UNIVERSITY OF GHANA

EXAMINING THE CAUSAL RELATIONSHIP BETWEEN PRIVATE SECTOR DEVELOPMENT, FINANCIAL DEVELOPMENT AND ECONOMIC GROWTH IN SUB-SAHARAN AFRICA.

BY

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THIS THESIS IS SUBMITTED TO THE DEPARTMENT OF FINANCE, UNIVERSITY OF GHANA BUSINESS SCHOOL, LEGON, IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE AWARD OF A MASTER OF PHILOSOPHY DEGREE IN FINANCE

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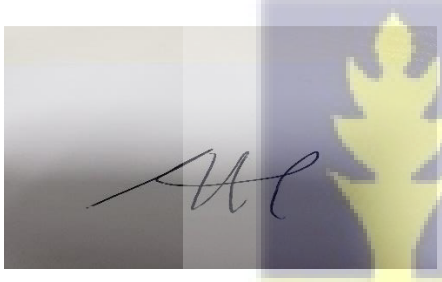
DECLARATION

I, David Osei-Owusu, do hereby declare that this thesis has not been documented for presentation in this or any other University. I, therefore, declare that this thesis is my own work, and all references have been duly acknowledged. I take full and sole responsibility for any shortcomings that may be found in this thesis.



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David Osei-Owusu Date

CERTIFICATION

I hereby certify that this thesis was supervised in accordance with procedures laid down by the University of Ghana.

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31/10/23	31 - 10 - 2023
Date	Date

DEDICATION

I dedicate this work to my family and all my loved ones who have supported me in diverse ways in climbing the academic ladder.

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LIST OF ABBREVIATIONS

ADF	Augmented Dickey-Fuller
ADL	Augmented Distributed Lag
FD	Financial Development
PSD	Private Sector Development
DCPS	Domestic Credit to Private Sector
FEVD	Forecast Error Variance Decomposition
SSA	Sub-Saharan Africa
GDS	Gross Domestic Savings
GDPG	Growth in Gross Domestic Product
GFCF	Gross Fixed Capital Formation
IRF	Impulse Response Function
VECM	Vector Error Correction Model
WDI	World development indicators

ABSTRACT

The private sector is one of the important sectors within the Sub-Saharan African region due to its significant contribution to employment through the creation of jobs and the creation of value through production. Private sector development is crucial for the growth of the economy. This is because actors in the private sector contribute to productivity. It is thus important to empirically determine whether causality exists between private sector development (PSD) and economic growth. This study therefore provides insight into the causal association existing between PSD and growth. Using the Granger causality test, with secondary data for twenty-four SSA countries from 2000 to 2018, the study investigates causality between PSD, growth and FD. For Sub-Saharan Africa, this study discovers a bi-causality between PSD and economic growth. There is also a bi-causality between economic growth and gross domestic savings. However, for GDS and private sector development, causality runs from GDS to private sector development only. The IRF was graphed to show how the variables of interest are impacted by shocks in other variables. This study recommends that relevant policy-makers must pursue policies that are favourable towards the development of the private sector, which has been found to result in growth in the gross domestic product in the sub-region.

CHAPTER ONE

INTRODUCTION

1.1 Background of Study

In numerous emerging nations, the pursuit of economic growth has taken center stage as an imperative and fundamental prerequisite for overall economic development. Extensive empirical evidence underscores the critical impact of various factors on the growth trajectory of developing countries. Notably, both investment and the development of the financial sector, particularly the banking industry, have been demonstrated to be pivotal drivers of economic growth (Ang, 2008b; Fowowe, 2011). For instance, Levine and Renelt (1992) have established a compelling and direct relationship between investment and the level of economic growth.

To sustain economic activities that engender growth within an economy, a steady influx of financial capital earmarked for investment is imperative. This crucial flow of capital is predominantly facilitated by the financial system, with banks playing a prominent role in developing regions (Zhuang et al., 2009). The financial system's instrumental function lies in its ability to foster capital accumulation by channeling resources toward productive ventures (Ang, 2008a). While traditional growth models often emphasize innovation, employment, and the accumulation of physical capital as primary drivers (Ibrahim & Alagidede, 2018), it's essential to underscore the profound influence of the financial sector in this intricate relationship. The financial system plays a pivotal role in enabling the accumulation and expansion of capital, a process integral to economic growth. A compelling illustration of how financial sector development impacts growth is through capital accumulation (Odhiambo, 2008). Savings mobilized by the financial sector are effectively directed into investments in productive endeavors, ultimately

leading to the formation of capital and, in turn, fostering growth (Gurley & Shaw, 1955). This underscores the indispensable role of the financial sector in propelling the growth trajectory of emerging nations.

In the realm of economic growth, domestic investment emerges as a significant contributor, aligning with the postulates of growth models (Emmanuel & Kehinde, 2018). These investments are intrinsically related to the influx of capital into productive ventures within the economy, making domestic investment a critical element for ensuring capital formation.

A robust indicator of private firm growth within an economy lies in domestic investment, often quantified as gross fixed capital formation (GFCF) in numerous studies (Ali, 2015; Kanu et al., 2014; Meyer & Sanusi, 2019) , as defined by the World Bank (2023). GFCF encompasses outlays on augmenting the economy's fixed assets along with net changes in inventories by the private sector. This component typically represents the investment facet of the gross domestic product equation. Consequently, an increase in the addition of fixed assets and inventories signifies the development of the private sector, ultimately leading to enhanced economic output and increased employment opportunities within this sector.

Addressing the escalating problem of unemployment in the Sub-Saharan region necessitates the formulation of strategies by governments across countries to absorb the surplus idle labor in the economy (Cleland & Machiyama, 2017). The growth of the private sector has been identified as a viable avenue for absorbing this surplus labor (Mosler, 1997). Consequently, many nations have pursued policies to create a business-friendly environment, which includes initiatives such as tax holidays and lenient tax policies, to attract foreign investors. The private sector, encompassing both locally-owned and foreign-owned businesses, has made significant contributions to both economic growth and employment (Nzomoi et al., 2012). Simultaneously, financial development

plays a pivotal role in equipping private enterprises with the necessary financial resources, further underscoring the critical interplay between these concepts. Hence, it is postulated that a robust financial sector will foster successful private-sector development, and a flourishing private sector will, in turn, contribute to overall economic growth (Frey & Sabbatino, 2018). This dynamic is bidirectional, as a robust private sector should also promote substantial financial development, while a thriving economy inherently leads to the strengthening of the private sector. These intricate linkages emphasize the profound significance of the financial sector and private sector development in shaping economic growth in Sub-Saharan Africa.

1.2 Problem Statement

This study is devoted to a comprehensive examination of the causal relationships between financial development, economic growth, and private sector development, with a specific focus on Sub-Saharan Africa (SSA). Despite the considerable body of literature exploring the relationship between financial development and economic growth, a noticeable gap exists in empirical studies that systematically investigate the relationships between financial development, private sector development (PSD), and overall economic growth within the SSA region. While several studies have centered on the relationship between financial development and growth at various levels, including country, region, and income categorizations (Christopoulos & Tsionas, 2004; Hassan et al., 2011; Khan & Senhadji, 2000; Rachdi & Mbarek, 2011), the crucial role of the private sector in this dynamic has not received adequate attention. Building on the foundations of the neoclassical growth theory, which underscores the paramount importance of labor, capital, and technology in achieving sustained growth (Solow, 1999), this research posits that increased savings and investment not only lead to the expansion of the capital stock but also underpin the promotion of full employment income, enhanced output, and the growth of the private sector. Moreover, the

financial intermediation theory further emphasizes the pivotal role of a robust financial system, including banks and financial intermediaries, in effectively channeling savings toward profitable investments, thereby acting as a catalyst for private sector expansion. Within the African context, the private sector assumes significant importance, representing a significant portion of total investments and consumption (Stampini et al., 2013). However, it predominantly comprises small and informal businesses, raising pertinent questions about the relationship between private sector development, financial development (FD), and overall economic growth. Particularly how well credit extended to the private sector leads to its development and subsequently the growth of the economy. This study endeavors to shed light on these relationships in SSA. Given the substantial advancements witnessed in the global financial system, alongside the influx of Foreign Direct Investment and the growing emphasis on entrepreneurship and PSD (Schulpen & Gibbon, 2001), this research explores how these changes relate to the development of the private sector in SSA. Building upon existing literature, the study focuses on domestic investment as a proxy for private sector development, thereby not only examining the influence of financial development on the private sector but also exploring the reverse relationship. Employing panel VAR analysis, the Granger causality test, and fixed-effect panel regression, this research provides a comprehensive understanding of these relationships. The investigation into the interdependencies among financial development, economic growth, and private sector development in SSA is crucial, as innovations and policy decisions in one sector have the potential to impact the others significantly. Moreover, the study conducts an in-depth exploration of impulse responses and forecast error variance decomposition, thereby bridging an essential gap in the existing literature and enhancing our comprehension of the finance-growth-private sector development dynamics in the SSA region.

1.3 Research Objectives

The overall purpose of this study is to determine the causal relationship that exist between financial development, private sector development and growth. To achieve this, the objectives of the study are broken down to the following:

1. To determine the causal relationship between private sector development, financial development and growth in SSA.
2. To determine how shocks in any of the variables (PSD, FD and growth) impact the other.
3. To determine the direction and magnitude of the impact of financial development and growth on private sector development.

1.4.Research Questions

Based on the objectives above, the following research hypotheses are formulated

Hypothesis 1: FD causes PSD in SSA

Hypothesis 2: PSD causes FD in SSA

Hypothesis 3: PSD causes growth in SSA

Hypothesis 4: Growth causes PSD in SSA.

To test the above hypothesis, the research will seek to answer the following questions;

1. What is the causal relationship between PSD, FD and growth in SSA?
2. How do shocks in any of the variables of interest (i.e., PSD, FD and growth) impact the other?
3. What is the magnitude and direction of the impact of financial development and growth on private sector development?

1.5 Significance of Study

Given the rising levels of unemployment and the shifting focus to entrepreneurship and the private sector as a means of sufficient job creation (Quak & Flynn, 2019), it is important that government policy in that regard is guided by solid empirical findings. In Africa, the private sector has been found to be dominated by small and informal businesses but yet contributes a greater part of investment and employment significantly (Stampini et al., 2013). The nature of SSA's private sector could have implications for how well financial development and growth will relate to development in the private sector (Fowowe, 2011). It is, therefore, important to understand how the PSD, FD and growth in the sub-region are related causally. A good understanding of the empirical relationship will be a good basis for effective policy formulation. This study will thus provide such empirical underpinning based on which effective policymaking regarding Private Sector Development, Financial Development and Growth will be made.

The understanding that this study will bring to light about the causal relationship between the variables will be totally relevant in determining government strategy in dealing with the Private Sector and providing the sector with the necessary environment, programs, policies and conditions to contribute significantly to growth and employment as it is expected to do.

Again, Fowowe (2011) postulated that it is expected that the financial reforms made in developing regions will increase savings, bank deposits as well as credit made available for investment. The private sector has also been found to receive the majority of the total credit extended by banks (Khalid & Nadeem, 2017). Given the different levels of reforms that have taken place over time, leading to expansion in credit available by banks (Khalid & Nadeem, 2017), this study will provide insight into how the access to credit by the private sector impacts growth.

The findings of the study would help the government in the sub-Saharan region to better understand whether the private sector in SSA is effectively playing its role in causing growth and also whether the financial sector, through the provision of credit, is causing private businesses to develop. Additionally, we will appreciate better how shocks any of these important sectors will impact each other and how this impact will die out over time. This knowledge will serve as a guide to government policy-making regarding growth and the private sector. Government and key financial and private sector regulators will know exactly what types of programmes or initiatives to take to bolster the relationships between the various sectors. For instance, if the study finds that PSD causes growth and shocks in PSD have a positive and relatively lasting impact on growth, the government in response to this can formulate programmes that encourage the development of the private sector. This may include lenient tax policies, cheaper funding, support of local entreprenuers etc. On the part of the central bank, the knowledge of the finding will lead to the formulation of policies that ensure easy access to funding. This could include effective monetary policy and expansion of cheaper credit to private sector.

1.6 Limitations of the Study

For SSA, the goal of this research was to see if there exist a bi-causal association between PSD and growth and between private sector development and financial development. However, data availability posed a limitation to the study. Some sub-Saharan African countries either had scanty or no data on some of the variables used in the analysis. This restricted the study to 24 countries out of 46 countries in the sub-region. Hence findings may not be a complete picture of the situation in the sub-region.

1.7 Organization of Study

The research is categorized under five sections. The first section presents the background, objectives, research questions and significance of the study. In the second chapter, financial development literature is extensively examined on investment and economic growth. Chapter three outlines the sources of data and the techniques for analysis of the data. Chapter four discusses the findings of the research in detail and its relation to other works in the area. Chapter five gives the conclusion, as well as some consequences and recommendations for the formulation of policy and future research.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The purpose of this chapter is to review literature in the field of financial development, private sector development and economic growth. Findings of previous studies and areas covered, as well as empirical studies, are reviewed and presented in this chapter.

2.2 Theoritical Underpinning

In the context of examining the causal relationship between private sector development, financial development, and economic growth in Sub-Saharan Africa, a comprehensive understanding is rooted in several foundational theoretical frameworks. The Neoclassical Growth Theory, as expounded by Solow in 1999, provides a foundational backdrop by postulating that steady-state growth relies on three critical factors: labor, capital, and technology. This framework, epitomized by the Solow-Swan growth model, further highlights that augmenting the levels of savings and investment can lead to an expansion in the capital stock, subsequently resulting in a short-term increase in full employment income and output. Complementing this, the Financial Intermediation Theory, articulated by Allen and Santomero in 1997, emphasizes the pivotal role of a robust financial system, encompassing banks and financial intermediaries, in guiding savings toward profitable investments. Such intermediaries serve as vital links, connecting savers and borrowers with capital, thus facilitating private investment and fostering overall economic expansion. Building on this foundation, the Finance-Growth Nexus Theory, rooted in Schumpeter's work from 1912 and supported by subsequent academic studies, highlights a symbiotic relationship between financial development and economic growth. It posits that finance acts as a linchpin for ensuring

economic growth, and, conversely, economic growth fuels an increased demand for financial services. These dynamics are integral to understanding the dynamics in Sub-Saharan Africa. Additionally, the Investment-Savings Gap Theory, proposed by Gurley and Shaw in 1955, delves into the interaction between investments and savings. It underscores the vital role of a well-functioning financial system in bridging the gap between these two components, thereby facilitating private sector development, given the significant mismatch that can exist between investments and savings in the region. Finally, the Credit Constraint Theory places an emphasis on the importance of financing availability for private investment, especially in the context of underdeveloped financial markets. It highlights that limited access to credit can hinder business owners and entrepreneurs from pursuing profitable ventures, potentially impacting the region's economic growth significantly. These interconnected theories collectively form the theoretical underpinnings essential for an in-depth exploration of the intricate web of relationships between private sector development, financial development, and economic growth in Sub-Saharan Africa.

2.3 Growth and Financial Development

Key among literature in the area of FD and Growth are the works of King & Levine (1993), who established that FD significantly leads to growth. According to Schumpeter (1911), by making financial resources available to productive initiatives with the best possibilities of success, an effective financial system inspires innovation and economic progress. In countries with imperfect financial markets, an effective financial system minimizes the presence of information asymmetry and offers crucial services such as pooling of savings, risk diversification, and saving allocation to productive investments, all of which lead to increased output and an increase in income per person (Capolupo, 2018).

The relationship between FD and growth has been explained by four main hypotheses given in academic literature (Chuah et al., 2004). The first hypothesis is a supposition based on supply. This hypothesis asserts that the FD precedes growth. In a frictionless world, where no transactions, information and monitoring costs exist, there is no need for financial intermediation. However, when there is a high cost, there will be no exchange. The role of financial institutions is to thus cut down the cost involved in exchanges through financial intermediation. A well-established financial system offers essential services to reduce expenses and improve the efficiency of financial intermediation. This is done through the mobilization of savings, the identification of good investment projects, the monitoring of performance and the diversification of risk. This results in the efficient allocation of scarce resources and enhanced human resource accumulation and capital accumulation which results in economic growth.

The second hypothesis is that growth leads to FD. The concept of demand-following is used to describe this. Economic expansion, in this instance, causes a surge in the need for financial services. Therefore, additional financial institutions and marketplaces are formed to accommodate the demand (Demetriades & Hussein, 1996; Robinson, 1952)

The third hypothesis proposed a bi-directional theory. It postulates that a combination of demand-following and supply-leading factors are sources of the relationship between FD and growth. Financial deepening and growth are related bi-directionally in this case. Financial deepening causes growth, and this growth leads to more financial deepening in the economy.

The fourth hypothesis asserts that FD and growth are not related. In this case, financial depth has no impact on economic growth.

In developing nations where private enterprises have a larger tendency to be contingent on the financial sector for investment funds, the loans offered by banks have been identified as a significant source of financing for investment projects (Oshikoya, 1994).

It was discovered that causality from FD to growth and from growth to FD was present in some emerging countries (Calderón & Liu, 2003). According to Akinlo & Egbetunde (2010), in a few SSA countries, there is a long-term, causal link between FD and growth. The causation was one-way for some countries in the region, while it was bi-directional for others. FD is thought to be stimulated by economic growth (Rachdi & Mbarek, 2011). Additionally, Ibrahim & Alagidede (2018) found that the extent to which FD supports growth is contingent on growth in the output and financial development indicators simultaneously. It is further argued that a persistent rise in sub-Saharan African credit will be costly to growth since it can be accompanied by consequences from risky and unsustainable financial investments (Ibrahim & Alagidede, 2018). Similarly, Khan & Senhadji (2003) discovered that financial development boosted growth. Nevertheless, this effect was found to vary in size across different indicators for financial development and estimation methods. According to Xu (2000), FD is necessary for growth. Furthermore, investment is a crucial conduit through which FD influences growth. In contrast to previous results of FD and growth following each other, some recent studies (Odhiambo, 2007; Acaravci et al., 2009; Kagochi et al., 2013) have discovered that the connection between growth and bank development indicators is uni-directional and runs from growth. However, there is a two-way causal relationship between growth and stock market indices. Private credit, in particular, was discovered not to lead to growth (Kagochi et al., 2013). Other researchers have found no long-term causation between FD and growth in SSA (Acaravci et al., 2009). We can thus conclude that the findings in the literature regarding the growth and finance nexus can be categorized under four possible outcomes. The

presence of a relationship between FD and growth has been established by authors of academic literature in the field of FD and growth. Nonetheless, there is no unanimity in the literature on the causality direction. In the literature, various causal directions have been established. The first is that the relationship between growth and FD is unidirectional. In that case, growth stimulates FD (Brasoveanu et al., 2008; Liang & Jian-Zhou, 2006). The second result is a unidirectional association between FD to growth which runs from finance to growth. (Rousseau & Wachtel, 2011; Van Nieuwerburgh et al., 2006). This means that growth is preceded by FD. A two-way causality between FD and growth is the third result. In this case, causality runs in both ways (Calderón & Liu, 2003; Demirhan et al., 2011). The fourth is that FD and growth do not affect each other in any way (Acaravci et al., 2007; Chang, 2002). Findings in all literature regarding the growth-finance nexus fall into one of the four possible outcomes. It has been found that established and emerging countries have a varying relationship between FD and growth. For instance according to Masten, Coricelli, & Masten (2008) FD has a more influence on growth in emerging countries than in it has in established economies. The association between FD and growth is causal in one direction and is sensitive to the variable used as an indicator of FD (Odhiambo, 2007).

2.4 Investment, savings and Economic Growth

There are also strong links between investment, savings, and economic growth, according to existing literature. It has been established that the level of gross domestic savings and gross fixed capital formation have a relevant direct influence on growth. This implies that increasing the level of savings and capital accumulation is a necessary condition for growth. According to Khan & Reinhart (1990), in developing countries, investment spending made by private businesses is more useful in spurring growth than investment spending by the government. In a study in Malaysia, Ang (2008b) came to the conclusion that FD adds up to significantly enhancing GDP growth rates

by mobilizing savings for private investments. In other words, when economies are able to mobilize a significant amount of domestic savings there will be significant increase in private investments which will culminate in economic growth.

Cheung, Dooley & Sushko (2012) studied investment and growth differentials between wealthy and poor nations and discovered that investment had an inverse relationship with growth in higher-income economies over time. They argue that the trend of a negative influence of investment on growth in high-income economies may be due to country-specific dynamics such as a reduction in productive investment ventures in these countries over time or the financial system's inability or unwillingness to provide capital to productive ventures in these countries.

Saving, investment and growth have been found to have a long-term association. Changes in the level of overall savings have an inverse effect on growth in the Nigerian economy, but a rise in gross domestic investment leads to a rise in growth. (Nwanne, 2016). The level of investment is seen to depend directly on the income per capita of a country. Economies that have a higher per capita income are seen to possess a greater capacity for mobilizing savings and channelling them into investment activities (Greene & Villanueva, 1991)

In a study of selected low- and middle-income countries using data from 1970 to 1988, Oshikoya (1994) discovered that there is a significant positive relationship between growth and private investment in low-income economies. He further found that the association between growth and private investment in middle-income countries was found to be positive but not significant. The quantum of loans given to private businesses by banks in an economy has also been demonstrated to be directly related to the volume of investment in the private sector of low-income economies (Oshikoya,1994).

Furthermore, some studies have investigated the association between savings and growth. The level of savings is influenced by economic growth. Odhiambo (2008) discovered that growth granger causes savings, which drives financial development, in a study on Kenya.

2.5 Investment and Financial Development

The endogenous growth model postulates that the accumulation of fixed assets is a constant factor that influences growth. In the modern models of growth, the increase of capital input increases the growth rate till the steady state equilibrium is reached. This means that effective investment expenditure provides a solid foundation for future growth. In order to sustain significant levels of growth, it is imperative that economies keep accumulating the tangible and intangible asset that leads to growth. This accumulation of tangible and intangible assets of production by the private sector is what is referred to as private sector development (Bambi, 2008).

A positive association between investment and various metrics of financial development was discovered in SSA with data from 1970 to 1995 on 30 nations. (Ndikumana, 2000) . For example, Asante (2000) found that domestic financing of private businesses had a favourable impact on domestic investment levels in Ghana, using data from 1970 to 1992. According to Misati & Nyamongo (2011), interest rates and private investment have a negative association. Private investment was found to have a significant positive relationship with asset turnover ratio and domestic loans to private businesses in the economy. The flow of capital to the private sector has been shown to be very low in both poor countries (Bist, 2018). Capital accumulation is an important medium through which FD can be seen to affect growth. Savings mobilized by the financial sector are channelled to investments in productive ventures, which culminates in capital formation and, subsequently, growth (Gurley & Shaw, 1955).

Xu (2000) used 41 nations in his research and discovered that FD had a long-term negative influence on investment in 14 of them. They argue that this was the case because, during the period of study, the state had relatively more control over the financial markets than the market itself. However, for the remaining 27 countries, predominantly advanced countries, financial development was discovered to possess a favourable, relatively lasting influence on the level of investment.

In as much as it is established that growth follows financial development, the channel through which this happens is relevant. Investment in tangible and intangible assets has been found to be the transmission mechanism between finance and growth. Spending on assets increases the productive capacity of the economy (Capolupo, 2018). Financial intermediation facilitates the search for investment opportunities that have great potential to improve financial resource allocation and ensure rapid growth rate. Shaw (1973), under a new Keynesian perspective, proposed that financial intermediation should be done in a manner that promotes investment and, thus, growth by effectively moderating borrowing and lending activities. This is because investment projects are financed with a mixture of personal and borrowed financial resources. The financial system is a crucial engine of growth because it ensures considerable levels of investment by providing funding to the private sector.

2.6 Private Sector Development

Fixed asset investments are critical for enhancing the economy's productive capacity. GFCF is an indicator of private sector development that refers to all gross outlays on fixed asset additions by the private sector.

It is undisputed that a healthy private sector is a necessary condition for improving productivity, enhancing new technologies, strengthening competition, entrepreneurship and poverty alleviation (Niklaus, 2005). The activities of the private sector are paramount to achieving the necessary levels of growth in any economy. The activities of the government and foreign aid alone are not sufficient to attain significant levels of economic growth. Through the private sector, wealth is created, which is useful in ensuring growth; revenues are generated to the government, which is useful in providing relevant public goods; and, importantly, jobs are created, which offers individuals the opportunity to earn a living and improve standards of living. The private sector is, therefore, a crucial part of every economy (Misati & Nyamongo, 2011). The success of the private sector in achieving its roles is dependent on the availability of financial services. The private sector depends on the financial sector to raise the relevant funds needed to carry out its activities. The growth of the financial sector is therefore anticipated to directly or immediately impact private sector development. In some developing countries like Zimbabwe, it was found that the GDP and public investment are important factors that impact the level of private investment (Bonga & Nyoni, 2017). It has also been found that bureaucratic processes, inadequate infrastructure and access to finance are some significant impediments to PSD (Workie, 1999). In Senegal, it was discovered that government investment expenditure, output, and the flow of international aid funds favourably cause the development of the private sector. However, DCPS has a negative effect on private sector development (Ouattara, 2004). In Malaysia, it was found that access to finance had a direct impact

on private investment. Government investment and FDI were found to complement private investment. It was, however, found that when there is much uncertainty in the macroeconomy, it has a negative impact on the private sector (Ang, 2010).

2.7. Financial system, capital accumulation and the real sector.

The financial system within the economy has been noted to perform five major functions in the real economy. These are; the provision of information with regard to potentially good investment avenues and allocation of capital to those with the best-expected returns, supervising investments and assisting with governance, risk diversification, pooling savings and facilitating trade (Beck & Levine, 2004). Clearly, some of these financial system tasks are associated with capital accumulation, while others are related to increasing productivity through efficient capital allocation. This affects the transmission channel through which from FD to growth (Beck & Levine, 2004. For example, Rioja & Valev (2004) found that the financial system in advanced countries with high levels of industrialization adds up to growth basically by improvement in productivity, whereas in less industrialized countries, the financial sector contributes to growth through capital accumulation. It is thus expected in developing regions that the way the financial sector will contribute to growth is through investment in physical assets and thus investment is conclusively imperative for growth.

2.8 Empirical Literature

2.8.1. The causal relationship between FD and Economic Growth

Some studies focus on examining the relationships across different geographical regions and income group countries. This allows for a better understanding of how the association between FD and economic growth differs across different geographic locations and socioeconomic categories.

There is a great likelihood that relationships tested across different geographical and economic regions will have varying outcomes due to different underlying structures and conditions in the various regions. Hassan, Sanchez, and Yu (2011), for example, looked at the association between FD and economic growth in different parts of the world. Using the Toda Yamamoto granger causality test and the IRF, they made the following findings;

The impulse response function in Sub-Saharan Africa revealed that shocks in financial variables had no meaningful impact on growth. Shocks in GDS, which is an indicator of financial development, were found to result in a rise in growth. DCPS leads to growth, and growth leads to DCPS in the Middle East and North Africa. As a result, bi-directional causality exists between growth and DCPS. In East Asia and the Pacific, growth is not caused by loans extended to the private sector; however, DCPS follows growth. Hence a causality runs in one direction from DCPS to growth. In Europe and Central Asia, shocks in GDS will cause an increase in growth. Also, a significant two-way causality was found between GDS and growth.

With regards to examining the relationship across income groups, Hassan et al. (2011) made the following observations; For some OECD countries, growth followed innovations in domestic savings but died out quickly. Studying countries in Central and Eastern Europe, Dumiter & Todor (2014) found that the level of direct investment contributes essentially to the level of growth, job creation and optimal resource allocation.

Ghirmay (2004), in his research using thirteen SSA countries, discovered a unidirectional causality exists between FD to growth in eight of these countries.

There is a large body of studies that have deployed different statistical methods and data to produce a number of results. In general, research shows that countries with well-developed financial sectors

have higher growth rates. This growth is better enhanced in the presence of large private banks that extend loans to the private sector and an efficient banking system, and a stock market that impacts growth.

Some empirical studies (Ghirmay, 2004; Ndikumana, 2000) have tested the various varying theories by deploying varying statistical techniques. There are two types of research that have been conducted. These are regression analyses carried out across countries in which the average per-capita growth is the predicted variable, and some proxies of FD are the explanatory variables of the regression, as well as some control variables (Ndikumana, 2000). The second collection of studies investigates the causal association between FD and growth using time series data from specific countries. The adoption of a pure cross-country method has the disadvantage of failing to account for biases caused by the endogenous independent variables and the presence of heterogeneity across the nations studied. This could result in erroneous estimates (Caselli et al., 1996). Recent research has employed panel regression methods such as GMM to adjust for any biases in coefficient estimates in cross-country analysis to solve this problem. These studies (Caselli et al., 1996; Ndikumana, 2000). indicate a strong relationship between long-term growth and the independent component of FD.

The GMM estimator was used by Levine et al. (2000) to examine the causal association between FD and economic growth. They investigated how financial development affected growth using data from 1960 to 1995. Unobserved country-specific impacts were taken into account. The inclusion of instruments in panel data models allows for the control of endogeneity biases in the independent variables. The results demonstrated that the separate FD components statistically significantly impacted economic growth. As a result, they draw the conclusion that the increase in financial intermediaries and growth are strongly positively related.

King & Levine (1993) study is a standout among econometric investigations. They created four financial development indicators as part of a cross-country examination of economic growth. They discovered a well-developed financial sector was substantially linked with the rate of economic growth, accumulation of fixed assets, and efficiency gains, using data from 77 nations. The above studies have revealed a link between finance and growth, but they couldn't say if finance drives growth. Using data from 42 economies from 1976 to 1993, Levine & Zervos (1998) found a direct relationship between stock market development and growth, the accumulation of fixed assets, and a rise in output growth. It was found that the stock market is crucial in helping individuals manage risk associated with productivity and liquidity risk (Levine, 1991).

Using data from 159 countries from 1960 to 1999, Khan & Senhadji (2000) discovered that while FD had a positive influence on growth, the extent of the influence varied depending on the FD indicators, method of data analysis, data period, and model specification. The variables DCPS and financial market (stock and bond) capitalization as a share of GDP were used as an indicator of FD.

Panel co-integration analysis is deployed by Christopoulos & Tsionas (2004) to investigate the long-term connection between FD and economic growth for ten emerging economies between 1970 and 2000. Christopoulos & Tsionas (2004) discovered a one-way causal association between financial depth and growth. Additionally, they discovered that the factors for FD, the proportion of investment, growth, and the rate of inflation, each have their own independent co-integrating vector.

Levine (1998) examines the link between FD and long-run growth using data from 44 developed and developing nations from 1975 to 1993. Using a GMM estimate approach, a significant direct

association was identified between the independent components of FD and growth, physical accumulation, and productivity growth.

Beck et al. (2000) tested the association between FD and growth, as well as the association between the sources of growth measured by household savings, capital accumulation, and factor productivity, using the GMM approach with instrumental variable estimators. They discovered that a high level of FD led to high economic growth. It is thus conclusive that the above cross-country studies are indicative of a direct effect of FD on growth. Nevertheless, the findings of these studies may not be applicable to individual countries. This challenge of country specific uniqueness is addressed by the use of a time series approach which makes room for the conduct of causality tests for specific countries so as to know the trend of causality exhibited by specific countries. A number of empirical researches have employed this approach. The direction of causality, on the other hand, is determined by the countries and variables used as proxies for FD and economic development.

For 56 developed and emerging countries, output and financial development data were used, as well as a level Vector Autoregression model. For poor countries, Jung (1986) discovered unidirectional causation from FD to growth, and for developed countries, a one-way causality from growth to FD.

The finance-growth connection in Asian countries was studied by Demetriades & Hussein (1996). Demetriades & Hussein (1996) used annual data from 1965 to 1992 to find that, with the exception of Sri Lanka, FD did not lead to growth in all of the other nations studied. However, in some countries, such as Thailand and India, they discovered bi-directional causality between FD and growth. Al-Zubi et al. (2006) demonstrated that all indices of FD were minor and had no effect on growth using panel data from 11 Arab nations from 1980 to 2001.

Using 109 developed and emerging countries, Calderón & Liu (2003) discovered that financial development caused growth. This finding is corroborated by Christopoulos & Tsionas (2004), who used ten developing countries in their study. They arrived at the conclusion that a strong one-way causal relationship existed between FD and growth. Concerning emerging economies, they discovered that financial depth accounts for the causal link.

Apergis et al. (2007) used panel integration and co-integration approaches to examine the association between long-run economic growth and FD for 15 OECD and 50 non-OECD economies over the period 1975 to 2000. To establish the channel by which financial development affects growth, three measures were used. They discovered that FD and growth have a long-run equilibrium association. They also discovered that financial deepening and economic growth have a bi-causal association.

The causal association between FD and economic growth was investigated by Chuah et al. (2004) who used an Error Correction Model (ECM) and VAR model to test data from 6 economies in the Gulf Cooperation Council. The study discovered a two-way causality in 5 of these economies and a one-causality from finance to growth in the last one. They further found that financial development would be best aided by significant reforms in the real economy.

In SSA, some empirical studies have examined the association between FD and growth, as well as the form of causality. Different statistical techniques have been used to this effect.

In Botswana, Akinboade (1998) looked at the association between FD and growth. Causality tests were deployed to investigate the association between GDP per capita and FD. After testing for the existence of unit roots and cointegration, a VECM was used. The research discovered that FD and GDP per capita had a bi-directional causal relationship.

Using a sample of 8 countries and co-integration tests, Agbetsiafa (2003) discovered that FD is connected to long-run growth in seven out of the eight countries used.

In 13 Sub-Saharan African nations, Ghirmay (2004) examined the causal association between growth and FD and discovered that growth and FD are positively related in the long run in 12 of the 13 nations using co-integration analysis. In 8 of these countries, it was established that FD causes growth. A two-way causal relationship was established in 6 countries.

Odhiambo (2005) examined the role of FD plays in growth in Tanzania. The Johansen-Juselius co-integration technique was used in this investigation, as well as a VECM. The study tested three indicators of FD against real GDP per capita. A two-way causality was revealed to exist between FD and economic growth. However, it was found that the causality from FD to growth dominated.

In their study, Atindéhou et al. (2005) tested the relationship between finance and growth in ECOWAS countries. Causality tests were conducted, and there was a bi-causal relationship between finance and growth, but the relationship was not strong.

Adjasi & Biekpe (2006), using data from 14 African countries, examined the relationship between stock market development and growth. A direct association between stock market development and growth was discovered using a dynamic panel data model.

Odhiambo (2007) investigated the causal relationship between FD and growth in three SSA countries which are; Tanzania, Kenya and South Africa. The study finds the direction of causality depends on the indicator used for financial development. The magnitude of causality was also found to differ across countries.

According to Quartey & Prah (2008), when broad-money growth is used as an indicator for FD, FD in Ghana is found to be demand-following; however, the results were found to be ambiguous when the DCPS to GDP ratio was used as a proxy for FD.

In Kenya, Odhiambo (2008) investigated the dynamic causal link between FD and economic growth. Using co-integration and error-correction techniques, the research finds that there is a unidirectional causality running from growth to FD. The study indicates further that it is not ideal to conclude that growth FD clearly leads to growth.

Enisan & Olufisayo (2009) tested the long-run and causal relationships between stock market development and growth. An ADL test was used. The study found that countries with efficient and progressively developing stock markets have a higher tendency for growth. Granger Causality test also revealed that growth was resultant of the development of the stock markets in Egypt and South Africa. For Cote d'Ivoire, Kenya, Morocco, and Zimbabwe, two-way causation was demonstrated between stock market development and growth.

Deploying panel cointegration and panel GMM esstimation for causality, Acaravci et al. (2009) discovered no long-term association between the indicators of FD and those of economic growth in SSA. Furthermore, a two-way causality was found between real output per capita and the DCPS by banks in SSA. They concluded that Africa could speed up growth by enhancing its financial systems. They found that the credit ratios better-captured variations in economic growth than depth variables. They established that when more loans are offered by banks to the private sector, it causes an increase in the growth in real output per capita in the sub-region. They further found that growth in the real GDP per capita leads to financial deepening.

Hassan et al. (2011), examined the association between real sector development, FD and economic growth. Using panel regressions, they examined the long-term relationship between GDP per capita and financial development proxy factors. They use DCPS and M3 as indicators for financial development. Six variables were specified in the VAR model. The variables were; FD, real sector development and growth. The Toda Yamamoto procedure for testing granger causality was used. The benefit of this approach is that it addresses well the cointegration features in the series. Hassan et al. (2011) found that the level of domestic savings had a relevant impact on growth in some regions. This includes Southern Asia, SSA and some high-income countries belonging to the OECD. This suggests that a direct long-term relationship exists between savings and growth. Hence financial sectors in developing countries could facilitate economic growth through higher savings and investment rates. Domestic Credit to the Private Sector was also found to be positively related to economic growth in East Asia & and Pacific Latin America & Caribbean. For richer economies, however, an inverse association was found between DCPS and growth. For impulse response, Hassan et al. (2011) found that a favourable innovation in domestic savings resulted in increased growth from the onset of the impulse. The highest rise in GDS was observed to happen in some advanced economies, mostly in Europe and Asia. Shocks in the DCPS, however, had an inverse relationship with growth for the initial two years but eventually turned positive for most nations. In Africa, for the Middle East and North Africa, DCPS and GDS were found to explain a small proportion of the changes in the real sector. DCPS explained 1.7%, and GDS explained 0.5%. A shock in DCPS causes a sharp rise in growth, and it dies out after four years. In sub-Saharan Africa, financial measures were found to explain a very small proportion of the changes in the GDP per capita growth. Shocks in GDS and DCPS were found not to affect growth significantly. Growth was found to always follow innovation in domestic savings, but this increase

in growth is short-lived. There is also a unidirectional causality from growth to financial measures found using the granger causality tests.

2.8.2. Financial development and Investment

Ndikumana (2000), using panel data regression for thirty SSA countries, investigated the significant factors that affect domestic investment within the SSA. The findings reveal a direct link between private investment and three FD metrics. However, the amount of loans extended to the private sector by banks is found to have a negative association with private investments.

Asongu (2014), using a VAR model and panel cointegration, examined the association between investment flows and FD for 16 African countries. Causality tests were also run to test long-run causality. They found that FD results in an increased flow of investment than investment leads to financial development. They also discovered that the causality between financial development and investment is two-way.

2.8.3. Investment and Growth

Cheung et al. (2012) looked at the link between investment and growth in both rich and poor nations. Employing a number of time-series and country-by-country analyses, they discovered that the association between investment and growth has deteriorated over the years and that investment is more likely to have a negative impact on growth in high-income nations. This was indicative of the fact that capital flows were associated with negative or zero returns. Considering data from 26 OECD economies, Cheung et al. (2012) found that the positive influence of investment on growth is not typical of OECD economies. The lagged investment is found to have a negative coefficient for 13 countries and a positive coefficient for the other 13 OECD countries used in the study. The negative coefficient was found to be associated with countries with higher

levels of income. For the G-7 countries, the countries with the highest incomes (that is, the USA, Canada, Germany and Japan) were found to have a negative coefficient estimate in relation to growth, and the remaining three (France, Britain and Italy) have a positive coefficient of investment.

Onodugo & Anowor (2014), using simple linear regression analysis, found that in Nigeria, bank loans and advances to the private sector have a positive relationship with private investment and income. They, however, found that interest rate was inversely related to private investment. Furthermore, it was discovered that foreign direct investment (FDI) has an inverse association with private investment.

Batuo et al. (2018) investigated the relationship between FD, financial stability, financial liberalization and economic growth in Africa. They examined the association using a dynamic panel model with balance panel data from 1985 to 2010. They discovered that the impact of economic growth and financial instability is lower than it was in the year in which the financial sector was liberalized. Also, they found that economic growth reduces financial instability.

2.9. Summary of literature review

In summary, literature finds four sets of relationship between financial development and growth. These relationships are;

- A one-way causality where financial development leads to growth (Demetriades & Hussein, 1996).
- A one-way causality where growth leads to financial development (Chuah et al., 2004).
- A two-way causality where growth leads to financial development and financial development leads to growth (Calderón & Liu, 2003).

- No causality between financial development and growth (Oshikoya, 1994).

Additionally literature finds a significant relationship between investment, savings and growth. Private investment has been postulated to be necessary for growth (Ang, 2010). Savings and investment have found to have positive impact on growth (Cheung et al., 2012).

CHAPTER THREE

METHODOLOGY

3.1 Introduction

Chapter three extensively discusses the procedures used to arrive at the set-out goals of the research and to answer the research questions. This chapter provides insight into the method used in collecting data, the analytical tools and the statistical procedure such as panel VAR used in answering the research questions.

3.2 Research Design

The steps used to reach the desired results of the study are dependent on the research design. The research design lays down the steps followed to achieve the research objectives. Research design, according to Bryman (2016), is the structure for gathering and interpreting data. The data collecting and analysis technique make up the research design. A quantitative data analysis technique was used. The use of quantitative analysis in this study is therefore appropriate in helping to analyze and interpret numerical data on key variables of interest in the study.

The quantitative research approach aids in collecting, investigating and predicting relationships that exist between variables (Creswell, 2009). According to Bryman & Bell (2015), the quantitative analytic approach entails the collecting of numerical data and displaying a deductive understanding of the relationship between theory and research, a natural science approach, and an objectivist notion of social reality. This method of research basically examines the relationship that exists between numerical variables by using a number of statistical analysis methods.

3.3 Data Sources

The study used panel data, which combines time series with cross-country data to account for changes in variables of interest across countries over time. The investigation of the bi-causal relationship among variables of interest was done using data from 24 sub-Saharan African countries.

Data used in the study spanned from 2000 to 2018 (a 19-year period) largely due to data availability. All data were collected from a secondary source. The data on all variables were sourced from the WDI Data Base of the World Bank.

The variables used are the gross fixed capital formation as a proxy for private sector development, the Domestic Credit to the Private sector as a percentage of GDP (DCPS) as a proxy for financial development, the growth in Gross Domestic Product (GGDP) as a proxy for Economic Growth and Gross Domestic Savings as a proxy for Financial Development. Gross Fixed Capital Formation, Private Sector: The proportion of gross outlay by the private sector (nonprofit organizations inclusive) on add-ups to its domestic fixed assets as a percentage of GDP.

Gross Domestic Savings (% of GDP): The GDP less final consumption expenditure

Sample and population

The countries included in the study were chosen based on the availability of data. The countries used are; Angola, Botswana, Burundi, Cameroon, Comoros, D.R. Congo, Congo Republic, Cote d'Ivoire, Equatorial Guinea, Eswatini, Gabon, Guinea-Bissau, Chad, Liberia, Madagascar, Mali, Mauritius, Niger, Senegal, Sierra Leone, South Africa, Tanzania, Togo, Uganda. The countries are fairly representative of the sub-Saharan African region.

3.4 Panel VAR model

To examine for bi-directional causality between private sector development and financial development, as well as private sector development and growth, a Panel Vector Auto-Regression estimator was used. The panel VAR effectively addresses interdependency of variables in the model (Abrigo & Love, 2016).

The Granger Causality test is used. VAR treats all variables as endogenous. Two things to be considered under the Granger Causality test are the IRF and the Forecast Error Variance Decomposition. The Impulse Response Function indicates how a given variable is impacted by shocks in itself or another variable. These shocks occur in the error term of the VAR system of equations.

The VAR system of equation in this study is specified with four (4) variables with indicators for financial development (indicated by DCPS and GDS), private sector development (indicated by GFCF) and economic growth.

The Specification is as follows;

$$y_t = \beta + \sum_{s=1}^{m} A_s\, y_{t-s} + e_t$$

$$y_t = \beta + A_1 y_{t-1} + A_2 y_{t-2} + A_3 y_{t-3} + A_4 y_{t-4} + e_t$$

$\boldsymbol{y_t}$: is a 4x1 column vector of 4 variables which are made up of indicators of growth, financial development and private sector development (i.e., GDPG, DCPS, GFCF AND GDS).

β is a 4x1 matrix of constants

$\boldsymbol{A_s}$ is a 4x4 matrix of coefficients of the lagged values of variables

m is the selected optimal lag length

e_t It is a 4x1 vector of forecast errors.

According to the VAR model, the components of the vector e_t have a mean of zero and variances that are constant and have no serial correlation. The ijth component of the A_S measures how a change in the jth variable directly affects the ith variable in s periods (Hassan et al., 2011).

To investigate causality amongst variables, a technique ascribed to the granger causality test is deployed. For a stationary series, the F-test of causality for the model has always proven effective. The procedure is made up of three steps as follows;

1. Find the highest order of integration in the variables (Dmax)

   The Augmented Dickey-Fuller (ADF) t-test is used to investigate stationarity and the presence of a unit root. Differencing is used to address the issue of non-stationarity and subsequently determine the order of integration.

2. Find the optimal number of lags for the VAR model (m)

   The optimal lag length is selected based on the Akaike Information Criteria (AIC) or the Schwarz-Bayesian Information Criterion (SBIC). The criterion that has the least value is selected.

3. Test the null hypothesis of no granger causality using the Wald test, which follows Chi-Squared distribution with degrees of freedom m.

3.5 The Impulse Response Function (IRF)

The impulse response function allows us to trace out the time path of both current and future values of the variables in the model to one unit increase in the current value of one of the VAR errors. In plain terms, the impulse response function estimates the effect of a one-unit shock in one variable, say X, on a another variable, say Y.

To find the responses to shocks, a constraint is imposed on the primary matrix, leading to the Cholesky Decomposition. The order of variables is relevant because the matrix constraint indicates that some shocks have no simultaneous effects on some variables in the system.

A common method used to identify shocks in a VAR model is to use of the orthogonal impulse response. This decomposes the variance-covariance matrix by the Cholesky decomposition.

Let y_t , be a k-dimensional vector series generated by

$$y_t = \sum_{i=1}^{p} A_i \, y_{t-p} + e_t \qquad -(1)$$

$$= \sum_{i=0}^{\infty} \Phi_i \, e_{t-i} \qquad -(2)$$

Cov (e_t) $=\Sigma$ and Φ_i , refers to the coefficients of the Moving Average (MA), which measures the impulse response. So that $\Phi_{jk,i}$, represents the response of variable j to a unit impulse in variable k, which occurred in the i-th period ago.

Σ is mostly non-diagonal. Thus, it is not possible to shock one variable with other fixed variables. The Cholesky decomposition is thus used to transform the matrix of uncorrelated variables into

variables whose variance and covariances are given by Σ. We assume P is a lower triangular matrix so that Σ= PP' , then equation (2) can become,

$y_t = \sum_{i=0}^{\infty} \Theta_i \, w_{t-i}$,

where $\Theta_i = \Phi_i P$, $w_t = P^{-1} e_t$ and E $(w_t w_t')$ = Σ.

Θ_i – Matrix of orthogonalized impulse responses.

Φ_i – Matrix of simple impulse responses.

P- The lower triangular matrix.

w_{t-i}- The orthogonal error at period t-i.

E $(w_t w_t')$- The expected value of $w_t w_t'$.

Σ- The observed variance-covariance matrix.

3.5 Panel regression (Fixed/Random effect)

A fixed or random effects panel regression analysis has to be conducted to assess the strength and direction of the relationship between private sector development, economic growth, and financial development. This analysis serves a dual purpose: firstly, it aims to examine the robustness of the causality test findings, and secondly, it aligns with our third objective, which is to determine the extent and direction of the influence of financial development and growth on private sector development.

In this context, private sector development is represented by its proxy, gross fixed capital formation (% of GDP), while financial development is represented by its proxies, DCPS and GDS. It is anticipated that higher levels of economic growth will positively contribute to the advancement of the private sector. Similarly, financial development is also expected to have a favorable impact on private sector development, as the accessibility of funding from the financial sector significantly influences the capital available for investment and, consequently, development. However, it's essential to acknowledge that private sector borrowing from the financial sector is a product of intermediation, which aggregates savings from households and individuals, making them available for lending. Thus, the level of GDS could potentially impact private sector development, as a reduction in savings may result in a diminished pool of resources for private sector investment.

To provide a more comprehensive analysis, several control variables were incorporated into the model, including government expenditure, the real interest rate, inflation, the real effective exchange rate, and foreign direct investment (% of GDP). Government expenditure is expected to have a positive effect on private sector development, as investments in essential public goods and infrastructure can foster an environment conducive to private investment. However, it's worth

noting that some research suggests that government expenditure may have a negative impact on private sector development due to the crowding out of loanable funds (Haque, 2020). Additionally, inflation levels are anticipated to impact private sector development, with higher inflation leading to increased business costs, thereby exerting a negative influence (Greene & Villanueva, 1990). The real interest rate is expected to negatively affect private sector development, as higher interest rates translate to increased borrowing costs for businesses, resulting in reduced demand for loanable funds and decreased investment. This is particularly relevant in countries with underdeveloped financial markets, where domestic savings play a pivotal role in private sector financing (Greene & Villanueva, 1990).

Foreign direct investment (FDI) is another crucial factor that significantly influences private sector development. FDI is expected to exert a substantial positive impact on PSD (Ndikumana & Verick, 2008). Furthermore, the real effective exchange rate is likely to have a discernible impact on private sector development. According to the existing literature, the real effective exchange rate has been shown to have a substantial negative effect on private sector development (Servén, 2003).

Table 3. 1 Definition of main variables

Variable	Proxy	Description	Source
Private Sector Development (PSD)	Gross Fixed Capital Formation, Private Sector (%GDP)	The proportion of gross outlay by the private sector (nonprofit organizations inclusive) on add-ups to its domestic fixed assets as a percentage of GDP.	World Development Index
Economic Growth	GDP Growth (%)	The annual percentage growth rate of GDP at market prices based on constant local currency	World Development Index
Financial Development	Gross Domestic Savings (% GDP)	Gross Domestic Savings is the GDP less consumption expenditure. It consists of savings for household, private corporate and public sectors	World Development Index
Financial Development	Domestic Credit to Private Sector (% of GDP)	financial resources extended to the private sector by financial firms through bank loans, purchases of non-equity securities and trade credits and other accounts receivables that lay a claim for repayment	World Development Index

Table 3.2. Definition of Control variable for Fixed effect model

Control Variables	Symbol	Definition
Foreign Direct Investment	FDI (% of GDP)	Foreign Direct Investment
Real Effective exchange rate	REER	The real effective exchange rate is the nominal effective exchange rate (a measure of the value of a currency against a weighted average of several foreign currencies) divided by a price deflator or index of costs.
Real Interest Rate	RINT	The real interest rate is the lending interest rate adjusted for inflation as measured by the GDP deflator.
Inflation	INFL	the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or changed at specified intervals, such as yearly.
Government Expenditure	GOVEXP	All government expenditures, including international transfers.

The table above summarize the information on the data used in the study. The variables are defined, and their respective proxy is indicated as well as the source.

CHAPTER FOUR

PRESENTATION AND DISCUSSION OF RESULTS

4.1 Introduction

This chapter presents the findings of data analysis and further interprets the results obtained. The descriptive statistics are computed and presented. The results of the granger causality test, the impulse response function and Forecast Error Variance Decomposition are also presented and discussed.

Table 4. 1 Descriptive statistics table

Variables	Obs.	Mean	Std. Dev.	Min	Max	p1	p99	Skew.	Kurt.
PSD	450	15.647	7.58	1.883	73.629	3.546	41.463	2.379	16.239
DCPS	462	17.272	19.047	0	106.26	.732	98.732	2.589	9.615
GDPG	462	4.044	4.704	-30.145	33.629	-9.11	17.333	-.528	15.074
GDS	462	15.164	25.034	-141.974	77.302	-90.835	67.863	-1.777	12.717

PSD: Private Sector Development; **DCPS:** Domestic Credit to Private Sector; **GDPG:** Gross Domestic Product Growth (Economic Growth); **GDS:** Gross Domestic Savings

Table 4.1. above summarizes the data used in the study. It contains the mean, standard deviations, skewness and extreme values of the variables used in the data.

4.2 Descriptive Statistics

The summary of the descriptive statistics for the variables is presented in Table 4.1 above. The average value of Private Sector Development is 15.65%, with a deviation of 7.58%. Countries that recorded high levels of Private Sector Development include Congo Republic, Chad, Togo, Cameroon and South Africa. The highest value of Private Sector Development was 73.63%,

recorded in 2016 by Congo. The average value of Domestic Credit to the Private Sector (%GDP) was 17.27% with a deviation of 19.05%. Mauritius and South Africa recorded the highest values of Credit extended to the Private Sector as a percentage of GDP. The highest value was 106.26%, recorded by Mauritius in 2013. The average value of GDS is 15.16%, with a deviation of 25.03%. The highest value of 77.3% was recorded by Equatorial Guinea in the year 2008. For the growth in GDP, the average growth recorded was 4.04%, with a deviation of 4.7%. The highest growth of 33.63% was recorded by Chad in the year 2004.

4.4 Stationary test and order of Integration

The Augmented Dickey-Fuller (ADF) t-test is deployed to investigate stationarity and the presence of a unit root. Differencing is used to address the issue of non-stationarity if present and subsequently determine the order of integration. The Phillips-Perron test is also used to determine whether or not the variables are stationary, as well as the order of integration. The criteria for both tests is that a p-value less than 5% or 0.05 implies that the data is stationary at level, and a p-value greater than 0.05 (P>0.05) means that the data is non-stationary. When the data is stationary, the order of integration is zero (0), and there is no need for differencing. However, when the data is non-stationary, there is a need for differencing till it becomes stationary. The number of times it is differenced till it becomes stationary becomes the order of integration.

4.5 Augmented Dickey-Fuller Test and Phillip-Perron Test

Table 4. 2 Dickey-Fuller and Phillip-Perron Tests

Dickey fuller					
Variables	**Test Statistic**	**1% Critical Value**	**5% Critical Value**	**10% Critical Value**	**P-Value**
Private Sector Development	-7.273	-3.444	-2.872	-2.57	0.00000
Economic Growth	-15.679	-3.443	-2.872	-2.57	0.00000
Financial Development (DCPS)	-3.816	-3.443	-2.872	-2.57	0.0027
Financial Development (GDS)	-5.577	-3.443	-2.872	-2.57	0.00000
Phillips-Perron Test					
Private Sector Development	-7.255	-3.444	-2.872	-2.57	0.00000
Economic Growth	-15.949	-3.443	-2.872	-2.57	0.00000
Financial Development (DCPS)	-4.268	-3.443	-2.872	-2.57	0.00050
Financial Development (GDS)	-5.441	-3.443	-2.872	-2.57	0.00000

Table 4.4.1 above provides information on the test statistic and the critical values of the dickey fuller and Phillip-Perron tests of stationarity.

4.5.1 Dickey-Fuller test for Private Sector Development

From the output above, based on the criteria for the ADF test, since the P-value is less than 0.05, the series for Private Sector Development is said to be stationary and therefore has an integration order of zero. (i.e., I (0)).

4.5.2 Dickey-Fuller for Economic Growth

From the output above, based on the criteria for the ADF test, since the P-value is less than 0.05, the series for economic growth is said to be stationary and therefore has an integration order of zero. (i.e., I (0)).

4.5.3 Dickey-Fuller for Financial Development (DCPS)

From the output above, based on the criteria for the ADF test, since the P-value is less than 0.05, the series for economic growth is said to be stationary and therefore has an integration order of zero. (i.e., I (0)).

4.5.4 Dickey-Fuller for Gross Domestic Savings

From the output above, based on the criteria for the ADF test, since the P-value is less than 0.05, the series for economic growth is said to be stationary and therefore has an integration order of zero. (i.e., I (0)).

4.5.5 Phillips-Perron test for Private Sector Development

The Phillip-Perron test findings are consistent with that of the ADF and thus imply that the series for Private Sector Development is stationary and thus integrating order of zero.

4.5.6 Phillips-Perron test for Economic Growth

The Phillip-Perron test confirms that the series for economic growth is stationary and, thus, an integrating order of zero.

4.5.7 Phillips-Perron test for Financial Development (DCPS)

The Phillip-Perron test findings are consistent with that of the ADF and thus imply that the series for financial development is stationary and thus integrating order of zero.

4.5.8 Phillips-Perron test for Gross Domestic Saving

The Phillip-Perron test confirms the results of the ADF and thus implies that the series for Gross Domestic Savings is stationary and thus integrating order of zero.

4.6 Conclusion of unit root test

It can thus be concluded that all variables are stationary at level, and the maximum order of integration (dmax) is zero (0).

4.7 Optimal Lag length Selection

The optimal lag length is selected based on the Akaike Information Criteria (AIC) or the Schwarz-Bayesian Information Criteria (SBIC). The criterion that has the least value is selected. Based on the output below, the AIC, SBIC and HQIC all prescribe an optimal lag length of one (1). Therefore, m is one (1)

Table 4. 3 Lag Length Selection Criteria

Selection-Order Criteria

Sample: 2010-2461, but with gaps Number of obs = 428

Lag	LL	LR	df	P	FPE	AIC	HQIC	SBIC
0	-6583.26				2.70E+08	30.7816	30.7966	30.8195
1	-5571.33	2023.9	16	0.000	2.60e+06*	26.2026*	26.2026*	26.3174*
2	-5560.38	21.902	16	0.146	2.70E+06	26.2861	26.2861	26.4927
3	-5549.59	21.567	16	0.158	2.70E+06	26.3704	26.3704	26.6688
4	-5535.04	29.104*	16	0.023	2.80E+06	26.4371	26.4371	26.8273

The table above presents the output of the lag length selection criteria. The prominent criteria (i.e., AIC, SBIC and HQIC) are presented above. In the table above, LL is the log-likelihood, LR is the likelihood ratio statistic, df is the degrees of freedom, P is the P-value, FPE represents the final prediction error, AIC is the Akaike's information criterion, HQIC is the Hannan and Quinn information criterion, and the SBIC is the Schwarz's Bayesian information criterion.

4.8 PANEL VAR ESTIMATION

The VAR is thus estimated with the order m+dmax, hence a VAR with a lag length of 1. Where m is the optimal lag length and Dmax is the highest order of cointegration in the variables.

The specific VAR model, therefore, is presented below;

$$GDPG_t = c_1 + a_{11}GDPG_{t-1} + a_{12}PSD_{t-1} + a_{13}DCPS_{t-1} + a_{14}GDS_{t-1} + \beta_t \quad \text{- (1)}$$

$$PSD_t = c_2 + a_{21}GDPG_{t-1} + a_{22}PSD_{t-1} + a_{23}DCPS_{t-1} + a_{24}GDS_{t-1} + V_t \quad \text{– (2)}$$

$$DCPS_t = c_3 + a_{31}GDPG_{t-1} + a_{32}PSD_{t-1} + a_{33}DCPS_{t-1} + a_{34}GDS_{t-1} + U_t \quad \text{– (3)}$$

$$GDS_t = c_4 + a_{41}GDPG_{t-1} + a_{42}PSD_{t-1} + a_{43}DCPS_{t-1} + a_{44}GDS_{t-1} + \mu_t \quad \text{– (4)}$$

The output of the VAR estimation is presented below.

Table 4. 4 VAR Output

	Coef	Std. Err	Z	P>z	[95% Conf. Interval]	
GDP						
GDP L1	0.288633	0.445151	6.48	0.000	0.2013853	0.3758812
PSD L1	0.662888	0.288518	2.30	0.022	0.0097403	0.1228372
DCPS L1	0.121358	0.108476	-1.12	0.263	0.0333968	0.0091252
GDS L1	0.203238	0.0087245	-2.33	0.020	0.0374235	0.0032241
_cons	2.368594	0.5382931	4.4	0.000	1.313559	3.423629
PSD						
GDP L1	0.154633	0.046765	3.31	0.001	0.0629741	0.2462912
PSD L1	0.755521	0.03031	24.93	0.000	0.6961141	0.8149282
DCPS L1	-0.00378	0.011396	-0.33	0.740	-0.261126	0.018559
GDS L1	0.026758	0.009166	2.92	0.004	0.0087939	0.0447221
_cons	2.86403	0.565505	5.06	0.000	1.755661	3.9724
DCPS						
GDP L1	0.057487	0.066138	0.87	0.385	-0.072141	0.1871147
PSD L1	-0.01801	0.042866	-0.42	0.674	-0.10203	0.0660025
DCPS L1	0.940702	0.016117	58.37	0.000	0.9091153	0.9722899
GDS L1	0.004007	0.012962	0.31	0.757	-0.021399	0.0294123
_cons	1.121133	0.799765	1.4	0.161	-0.446377	2.688643
GDS						
GDP L1	0.604988	0.116991	5.17	0.000	0.3756887	0.8342863
PSD L1	0.040282	0.075826	0.53	0.595	-0.108335	0.1888982
DCPS L1	0.018487	0.028509	0.65	0.517	-0.03739	0.0743636
GDS L1	0.871796	0.022929	38.02	0.000	0.8268559	0.9167361
_cons	-1.5521	1.414703	-1.1	0.273	-4.324872	1.220664

The table above presents the result of the Vector Autoregression estimation. The VAR is run using a lag length of 1. GDP L1 represents one period lag of the GDP growth, PSD L1 represents one period lag of PSD, DCPS L1 represents one period lag of DCPS, and GDS L1 represents one period lag of GDS.

4.8.1. Discussion of Panel VAR result

The Table 4.4 above presents the results of the Panel VAR estimation. From the results above, there is a significant positive relationship between current GDP and a one year lag value of GDP, PSD and GDS. Particularly, a 1% rise in the previous year value of GDP will result in a 0.2886% increase in current year GDP. A 1% rise in previous year's value of private sector development (Gross fixed capital formation, % of GDP) will result in a 0.6629% rise in current year GDP. A 1% rise in previous year's value of gross domestic savings will result in a 0.203% rise in current year GDP.

For current year value for private sector development, it was found that one year lag values of GDP, PSD, GDS significantly and positively influence current value of PSD. Particularly, it was found that a 1% rise in last year's value will result in a 0.1546% increase in PSD, likewise a 1% increase in last year's value of PSD is found to lead to a rise in PSD by 0.7555%. A 1% rise in last year's value of GDS will lead to a 0.0268% rise in current year PSD.

For domestic credit to private sector (%GDP) which is proxy for financial development not significant relationship was found between current values of DCPS and lags of GDP, GDS and PSD.

For gross domestic savings, it was found that one year lag values of GDP and GDS only significantly and positively explain current values of GDS. Specifically, a 1% increase in previous year value of GDP is found to increase GDS by 0.605% and a 1% rise in previous year value of GDS will result in a 0.8718% rise in GDS.

4.9 Granger Causality Test

The null hypothesis for the Wald test is always that there is no causality among the variables. To determine whether we reject or fail to reject the null hypothesis, we use the Wald test to test the hypothesis. The Wald test has a Chi-Squared distribution with associated degrees of freedom m.

Table 4. 5 Granger Causality

Equation	Excluded	Chi 2	Df	Prob> Chi 2
GDPG	PSD	5.2788	1	0.022
GDPG	DCPS	1.2516	1	0.263
GDPG	GDS	5.4266	1	0.020
GDPG	ALL	9.5862	3	0.022
PSD	GDPG	10.933	1	0.001
PSD	DCPS	0.10984	1	0.740
PSD	GDS	8.523	1	0.004
PSD	ALL	19.124	3	0.000
DCPS	GDPG	0.7555	1	0.385
DCPS	PSD	0.1766	1	0.674
DCPS	GDS	0.09554	1	0.757
DCPS	ALL	0.93566	3	0.817
GDS	GDPG	26.741	1	0.000
GDS	PSD	0.28221	1	0.595
GDS	DCPS	0.42051	1	0.517
GDS	ALL	27.441	3	0.000

The table 4.5 above presents the results of the granger causality test results, which tests for causality among the variables. This tests the causality among the variables. Df represents the degrees of freedom.

From the table 4.5 above, the following conclusions can be drawn;

4.9.1 Granger Causality between PSD and Economic Growth

With a p-value less than 0.05, private sector development causes economic growth. Hence the economic growth rate helps in predicting changes in private sector development. This is similar to findings of Zou (2006) who found that private investment significantly contributed to growth in Japan and USA. With a p-value less than 0.05, growth causes private sector development.

Thus, there is two-way causality between Private Sector Development and Economic Growth.

4.9.2 Granger Causality between GDS and Economic Growth

Given that the p-value is less than 0.05, gross domestic savings causes economic growth. Also, since the p-value is less than 0.05, economic growth causes gross domestic savings.

Hence there is two-way causality between gross domestic savings and economic growth. This is supported by the findings of Hassan et al. (2011), who found that increasing levels of savings may lead to increased growth within the sub-Saharan Africa region.

4.9.3 Granger Causality between GDS and PSD

Given a p-value less than 0.05, gross domestic savings causes private sector development. However, it is conclusive that domestic savings do not follow private sector development since it is not significant at the 5% level. This is contrary to findings made by Nindi & Odhiambo (2014) in a study conducted in Malawi where a unidirectional causality was found from private investment to savings and found not causality from savings to investment.

4.9.4 Granger Causality between DCPS and PSD

The findings also show that DCPS does not follow private sector development because it has P>0.05. Likewise, with a p-value greater than 0.05, financial development (DCPS) does not cause private sector development. Thus, there is no causal relationship found between financial development (DCPS) and private sector development (PSD). This finding is contrary to findings of Ndikumana (2000) who found a positive relationship between domestic investment and financial development.

4.9.5 Causality between Financial Development (DCPS) and Economic Growth

Financial development (DCPS) does not cause economic growth. Since the two variables have P>0.05. Also, with a p-value greater than 0.05, economic growth is not followed by financial development (DCPS). As a result, there is no link between financial development (DCPS) and economic growth. It is however consistent with findings made by Jammeh (2022), who found that change in domestic credit to private sector has little impact on economic growth in Gambia.

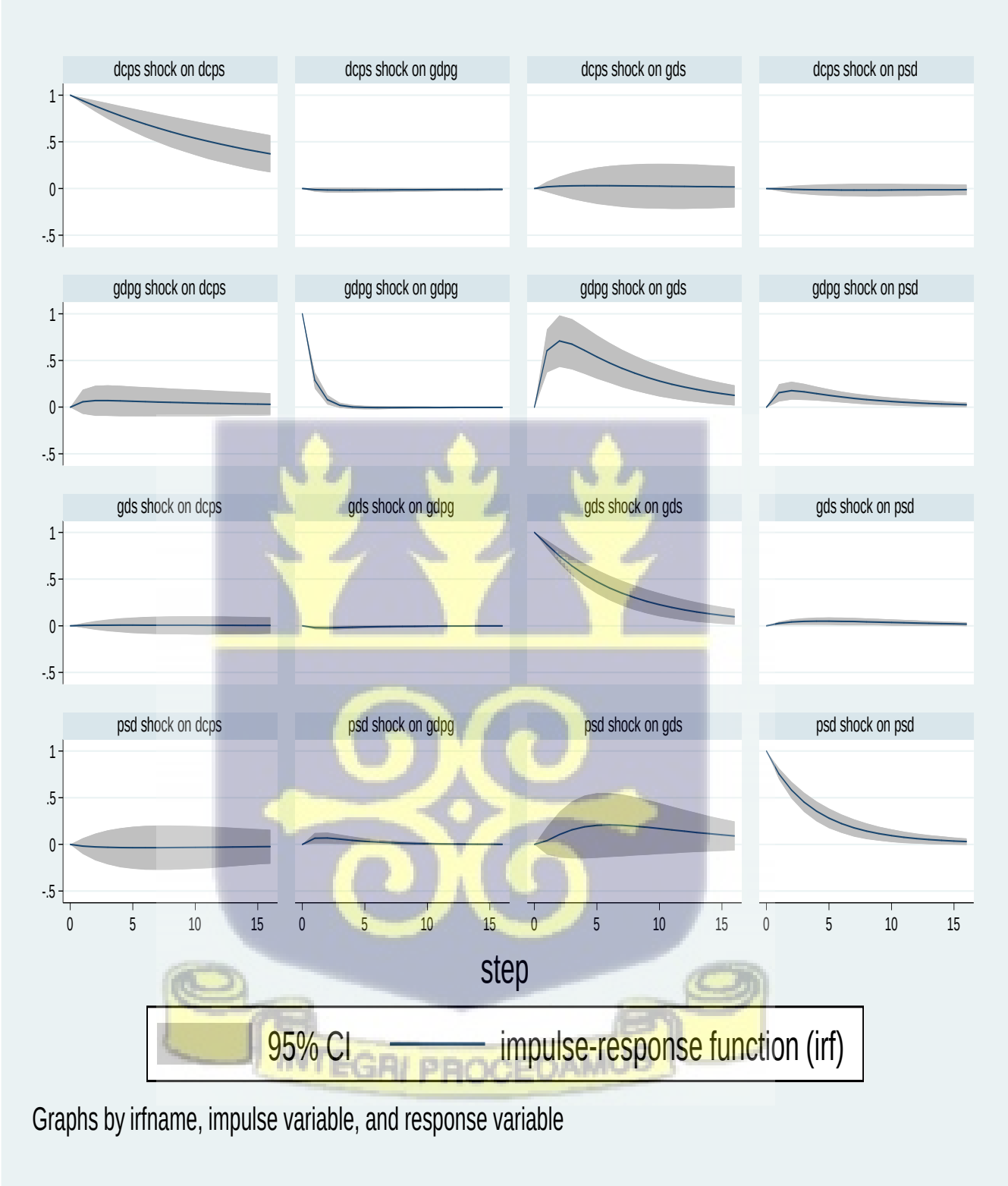
4.9.6 Causality between Financial Development (DCPS) and Gross Domestic Savings

Gross Domestic Savings does not cause financial development (DCPS). Since it has a p-value greater than 0.05. Also, with a p-value greater than 0.05, financial development (DCPS) does not cause gross domestic savings. Thus, DCPS and GDS are not causally related in both directions. This is contrary to findings made by Bayar (2014), where for some emerging Asian countries, private credit extended by banks was found to contribute significantly to domestic savings.

4.10 Conclusion of Granger Causality

We can conclude that there is a bi-directional causality between private sector development and economic growth. There is also two-way causality between gross domestic savings and economic growth, based on the aforementioned deductions. Gross domestic savings causes private sector development; however, the opposite is not true. This means that a rise in gross domestic savings will result in private sector expansion, which will contribute to economic growth.

Figure 4. 1 Impulse Response Function



The figure above presents the graphs for the impulse response amongst variables of interest.

4.11. Impulse Response Function

Figure 4.11 above presents the graphs of the Impulse response function. It shows graphically how shocks in one variable affect itself or other variables over a 15-year period broken into intervals of five years. It also shows how long it takes for a shock to die out.

From the figure above, we can make the following deductions;

4.11.1 The impact of shocks in domestic credit to the private sector on economic growth

Shocks in financial development (Domestic Credit to the Private Sector) have no contemporaneous effect on economic growth. This means that in sub-Saharan Africa, domestic credit to the private sector has no meaningful effect on growth. It implies that the association between domestic credit given to the private sector and economic growth in sub-Saharan Africa is not statistically significant.

In essence, the hypothesis that more credit availability to the private sector will inevitably result in faster economic growth may not apply to sub-Saharan Africa. There are several reasons why this might be the case, including:

Limitations due to structural factors: The economy and business climate in sub-Saharan Africa may be designed in such a way as to mitigate the immediate effects of increased credit. For instance, a lack of infrastructure, weak institutions, and regulatory restrictions may make it difficult for enterprises to successfully use additional loans for profitable investment.

Sensitivity to Other Factors: There are many variables outside loan availability that affect economic growth. The region's economic growth can be significantly influenced by a number of variables, including macroeconomic stability, political stability, the growth of human capital, technical advancements, and market access.

Delays in impact of credit: Because the investment process might take time, changes in credit availability may not have an immediate impact. Planning, carrying out, and realizing the results of investment initiatives may take some time for businesses.

Poor credit allocation: Credit may be made available, but if it is not distributed effectively to innovative and productive industries, its effect on economic growth may be restricted. Allocating credit inefficiently might result in ventures that produce lower returns and contribute less to global growth.

4.11.2 Response of Gross Domestic Savings to a Shock in DCPS

From the IRF, shocks in DCPS have no causal effect on GDS. Hence DCPS does not affect the level of domestic savings. This finding implies that changes in the level of gross domestic savings are not directly caused by rapid changes in the quantity of credit provided to the private sector within SSA. In other words, changes in the quantity of credit available to private enterprises and individuals do not immediately affect how much savings are generated overall in the domestic economy. This finding indicates that the observed data do not support the hypothesis that changes in the flow of credit to the private sector would necessarily result in equivalent changes in domestic savings levels (Bayar, 2014).

4.11.3 Response of Private Sector Development to a Shock in Financial Development (Domestic Credit to Private Sector)

From the impulse response function, a shock in domestic credit to the private sector has no effect on Private Sector Development. This finding implies that abrupt and unanticipated changes in the amount of credit available to private sector in SSA have no obvious or direct impact on the overall process of private sector development (PSD). Essentially, changes in domestic credit levels may not always result in abrupt and obvious changes in the general development, expansion, or advancement of the private sector within SSA.

This observed lack of direct influence could be caused by a number of variables, including:

Structure of the Private Sector: The establishment of businesses, access to markets, the regulatory environment, innovation, and technical advancement are just a few of the many aspects that make up the private sector. Although significant, a domestic credit shock is only one of many factors that affect the overall growth of the private sector.

Timing and Lag Effects: Time lags could prevent the effects of credit shocks on private sector development from being felt right away. To adjust, develop, and carry out initiatives in response to changes in credit availability, businesses may need time.

Quality utilization of Credit: If credit is not efficiently employed for beneficial purposes, even with more credit, the influence on private sector development may be restricted. Credit misallocation can diminish the benefits of private sector growth.

Regulations, infrastructure availability, political stability, access to skilled personnel, and market demand are just a few of the other determinants of private sector development that have a big impact. It's possible that other factors are also contributing to the total growth of the private sector.

4.11.4 Response of Financial Development (DCPS) to a Shock in Economic Growth

From the impulse response function, a shock in economic growth has no contemporaneous effect on financial development (Domestic Credit to Private Sector). This finding implies that sudden and unexpected changes in the rate of economic growth within a specific economy do not directly or immediately translate into changes in the level of financial development, specifically measured by the volume of credit extended to the private sector.

The following factors could account for the relationship discovered above.

Lags and Timing Effects: The lack of an instant effect shows that the effect of economic growth on financial development may not be immediate. It could take some time for changes in economic conditions to become apparent and have an impact on how the financial sector operates.

The multifaceted nature of financial development includes a variety of factors, such as the size and scope of financial markets, access to credit, the effectiveness of the banking industry, and regulatory frameworks. Although economic growth can foster an atmosphere that is favorable for financial development, changes in growth rates may not immediately result in changes in all areas of the financial sector.

4.11.5 Response of Financial Development (DCPS) and Economic Growth to a Shock in Gross Domestic Savings

From figure 4.9.1, shocks in the level of domestic savings have no effect on domestic credit to the private sector and economic growth. According to this finding, abrupt and unexpected changes in the total domestic savings within a certain economy do not have an immediate or obvious effect on two key variables: the availability of credit to the private sector and the rate of economic growth as a whole.

Some factors that could account for this relationship includes;

Credit Demand and Utilization: The patterns of credit demand and utilization may have an impact on the lack of a direct impact on credit to the private sector. Even if savings rise, businesses and individuals might not instantly apply for more loan, especially if the economy is unstable or if there are few chances for investing.

Policy and institutional factors: Government policies, regulatory frameworks, and the effectiveness of financial institutions in channeling savings into profitable investment can all have an impact on how much changes in domestic savings affect credit availability and economic growth. For example contractionary monetary policy could result in increase in cost of credit and thus credit demand by private sector.

4.11.6 Response of Financial Development (DCPS) to a Shock in Private Sector Development

From the impulse response graph in figure 4.9.1, a shock in the private sector development does not influence domestic credit to private sector in any way. This finding suggests that the level of domestic credit provided to private sector is unaffected by shocks in the development and expansion of the private sector within SSA.

This relationship is possibly so due to the following factors;

Alternative Sources of Financing: The growth of the private sector may increase access to alternative sources of funding like private equity and venture capital. Businesses might favor these sources over conventional bank financing, limiting the impact of private sector development on domestic credit to private sector.

Investment practices by businesses: Despite the fact that private sector development can boost economic activity, some companies choose the approach of reinvesting profits rather than looking for more loans. Hence private sector development will not result in increase domestic credit to private sector.

4.11.7 Response of Gross Domestic Savings to a Shock in Economic Growth

From the impulse response function, a shock in economic growth has a sharp positive effect on the level of gross domestic savings. GDS responds sharply to a shock in growth by rising and eventually falling after five years till it dies out. According to this finding, significant increases in SSA's pace of economic growth cause the total amount of savings generated in SSA to sharply and quickly increase.

Some reasons for such relationship may include;

Increased Income and Wealth: Economic growth often raises household, firm, and individual incomes. People who want to conserve and accumulate wealth for future needs and uncertainties may be more inclined to save money as a result of this increase in income.

Increased investment opportunities: Economic growth frequently brings about significant investment opportunities. Businesses may decide to reinvest a percentage of their profits into the company or into other assets that generate income when demand for their products and services rises, which helps to improve savings levels.

4.11.8 Impact of a shock in growth on private sector development

From the impulse response function, a shock in economic growth has a positive impact on private sector development. Hence a shock in growth increases the level of private sector development and is sustained over a five period, after which it gradually evens out. According to this findings, significant rises in the rate of economic growth may have positive consequences on the overall development of the private sector. This could be accounted for by the following,

Growing demand for goods and service: Demand for goods and services is often stimulated by economic growth. In order to meet the growing customer wants, private sector development may be encouraged to increase production, make new investments, and investigate more business opportunities. This can promote private sector growth.

Business confidence in the economy: Economic stability and growth potential boost business confidence. In a good economic climate, firms and entrepreneurs are more inclined to engage in entrepreneurial activities, make investments, and take calculated risks, which supports the development of the private sector.

4.11.9 Response of Private Sector Development to a Shock in Gross Domestic Savings

From the impulse response function, a shock in the gross domestic savings has a positive effect on Private Sector Development and evens out over time. This means that an unexpected rise in gross

domestic savings will result in an increase in the level private sector development. This could be accounted for by the following factors;

Shocks in GDS supports entrepreneurship venture: Higher GDS can promote entrepreneurship by giving people a more solid financial support from which to launch new ventures. Innovative startups may result from this, enhancing the diversity and vitality of the private sector.

Increased access to Credit: By increasing the amount of money available in financial institutions, a higher level of domestic savings might make it simpler for businesses to obtain credit. This can aid in the growth of the private sector as a whole as well as the expansion of existing businesses.

4.11.10 Impact of shocks in private sector development on growth

From the impulse response graph in figure 4.9.1, a shock in Private Sector Development has a positive effect on economic growth over time. The rise in economic growth begins to fall before the 5th year. This means an unexpected positive rise in the level of private sector development will result in a rise in the rate of economic growth. This could be accounted for by the following reason;

Increased business investment: Output can rise as a result of increasing investment in the private sector, including the setting up of new business, the expansion of existing ones, and the development of new technologies and procedures. This increase in investment may result in productivity gains, which raise output and promote economic growth.

Diversification of the economy: Effective diversification is frequently facilitated by a strong private sector, which fosters the expansion of a variety of industries. A varied economy is less dependent on only one industry, which makes it more shock-resistant and supports long-term economic growth.

4.12 Forecast Error Variance Decomposition

The Variance Decomposition displays the percentage of the error made when forecasting a variable over a period due to a specific shock. In other words, how much variability in the response variable is explained by its own shock and shocks in other variables in the system?

Table 4. 6 Forecast Error Variance Decomposition

Step	(1)	(2)	(3)	(4)
0	0	0	0	0
1	1	0.008059	0	0.991941
2	0.993013	0.009341	0.004055	0.98781
3	0.985382	0.15051	0.008228	0.977325
4	0.979903	0.20151	0.010973	0.966555
5	0.976368	0.024135	0.012536	0.956649
6	0.974115	0.027186	0.013372	0.947851
7	0.972642	0.029523	0.013804	0.940208
8	0.971638	0.031317	0.014019	0.933688
9	0.97092	0.032694	0.014121	0.928216
10	0.970382	0.033752	0.014166	0.923684
11	0.969961	0.034563	0.014184	0.919973
12	0.96962	0.035183	0.014188	0.916963
13	0.969336	0.035658	0.014188	0.91454
14	0.969096	0.036019	0.014185	0.912601
15	0.968891	0.036295	0.014182	0.911058
16	0.968713	0.036504	0.014179	0.909833

The table above presents the results of the forecast error variance decomposition. It shows how shocks in economic growth impact itself and private sector development as well as how shocks in private sector development impact itself and economic growth over a 16-year period.

(1) represents the impact on economic growth of an innovation or a shock in economic growth.

(2) represents the response of private sector development to innovation or a shock in economic growth.

(3) represents the response of economic growth to innovation or a shock in private sector development.

(4) represents the response of private sector development to an innovation or a shock in itself.

From the output above;

Economic Growth responds well to itself over time. In the 16th year, 96.87% of the variation in economic growth will be explained by a shock in economic growth itself.

After 16 years, 3.65% of the variation in Private Sector development will be explained by shocks in economic growth.

After 16 years, 1.42% of the variation in economic growth is explained by shocks in Private Sector Development.

After 16 years, 90.98% of the variation in Private Sector Development is explained by shocks in Private Sector Development itself.

Table 4. 7 Forecast Error Variance Decomposition

Step	(1)	(2)	(3)	(4)
0	0	0	0	0
1	0.991941	0.000318	0	0.998344
2	0.98781	0.000761	0.002834	0.961398
3	0.977325	0.00187	0.007559	0.935418
4	0.966555	0.003482	0.013141	0.918697
5	0.956649	0.005347	0.018943	0.907393
6	0.947851	0.00726	0.024546	0.899306
7	0.940208	0.009084	0.029695	0.893274
8	0.933688	0.010742	0.034258	0.888657
9	0.928216	0.0122	0.038189	0.885069
10	0.923684	0.013448	0.041503	0.882261
11	0.919973	0.014497	0.04425	0.880054
12	0.916963	0.015366	0.046495	0.878318
13	0.91454	0.016076	0.048309	0.876953
14	0.912601	0.016651	0.049761	0.87588
15	0.911058	0.017113	0.050916	0.875039
16	0.909833	0.017481	0.051827	0.87438

This table presents the results of the forecast error variance decomposition. It shows how shocks in gross domestic savings impact itself and private sector development as well as how shocks in private sector development impact itself and gross domestic savings over a 16-year period.

(1) represents the response of private sector development to an innovation or a shock in itself.

(2) represents the response of gross domestic savings to innovation or a shock in private sector development.

(3) represents the response of private sector development to innovation or a shock in gross domestic savings.

(4) represents the response of gross domestic savings to an innovation or a shock in itself.

From the output above;

After 16 years, 1.74% of the variation in gross domestic savings will be explained by shocks in private sector development. This means that innovations in the development of the private sector have a sustained positive impact on gross domestic savings in the long run.

After 16 years, 5.18% of the variation in private sector development is explained by shocks in gross domestic savings. This means that shocks in the level of domestic savings have a significant positive impact on the level of private sector development in the long run.

After 16 years, shock in gross domestic savings explains 87.4% of variations in itself

Table 4. 8 Forecast Error Variance Decomposition

Step	(1)	(2)	(3)	(4)
0	0	0	0	0
1	1	0.001271	0	0.998344
2	0.993013	0.037636	0.002622	0.961398
3	0.985382	0.062387	0.005585	0.935418
4	0.979903	0.077392	0.007785	0.918697
5	0.976368	0.086737	0.009238	0.907393
6	0.974115	0.092827	0.01017	0.899306
7	0.972642	0.096958	0.010766	0.893274
8	0.971638	0.99849	0.011149	0.888657
9	0.97092	0.101917	0.011398	0.885069
10	0.970382	0.103422	0.011562	0.882261
11	0.969961	0.104531	0.01167	0.880054
12	0.96962	0.105355	0.011742	0.878318
13	0.969336	0.105971	0.011791	0.876953
14	0.969096	0.106434	0.011824	0.87588
15	0.968891	0.106784	0.011847	0.875039
16	0.968713	0.107048	0.011863	0.87438

This table presents the results of the forecast error variance decomposition. It shows how shocks in gross domestic savings impact itself and economic growth as well as how shocks in economic growth impact itself and gross domestic savings over a 16-year period.

(1) represents the response of economic growth to innovation or a shock in itself.

(2) represents the response of gross domestic savings to innovation or a shock in economic growth.

(3) represents the response of economic growth to innovation or a shock in gross domestic savings.

(4) represents the response of gross domestic savings to an innovation or a shock in itself.

From the output above;

After 16 years, 10.7% of the variation in gross domestic savings is explained by shocks in economic growth. This means that shocks in economic growth significantly impact the level of gross domestic savings positively in the long run.

After 16 years, 1.18% of the variation in growth is accounted for by shocks to the level of domestic savings. Long-term growth is therefore influenced by the level of gross domestic savings.

4.13. Robustness check through fixed effect model

The finding of the causality test led to the running of a fixed effect model in order to test the robustness of the findings of the causality test. The findings of the random effect model are presented below

4.13.1. Normality

The Jarque-Bera test is used to test the normality of the dataset. The criterion is that when the probability of chi-square is greater than 5%, the null hypothesis cannot be rejected thus the data is normal.

Results of Jarque-Bera

Jarque-Bera normality test: .9491 Chi (2) .6222

Jarque-Bera test for Ho: normality:

With a probability of Chi-square greater than 5%, we can thus conclude that the data is normally distributed.

4.13.2. Multicollinearity

We check for multicollinearity to ensure that independent variables are not correlated with each other. To do that, the variance inflation factor (VIF) is used. The criterion is that when the VIF is less than 10, there is no multicollinearity

Table 4.9 Variance Inflation Factor

Variable	VIF	1/VIF
dcps	4.8	0.208471
govexp	3.71	0.269436
rint	3.01	0.331864
infl	2.87	0.348122
gds	2.42	0.413184
reer	2.13	0.470495
fdi	1.27	0.789608
gdpg	1.23	0.815717
Mean VIF	2.68	

From the results above, we can conclude there is no multicollinearity amongst the variables as they all have a VIF of less than 10.

4.13.3. Heteroskedasticity

We test for heteroscedasticity using the white test. The criterion is that if the p-value is more than 5%, there is homoskedasticity.

White's test for Ho: homoskedasticity

against Ha: unrestricted heteroskedasticity

chi2(44) = 56.49

Prob > chi2 = 0.0980

Cameron & Trivedi's decomposition of the IM-test

Table 4.10 IM test

Source	chi2	df	P
Heteroskedasticity	56.490	44	0.098
Skewness	4.240	8	0.835
Kurtosis	0.020	1	0.899
Total	60.750	53	0.217

With a probability greater than 5%, we fail to reject the null hypothesis. We thus conclude there is homoscedasticity.

Thus, all three assumptions of panel data (normality, no multicollinearity and homoscedasticity are met.)

4.13.4. Hausman test

A Hausman test is used to determine whether to run a fixed effect or a random effect. If the probability value of Chi-square is less than 5% reject the null hypothesis that the random effect is preferred, thus the fixed effect model is most appropriate. The results of the Hausman test indicate that the fixed effect is the appropriate model to use since it has a p-value of less than 5%.

Test: Ho: difference in coefficients not systematic

chi2(8) = (b-B)'[(V_b-V_B)^(-1)](b-B)

= 11.59

Prob>chi2 = 0.0405

Based on the above, the hausman test selects the fixed effect model used to test the association between PSD, FD and growth is specified as follows;

$$PSD_{it} = B_0 + B_1 GDPG_{it} + B_2 DCPS_{it} + B_3\ GDS_{it} + B_4\ FDI_{it} + B_5\ RINT_{it} + B_6\ GOVEXP_{it} + B_7 REER_{it} + B_8 INFL_{it} + U_{it} + e_i$$

e_i, is the overall error term.

U_{it}, is the within-entity error term.

$GDPG_{it}$, economic growth

$DCPS_{it}$, domestic credit to the private sector

GDS_{it}, gross domestic savings

FDI_{it}, foreign direct investment

$RINT_{it}$, real interest rate

$GOVEXP_{it}$, government expenditure.

$REER_{it}$, real effective exchange rate.

$INFL_{it}$, inflation.

The above model is specified based on authors' own construct. Control variables are included based on previous studies (Greene & Villanueva, 1990; Ndikumana & Verick, 2008; Haque, 2020).

4.13.5. Fixed Effect model

Table 4.11 Regression results

Psd	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
Gdpg	.008	.098	4.53	0	.184	.2	***
Gds	.242	.067	3.61	0	.111	.373	***
Dcps	.063	.042	1.50	.133	-.019	.146	
Infl	.153	.06	2.56	.011	.036	.269	**
Fdi	.538	.115	4.68	0	.313	.763	***
Govexp	-.159	.219	-0.72	.469	-.588	.271	
Rint	.214	.085	2.51	.012	.047	.381	**
Reer	-.029	.051	-0.56	.575	-.13	.072	
Constant	10.515	6.584	1.60	.11	-2.388	23.419	
Mean dependent var		14.352	SD dependent var			5.281	
Overall r-squared		0.423	Number of obs			82	
Chi-square		53.587	Prob > chi2			0.000	
R-squared within		0.506	R-squared between			0.199	

**** p<.01, ** p<.05, * p<.1*

4.13.6. Interpretation of fixed effect results

Based on the aforementioned results, it is evident that economic growth exerts a significant and direct influence on private sector development in sub-Saharan Africa (SSA). This suggests that an increase in economic growth corresponds to a heightened level of private sector development. To provide a numerical context, a 1% increase in economic growth leads to an 0.08% increase in private sector development.

Additionally, the findings reveal that gross domestic savings, serving as a proxy for financial development, also bears a direct and significant impact on private sector development. This implies that a 1% rise in savings results in a notable 0.242% increase in private sector investment. However, while domestic credit to the private sector (DCPS) displays a positive impact, it does not reach statistical significance concerning its effect on private sector development within SSA.

In line with these outcomes, it can be reasonably concluded that economic growth substantially and positively influences private sector development in SSA. Furthermore, an escalation in gross domestic savings leads to a corresponding increase in DCPS, though the domestic credit to the private sector itself does not emerge as a significant driver of private sector development. These findings are consistent with the results of the Granger causality test, where it was established that growth and gross domestic savings both lead to private sector development, while domestic credit to the private sector does not have a causal effect on private sector development.

Turning to the control variables, it is worth noting that, in accordance with existing literature, Foreign Direct Investment (FDI) demonstrates a significant and positive impact on Private Sector Development (PSD). Inflation also exhibits a significant and positive influence on PSD, possibly due to businesses benefiting from increased prices of goods and services while maintaining low

production costs, thereby retaining ample earnings for reinvestment. Similarly, the real interest rate exerts a positive and significant impact on private sector development, likely due to the fact that higher interest rates attract more domestic savings and make sufficient domestic funds available for investment. Finally, the real effective exchange rate has a negative impact on private sector development, although this effect does not reach statistical significance.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The findings of the investigation are summarized in this final chapter of the study. It draws conclusions from the summary of the findings and makes recommendations for policy formulation and additional research.

5.2 Summary of study

The objective of this study was to determine if causality existed between private sector development and economic growth, as well as private sector development and financial development. Furthermore, an impulse response analysis is conducted to establish how key variables respond to shocks in themselves and in other variables.

Based on the results of panel-VAR analysis and Granger causality tests, several key findings emerge. Firstly, it is evident that there exists a bidirectional causal relationship between private sector development and economic growth, as well as between economic growth and gross domestic savings. This leads to a conclusive assertion that the expansion of the private sector, fueled by substantial investments in tangible assets for business operations, contributes to an increase in GDP. This expansion of the private sector is further facilitated by the augmentation of the gross domestic product.

Furthermore, the findings indicate that with respect to private sector development and gross domestic savings, the causal direction goes from gross domestic savings to private sector development. This implies that positive changes that promote the growth of private enterprises

within the economy lead to economic growth. Consequently, an increase in economic growth levels results in the expansion of private businesses, as evidenced by an upswing in gross fixed capital formation within the private sector. Additionally, the findings underscore the reciprocal nature of this relationship, highlighting that growth fosters positive developments within the private sector and vice versa.

Of particular significance, the results also establish that gross domestic savings play a leading role in stimulating private sector development by exerting a positive influence on PSD. In contrast to the anticipated outcomes and findings in other studies (e.g., Asante, 2000; Odhiambo, 2007), it is noteworthy that an increase in the amount of credit extended to private businesses in the sub-Saharan African region does not yield a corresponding increase in private sector development, and vice versa. This suggests a possible mismanagement or misuse of the credit provided by banks to the private sector, failing to channel it effectively towards productive investments.

The analysis further reveals that private sector development positively responds to shocks in economic growth, and conversely, economic growth responds positively to shocks in private sector development. These shock effects endure for approximately five years before diminishing. This implies that innovations within the private sector significantly impact economic growth for an average duration of five years before fading. Consequently, long-term economic growth stands to benefit from the expansion of the private sector. Therefore, it is imperative for policymakers to focus on implementing policies that encourage investments in the economy, as a substantial increase in investment is expected to positively impact GDP growth over a typical five-year period.

To reinforce the validity of these findings, a robustness check utilizing a fixed-effect model corroborates the results of the Granger causality test. It affirms that economic growth has a significantly positive effect on private sector development, and likewise, gross domestic savings

significantly contribute to private sector development. However, domestic credit extended to the private sector does not demonstrate a significant impact on private sector development.

5.3 Conclusion

In conclusion, the objectives of this study have been met by the use of the panel VAR, the granger causality test , the fixed effect model and the forecast error variance decomposition. The objectives of this study were; To determine the causal relationship between private sector development, financial development and growth in SSA;to determine how shocks in any of the variables (PSD, FD and growth) impact the other; to determine the direction and magnitude of the impact of financial development and growth on private sector development. Key findings made by this study are as follows; private sector development is necessary for growth, growth is necessary for the development of the private sector, domestic savings are necessary for growth and growth also leads to domestic savings. There is a one-way causality from gross domestic savings to private sector development. Domestic credit to private sector does not cause development of the private sector. It is thus clear that the private sector is essential to growth in SSA but the financial sector is not effectively contributing to this role as domestic credit to the private sector is not leading to the development of the private sector. Economic growth and gross domestic savings have a significant positive impact on private sector development.

5.4 Recommendations

5.4.1 Policy Recommendations

The findings derived from this study serve as the foundation upon which policymakers can build strategies to reinforce favorable relationships and rectify unfavorable ones. It is strongly recommended that policymakers direct their efforts towards the growth and fortification of private

enterprises and the overall economy. Several policies and interventions for policymakers to consider in support of the private sector include:

- Education and training of SMEs and businesses,that access credit from the financial sector, on the necessary skills and knowledge for effective use of loans. The credit/loan division of financial institutions should also strengthen the monitoring of disbursed loans to ensure they are used efficiently.
- The governments SSA can create incentive for financial institutions to lend more funds especially to sectors that are identified to contribute significantly to growth in the economy. So fiscal incentives the government could use include tax incentives for financial institutions to reduce cost of operation. On the monetary side, the central bank can consider reduction in the reserve requirements.
- The government can provide support for SMEs. It has been found that the development of private sector results in growth. To ensure this, SMEs in SSA must be given adequate government support to grow. This support includes tax holidays, affordable credit facilities, favourable credit term and technical assistance to SMEs.
- Strategic public-private partnerships will be vital in rendering the private sector the necessary support needed to facilitate their sustainable development and contribution to growth.
- The government in SSA should also play an effective role of providing the necessary infrastructure necessary for effective growth of the private sector. Some infrastructure necessary for the growth of the private sector are not affordable by the private sector. It is thus necessary the government plays a key role in strategically providing the necessary

infrastructure such as road networks, stable electricity, water, transport networks and communication and digital infrastructure.

- A favourable regulatory framework is necessary for the successful growth of the private sector. This includes the ease with which individuals are able to legally participate in the private sector. Since it has been found that economic growth causes increase in private sector development, policy-makers in SSA should ensure the regulation around participation in the private sector are not too burdensome.
- It, therefore, implies that to realize significant levels of private sector development, savings-friendly policies must be implemented by the policy-makers. This rise in domestic savings will cause private sector development.
- To realize significant levels of private sector development, savings-friendly policies must be implemented by the policy-makers. This rise in domestic savings will cause private sector development.

5.4.2 Further Research Recommendations

Further research should investigate the impact of private sector development on the sub-region's unemployment rate. It is expected that as the private sector develops, the growing number of unemployed labour will be reduced. However, this is yet to be empirically proven. Future studies should also be interested in establishing why domestic credit to the private sector does not lead to growth. Specifically, what may be contributing to that.

REFERENCES

Abrigo, M. R. M., & Love, I. (2016). Estimation of panel vector autoregression in Stata. *The Stata Journal*, *16*(3), 778–804.

Acaravci, A., Ozturk, I., & Acaravci, S. K. (2007). Finance-growth nexus: Evidence from Turkey. *Available at SSRN 1104693*.

Acaravci, S. K., Ozturk, I., & Acaravci, A. (2009). Financial development and economic growth: Literature survey and empirical evidence from Sub-Saharan African countries. *South African Journal of Economic and Management Sciences*, *12*(1), 11–27.

Adjasi, C. K. D., & Biekpe, N. B. (2006). Stock market development and economic growth: The case of selected African countries. *African Development Review*, *18*(1), 144–161.

Agbetsiafa, D. K. (2003). The finance growth nexus: Evidence from Sub-Saharan Africa. *International Advances in Economic Research*, *9*(2), 172–173.

Akinboade, O. A. (1998). Financial development and economic growth in botswana: a test for causality/développement financier et croissance économique au botswana: un test de causalité. *Savings and Development*, 331–348.

Akinlo, A. E., & Egbetunde, T. (2010). Financial development and economic growth: The experience of 10 sub-Saharan African countries revisited. *The Review of Finance and Banking*, *2*(1).

Al-Zubi, K. M., Al-Rjoub, S. A. M., & Abu-Mhareb, E. (2006). Financial development and economic growth: A new empirical evidence from the MENA countries, 1989-2001. *Applied Econometrics and International Development*, *6*(3).

Ali, G. (2015). Gross fixed capital formation & economic growth of Pakistan. *Journal of Research in Humanities, Arts and Literature Applied*, *1*(2), 21–30.

Ang, J. B. (2008). *Financial development and economic growth in Malaysia*. Routledge.

Ang, J. B. (2010). Determinants of private investment in Malaysia: what causes the postcrisis slumps? *Contemporary Economic Policy*, *28*(3), 378–391.

Apergis, N., Filippidis, I., & Economidou, C. (2007). Financial deepening and economic growth linkages: a panel data analysis. *Review of World Economics*, *143*(1), 179–198.

Asante, Y. (2000). *Determinants of private investment behaviour in Ghana*.

Asongu, S. A. (2014). Linkages between investment flows and financial development: Causality evidence from selected African countries. *African Journal of Economic and Management Studies*.

Atindéhou, R. B., Gueyie*, J. P., & Amenounve, E. K. (2005). Financial intermediation and economic growth: evidence from Western Africa. *Applied Financial Economics*, *15*(11), 777–790.

Bambi, M. (2008). Endogenous growth and time-to-build: the AK case. *Journal of Economic Dynamics and Control*, *32*(4), 1015–1040.

Batuo, M., Mlambo, K., & Asongu, S. (2018). Linkages between financial development, financial instability, financial liberalisation and economic growth in Africa. *Research in International Business and Finance*, *45*, 168–179.

Bayar, Y. (2014). Financial development and domestic savings in emerging Asian countries. *Theoretical & Applied Economics*, *21*(7).

Beck, T., & Levine, R. (2004). Stock markets, banks, and growth: Panel evidence. *Journal of Banking & Finance*, *28*(3), 423–442.

Beck, T., Levine, R., & Loayza, N. (2000). Finance and the Sources of Growth. *Journal of Financial Economics*, *58*(1–2), 261–300.

Bist, J. P. (2018). Financial development and economic growth: Evidence from a panel of 16 African and non-African low-income countries. *Cogent Economics & Finance*, *6*(1), 1449780.

Bonga, W. G., & Nyoni, T. (2017). An empirical analysis of the determinants of private investment in Zimbabwe. *Dynamic Research Journals' Journal of Economics & Finance (DRJ-JEF)*, *2*(4), 38–54.

Brasoveanu, L. O., Dragota, V., Catarama, D., & Semenescu, A. (2008). Correlations between capital market development and economic growth: The case of Romania. *Journal of Applied Quantitative Methods*, *3*(1), 64–75.

Bryman, A. (2016). *Social research methods*. Oxford university press.

Calderón, C., & Liu, L. (2003). The direction of causality between financial development and economic growth. *Journal of Development Economics*, *72*(1), 321–334.

Capolupo, R. (2018). Finance, investment and growth: Evidence for Italy. *Economic Notes: Review of Banking, Finance and Monetary Economics*, *47*(1), 145–186.

Caselli, F., Esquivel, G., & Lefort, F. (1996). Reopening the convergence debate: a new look at cross-country growth empirics. *Journal of Economic Growth*, *1*(3), 363–389.

Chang, T. (2002). Financial development and economic growth in Mainland China: a note on

testing demand-following or supply-leading hypothesis. *Applied Economics Letters*, *9*(13), 869–873.

Cheung, Y.-W., Dooley, M. P., & Sushko, V. (2012). *Investment and growth in rich and poor countries*. national Bureau of economic research.

Christopoulos, D. K., & Tsionas, E. G. (2004). Financial development and economic growth: evidence from panel unit root and cointegration tests. *Journal of Development Economics*, *73*(1), 55–74.

Chuah, H. L., Thai, V., & Chuah, L. (2004). *Financial development and economic growth: Evidence from causality tests for the GCC countries*.

Cleland, J., & Machiyama, K. (2017). The challenges posed by demographic change in sub-Saharan Africa: A concise overview. *Population and Development Review*, *43*, 264–286.

Creswell, J. W. (2009). *3rd (ed). Research Design: Qualitative and Mixed Methods Approaches*. London: SAGE Publications, Inc.

Demetriades, P. O., & Hussein, K. A. (1996). Does financial development cause economic growth? Time-series evidence from 16 countries. *Journal of Development Economics*, *51*(2), 387–411.

Demirhan, E., Aydemir, O., & Inkaya, A. (2011). The direction of causality between financial development and economic growth: evidence from Turkey. *International Journal of Management*, *28*(1), 3.

Dumiter, F., & Todor, S. P. (2014). Modeling the Relationship between Foreign Direct Investments and Economic Growth–Evidence from Central and Eastern European

Countries. *Studia Universitatis Vasile Goldiș Arad, Seria Științe Economice*, *24*(2), 1–18.

Emmanuel, O. G., & Kehinde, A. (2018). Domestic investment and economy growth in Nigeria: An empirical investigation. *International Journal of Business and Social Science*, *9*(2), 130–138.

Enisan, A. A., & Olufisayo, A. O. (2009). Stock market development and economic growth: Evidence from seven sub-Sahara African countries. *Journal of Economics and Business*, *61*(2), 162–171.

Fowowe, B. (2011). Financial sector reforms and private investment in Sub-Saharan African countries. *Journal of Economic Development*, *36*(3), 79.

Ghirmay, T. (2004). Financial development and economic growth in Sub-Saharan African countries: evidence from time series analysis. *African Development Review*, *16*(3), 415–432.

Greene, J., & Villanueva, D. (1990). Determinants of private investment in LDCs. *Finance and Development*, *27*(4), 40.

Greene, J., & Villanueva, D. (1991). Private investment in developing countries: an empirical analysis. *Staff Papers*, *38*(1), 33–58.

Gurley, J. G., & Shaw, E. S. (1955). Financial aspects of economic development. *The American Economic Review*, *45*(4), 515–538.

Haque, M. I. (2020). The growth of private sector and financial development in Saudi Arabia. *Economies*, *8*(2), 39.

Hassan, M. K., Sanchez, B., & Yu, J.-S. (2011). Financial development and economic growth:

New evidence from panel data. *The Quarterly Review of Economics and Finance*, *51*(1), 88–104.

Ibrahim, M., & Alagidede, P. (2018). Effect of financial development on economic growth in sub-Saharan Africa. *Journal of Policy Modeling*, *40*(6), 1104–1125.

Jammeh, I. Y. (2022). The relationship among domestic credit, financial development and economic growth in the Gambia. *International Journal of Social Sciences Perspectives*, *10*(2), 43–60.

Jung, W. S. (1986). Financial development and economic growth: international evidence. *Economic Development and Cultural Change*, *34*(2), 333–346.

Kagochi, J. M., Nasser, O. M. Al, & Kebede, E. (2013). Does financial development hold the key to economic growth? The case of Sub-Saharan Africa. *The Journal of Developing Areas*, 61–79.

Kanu, S. I., Ozurumba, B. A., & Anyanwu, F. A. (2014). Capital expenditures and gross fixed capital formation in Nigeria. *Journal of Economics and Sustainable Development, the International Institute for Science, Technology and Education (IISTE)*.

Khalid, A., & Nadeem, T. (2017). Bank credit to private sector: a critical review in the context of financial sector reforms. *SBP Staff Notes*, *3*, 17.

Khan, M. S., & Reinhart, C. M. (1990). Private investment and economic growth in developing countries. *World Development*, *18*(1), 19–27.

Khan, M. S., & Senhadji, A. (2000). *Financial development and economic growth: An overview*.

Khan, M. S., & Senhadji, A. S. (2003). Financial development and economic growth: A review

and new evidence. *Journal of African Economies*, *12*(suppl_2), ii89–ii110.

King, R. G., & Levine, R. (1993). Finance and growth: Schumpeter might be right. *The Quarterly Journal of Economics*, *108*(3), 717–737.

Levine, R. (1991). Stock markets, growth, and tax policy. *The Journal of Finance*, *46*(4), 1445–1465.

Levine, R., Loayza, N., & Beck, T. (2000). Financial intermediation and growth: Causality and causes. *Journal of Monetary Economics*, *46*(1), 31–77.

Levine, R., & Zervos, S. (1998). Stock markets, banks, and economic growth. *American Economic Review*, 537–558.

Liang, Q., & Jian-Zhou, T. (2006). Financial development and economic growth: Evidence from China. *China Economic Review*, *17*(4), 395–411.

Masten, A. B., Coricelli, F., & Masten, I. (2008). Non-linear growth effects of financial development: Does financial integration matter? *Journal of International Money and Finance*, *27*(2), 295–313.

Meyer, D. F., & Sanusi, K. A. (2019). A causality analysis of the relationships between gross fixed capital formation, economic growth and employment in South Africa. *Studia Universitatis Babes-Bolyai Oeconomica*, *64*(1), 33–44.

Misati, R. N., & Nyamongo, E. M. (2011). Financial development and private investment in Sub-Saharan Africa. *Journal of Economics and Business*, *63*(2), 139–151.

Ndikumana, L. (2000). Financial determinants of domestic investment in Sub-Saharan Africa: Evidence from panel data. *World Development*, *28*(2), 381–400.

Ndikumana, L., & Verick, S. (2008). The linkages between FDI and domestic investment: Unravelling the developmental impact of foreign investment in Sub-Saharan Africa. *Development Policy Review*, *26*(6), 713–726.

Nindi, A., & Odhiambo, N. M. (2014). Savings and investment in Malawi: A causality test. *Investment Management and Financial Innovations*, *11*(4), 77–84.

Nwanne, T. F. I. (2016). IMPLICATION OF SAVINGS AND INVESTMENT ON ECONOMIC GROWTH IN NIGERIA. *International Journal of Small Business and Entrepreneurship Research*, *2*(4), 74–86.

Odhiambo, N. M. (2005). Financial development and economic growth in Tanzania: A dynamic causality test. *African Finance Journal*, *7*(1), 1–17.

Odhiambo, N. M. (2007). Supply-leading versus demand-following hypothesis: Empirical evidence from three SSA countries. *African Development Review*, *19*(2), 257–280.

Odhiambo, N. M. (2008). Financial depth, savings and economic growth in Kenya: A dynamic causal linkage. *Economic Modelling*, *25*(4), 704–713.

Oshikoya, T. W. (1994). Macroeconomic determinants of domestic private investment in Africa: An empirical analysis. *Economic Development and Cultural Change*, *42*(3), 573–596.

Ouattara, B. (2004). *Modelling the long run determinants of private investment in Senegal*. Credit Research Paper.

Quak, E., & Flynn, J. (2019). *Private sector development interventions and better-quality job creation for youth in Africa*.

Quartey, P., & Prah, F. (2008). Financial development and economic growth in Ghana: is there a

causal link? *African Finance Journal*, *10*(1), 28–54.

Rachdi, H., & Mbarek, H. Ben. (2011). The causality between financial development and economic growth: Panel data cointegration and GMM system approaches. *International Journal of Economics and Finance*, *3*(1), 143–151.

Rioja, F., & Valev, N. (2004). Finance and the sources of growth at various stages of economic development. *Economic Inquiry*, *42*(1), 127–140.

Robinson, J. (1952). The model of an expanding economy. *The Economic Journal*, *62*(245), 42–53.

Rousseau, P. L., & Wachtel, P. (2011). What is happening to the impact of financial deepening on economic growth? *Economic Inquiry*, *49*(1), 276–288.

Schulpen, L., & Gibbon, P. (2001). Private Sector Development. *Centre for Development Research, Copenhagen*.

Servén, L. (2003). Real-exchange-rate uncertainty and private investment in LDCs. *Review of Economics and Statistics*, *85*(1), 212–218.

Solow, R. M. (1999). Neoclassical growth theory. *Handbook of Macroeconomics*, *1*, 637–667.

Stampini, M., Leung, R., Diarra, S. M., & Pla, L. (2013). How large is the private sector in Africa? Evidence from national accounts and labour markets. *South African Journal of Economics*, *81*(1), 140–165.

Van Nieuwerburgh, S., Buelens, F., & Cuyvers, L. (2006). Stock market development and economic growth in Belgium. *Explorations in Economic History*, *43*(1), 13–38.

Workie, M. (1999). Determinants and constraints of private investment in Ethiopia. *Ethiopian*

Journal of Economics, *5*(683-2016–46769), 57–80.

Xu, Z. (2000). Financial development, investment, and economic growth. *Economic Inquiry*, *38*(2), 331–344.

Zhuang, J., Gunatilake, H. M., Niimi, Y., Khan, M. E., Jiang, Y., Hasan, R., Khor, N., Martin, A. L., Bracey, P., & Huang, B. (2009). Financial sector development, economic growth, and poverty reduction: A literature review. *Asian Development Bank Economics Working Paper Series*, *173*.

Zou, Y. (2006). Empirical studies on the relationship between public and private investment and GDP growth. *Applied Economics*, *38*(11), 1259–1270.