the objectives of the study as well as the corresponding discussions of the results. The chapter employed the panel autoregressive distributed lag model to assess the short run and the long run relationship between bank stability and economic growth as well as the nature of bank stability and economic growth of Sub-Saharan Africa. The descriptive aspect of the results revealed higher level of bank stability with the z-score average of 10.9 while the mean growth of sub-region was found to be 5.60% over the sample period from 2010 to 2015 for 28 Sub-Saharan African economies. The results of the study showed evidence of both short run and long run relationship between bank stability and economic growth.



CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

This chapter dealt with the summary, conclusions and recommendations of the study. The main purpose of the study was to access the effect of bank stability on the growth of Sub-Sahara Africa. This chapter further provides an overview of the entire study, touching on the purpose, research objectives and hypothesis, overall conclusions, recommendations based on the study, and suggestions for further studies.

Summary of the Study

“This study investigated the banking stability of Sub-Saharan Africa economies and its relation with the growth of the region. It defined bank stability by the z-score which measures the probability of commercial banks defaulting on discharging their mandate of providing financial resources to borrowers in times of financial crises and difficulties. Furthermore, bank stability was described to cover the level of resilience of the banking sector and the banks can withstand economic pressures while performing their mandate to banking customers. Recognising the direct impact of the banking sector to the financial sector and the general economy, this study was centered on investigating the nexus between bank stability and economic growth of Sub-Sahara Africa. Specifically, the study investigated the nature of bank stability on economic growth among Sub-Saharan

African economies and the short and long run relationship between them” (Sunney, 2020, p. 64).

“The study was based on the explanatory research design and the quantitative research approach which allows for the parametric statistical measure of relationship between variables. The dependent variable of the study was economic growth while the main independent variable was bank stability and the study controlled for four other variables including bank access, bank depth, bank efficiency and inflation. Bank stability was measured by the z-score which compares the buffer of a country's commercial banking system (capitalization and returns) with the volatility of those returns” (Sunney, 2020, p. 64).

“Economic growth was measured by the annual percentage growth rate of GDP at market prices based on constant local currency. Inflation was measured by the average consumer price index with 2010 as base year. It measures the average change in the cost of typical basket of goods and services purchased by typical urban household from year to year. Bank access was measured by the number of depositors with commercial banks per 1,000 adults. The depth of banks was measured as the ratio of liquid liabilities to GDP. Bank efficiency was measured by the percentage of net interest margin which is the accounting value of bank's net interest revenue as a share of its average interest-bearing (total earning) assets. The data on economic growth was obtained from the World Development Indicators database while data on all other variables were obtained from the Global Financial Development database” (Sunney, 2020, p. 64).

The study was organised into three objectives and their corresponding hypotheses and research questions. The first objective examined the nature of bank stability “on economic growth in SSA. The second objective sought to test the short run relationship between bank stability and economic growth with the null hypothesis that there is no short run relationship between bank stability and economic growth. The third objective of the study examined the long run relationship between bank stability and economic growth under the null hypothesis that there is no long run relationship between bank stability and economic growth” (Sunney, 2020, p. 64).

Summary of Findings

Based on the first objective which assessed the nature of bank stability and economic growth in SSA, the study found that majority (54%) of the SSA economies (15 economies) had bank stability score to be below the regional average of 10.09 with 13 economies (46%) having bank stability score below the regional average. In respect of economic growth, the regional average was 5.06% and only 12 economies (43%) had their growth rate above the regional average with 16 economies (57%) having their growth rate below the regional average. Regarding the second objective and hypothesis, the study found a significant negative short run relationship between bank instability and economic growth. Finally, with respect to the third objective, the study found a significant negative relationship between bank instability and economic growth. Put differently, there

was a significant relationship between bank stability and economic growth of Sub-Saharan African economy.

Conclusions

Based on the findings of the study, the conclusions drawn can be summarized as follows:

1. Based on the first objective, the study concludes that majority of the SSA economies have bank instability and also most SSA economies have their growth rate below the regional average.
2. Based on the second objective which found a significant short run relationship between bank stability and economic growth, the study concluded that bank instability reduces the growth potentials of the Sub-Saharan African economies in the short term. Thus, the inability of banks to discharge their obligations to providing credit to their customers adversely affects the growth of Sub-Saharan Africa economies.
3. With respect to the evidence of long run relationship between bank stability and economic growth, the study concluded that bank instability stifles the growth of Sub-Sahara Africa in the long run. Thus, the long term growth of Sub-Saharan African economies is linked up with the resilience and stability in the banking sectors.

The overall conclusion drawn from the study is that bank stability has significant effect on the growth of Sub-Saharan African economies. While high

levels of bank lowers the regional growth, the stability of the banking sector on the other hand increases the growth of the region. The conclusion drawn from this study has contributed towards bridging the gap in literature where evidence on the asymmetric effect of bank stability on economic growth has been provided. Furthermore, the study has contributed to revealing that there is the existence of both short run and long run relationship between bank stability and economic growth in Sub-Saharan Africa. In sum, the findings obtained in this study support the endogenous growth model which clearly highlights that the growth of the economy is a function of the rate of resilience of the market conditions and the degree to which capital allocation can be done efficiently in the country by the banking sector.

Recommendations

Based on the findings and the conclusions drawn from the study, the following recommendations were provided:

1. Central banks and management of commercial banks of the Sub-Saharan Africa economies should work on boosting the resilience of their respective banking sectors such as strengthening the banking laws. This is because negative change in bank stability (instability) exerts adverse effect on economic growth. They are further encouraged to promote steps that strengthen the stability of the banking sector. For example, bank efficiency was found to positively influence growth. This means that the more efficient the bank

becomes the more resilient the banks become and the greater the impact on the growth of the Sub-Sahara Africa region.

2. The study also recommends that the central banks of the Sub-Saharan African economies executes short term measures such as tightening banking laws and improving upon the supervision of commercial banks to ensure that they operate in a manner that do not endanger their stability in the short term. This move will go a long way to have positive reflection on the growth of the economy.
3. Thirdly, this study recommends that long term bank stability measures such as tightening increased banking surveillance be instituted by central banks and directors of banks to ensure their improved state of stability. This in the long term will contribute to the ability of banks not to default in their obligation of granting credit to their clients and subsequently enhancing the growth of economies.

Suggestions for Further Studies

The study further suggests that different measures of bank stability should be adopted to investigate the problem further and future studies should also consider expanding the number of years for which data was collected for this study and the problem investigated on country by country basis to ascertain the state of bank stability in each Sub-Saharan African country and how growth in the economies are impacted.

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