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UNIVERSITY OF CAPE COAST

TRADE OPENNESS AND FINANCIAL DEVELOPMENT IN SUB-
SAHARAN AFRICA: THE ROLE OF INSTITUTIONAL QUALITY

BY

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Humanities and Legal Studies, University of Cape Coast, in partial fulfillment of
the requirements for the award of Master of Commerce Degree in Finance.

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DECLARATION

Candidate's Declaration

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

Candidate's signature..... Date.....

Name: Mac Junior Abeka

Supervisors' Declaration

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

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ABSTRACT

The financial development of many Sub-Saharan African countries over the years has not been able to match up with other regions like the Middle East and North Africa, East Asia and Pacific, and Europe and central Asia (IMF, 2016). Trade openness has been argued in several empirical literature as a factor that could spur up the level of financial development, although the high levels of trade openness in Sub-Saharan Africa is not contributing much to the desired levels of financial development in Sub-Saharan Africa. However, there is an indication in literature that trade openness will be more relevant to financial development of economies that have a strong institutional quality. Thus, by using system General Method of Moment estimation technique, this study examined how institutional quality moderates the relationship between trade openness and financial development of Sub-Saharan African economies. The study found that institutional quality enhances the effect of trade openness on financial development of Sub-Saharan African economies. It is therefore recommended that, Sub-Saharan African economies should put in measures to strength their institutional quality so that the high levels of trade openness will better enhance financial development. Specifically, trade openness can better enhance financial development by improving government effectiveness, reducing corruption, enhancing regulatory quality, abiding by the rule of law, and allowing voice and accountability. As an extra benefit, the improvements in institutional quality on their own too will yield positive impact on financial development.

KEY WORDS

Financial Development

General Method of Moments

Institutional Quality

Moderating effect

Sub-Saharan Africa

Trade Openness

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DEDICATION

To Lady Alberta Yoyouwa Roberts

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LIST OF ACRONYMS

AGI	African Governance Indicators
CPIA	Country Policy and Institutional Assessment
FD	Financial Development
GDP	Gross Domestic Product
GDPPC	Gross Domestic Product Per Capita
GEP	Government Expenditure (% of GDP)
GFCP	Gross capital formation (% of GDP)
GSP	Gross Savings (% of GDP)
ICRG	International Country Risk Guide
IMF	International Monetary Fund
INF	Inflation
INST	Institutional Quality
NADA	Net official Aid and Development Assistance
SSA	Sub-Saharan Africa (n)
TO	Trade Openness
WDI	World Development Indicators
WGI	Worldwide Governance Indicators

CHAPTER ONE

INTRODUCTION

Introduction

Financial development is very essential to every economy because it marks an improvement in the quantity, quality and efficiency of financial system of an economy. Although Sub-Saharan Africa (SSA) has undergone several financial sector reforms over the last few decades, financial development in SSA still remains much lower as compared to other regions (IMF, 2016). Following the work of David, Mlachila and Moheput (2014), trade openness will become a very important tool for achieving desired levels of financial development in SSA if countries in the region pay attention to improving institutional quality in their various countries. This thesis contributes to existing literature on trade openness, institutional quality and financial development in SSA by employing a measure of institutional quality that captures several aspects of institutions. Practically, this study will be essential for policy decision makers as they coordinate efforts to improve the current state of financial development in SSA.

Background to the Study

Financial systems primarily consist of borrower-spenders, lender-savers and financial intermediaries (Mishking & Eakings, 2012). These borrower-spender units and lender-saver units include businesses, households and governments that participate in the financial system and regulate its operations (Ibrahim, 2011). On the other hand, the financial intermediaries refer to financial

markets and financial institutions that facilitate the exchange of funds between the lender-savers and the borrower-spenders. Financial systems play a key role in shaping the economy of various countries. They help to mobilize funds from surplus spending units to deficit spending units and provide payments services that facilitate the exchange of goods and services which eventually increases economic growth (Beck, Demirgüç-Kunt & Levine, 2003). Also, financial systems facilitate the efficient and effective allocation of funds for productive and investment purposes in an economy. Agyemang (2018) posited that a proper financial system engages in the collection of information and monitoring of entrepreneurial activities which is a major contributor to economic growth in developing economies. Moreover, financial systems provide facilities for risk diversification and this paves a way for households to minimize risk and maintain liquid investment, thereby encouraging investment in the economy (Agyemang, 2018; Kutan, Samargandi & Sohag, 2017).

Corollary to the role that financial systems play in enhancing economic growth, the development of financial systems will be of great essence to developing economies as they seek to achieve higher levels of economic growth. Financial development is the process of improving efficient allocation of financial resources by strengthening healthy competition leading to increase in the overall relevance of the financial system (Huang, 2006). It is now well established in empirical works that financial development constitutes an important instrument needed to engineer economic growth (Ngare, Nyamongo & Misati, 2014; Demetriades & Andrianova, 2004; Levine, 1998). Also, financial development

reduces poverty, makes more finances and deposit opportunities available and avoids inequality (Mbulawa, 2015).

There has been significant improvements in the financial development of SSA countries over the past few years (IMF, 2016). First, Pan-African Banks have gained presence in most SSA countries and has promoted competition in the sector. These banks are gradually filling the gaps left behind by the European and the American banks. Also, the SSA region is ahead of other regions when it comes to innovative financial products such as mobile telephony –based financial services and microfinance services. The widespread of mobile telephony- based financial services like M-Pesa in Kenya and mobile money services in Ghana have helped reduce transaction cost and made financial services more accessible. The advancement of microfinance has also made financial services more accessible to people with low-income levels. Finally, the financial sectors of SSA countries have deepened. This improvement, however, is only evident in the middle-income countries because the financial markets and financial institutions development still remain low in the low-income countries.

Allen, Carletti, Cull, Qian, Senbet and Valenzuela (2012) explained that most financial markets in SSA over the years had remained thin, illiquid and underdeveloped as compared to other regions. Specifically, IMF (2016) suggested that financial development in SSA has not been able to match up with regions like Middle East and North Africa (MENA), East Asia and Pacific (EAP), Latin America and the Caribbean.

Given the importance of a well-functioning financial system, several researchers in the area have examined why there are financial development gaps among countries and regions. Some of the factors found include trade openness, institutional quality, economic growth, government expenditure, total investment, savings rate, net official aid and development assistance (Agyemang, 2018; Mbulawa, 2015; David, Mlachila & Moheput, 2014; Takyi & Obeng, 2010; Patrick, 1966; Karikari, 2010; Dorrucchi, Meyer-Cirkel & Santabarbara, 2009).

Among these factors, trade openness has not been researched thoroughly especially in the SSA context although most SSA countries have engaged in greater trade openness to the rest of the world over time (Zahonogo, 2018). Trade openness has increased in SSA over time because international financial institutions, such as the International Monetary Fund and the World Bank, have always granted assistance to developing countries based on the condition of greater trade openness of such countries (Zahonogo, 2018). Therefore, it is imperative that the relationship between trade openness and financial development in the SSA region is examined. This is because increasing trade will trigger demand for new financial products and services which eventually elicits the development of the financial sector more funds will be needed to expand trading activities. Apart from providing innovative financial products, many financial markets also evolve to provide more adequate insurance and diversification options to reduce risk of external shocks and foreign completion (Svaleryd & Vlachos, 2002).

In examining the relationship between trade openness and financial development of SSA countries, the role played by institutional quality in the relationship cannot be ignored. This is because Gani and Prasad (2006) argued that the benefits that can be derived from trade openness will depend on institutional quality. In addition, Mbulawa (2015) explained that institutional quality had a complementary effect on financial development. Furthermore, David et al. (2014) argued that the extent to which trade openness will contribute to financial development of SSA countries depends on institutional quality. Perhaps if attention is paid to the development of institutional quality in SSA, the increase in trade openness will better enhance financial development in SSA. It is therefore important that the relationship between trade openness and financial development of SSA countries as well as the role of institutional quality in the relationship between trade openness and financial development of SSA countries is empirically examined. The following section presents stylized facts on Trade Openness, Institutional Quality and Financial Development of SSA Economies.

Stylised facts on Trade Openness, Institutional Quality and Financial Development of SSA Economies

Trends analysis of financial development among regions

The following figure is constructed from sample data sourced from World development indicators dataset:

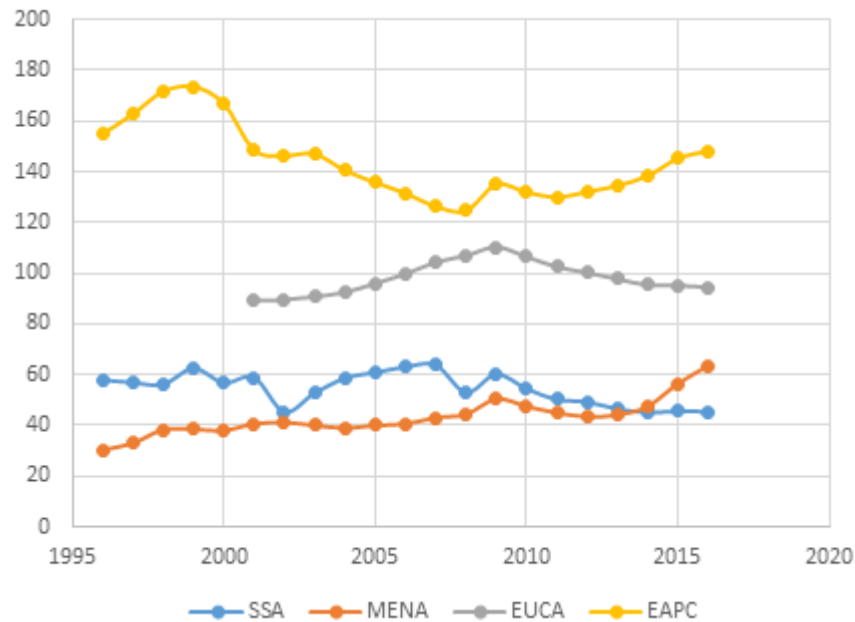


Figure 1 : Trends in financial development among sub-Saharan Africa (SSA), Middle East and North Africa (MENA), Europe and central Asia (EUCA) and East Asia and Pacific (EAPC)

Source: Field survey, Abeka (2018)

From figure 1 above, it can be seen that financial development of East Asia and the Pacific as well as Europe and central Asia is well above SSA from the period 1996 – 2016. Although financial development SSA was initially slightly above that of Middle East and North Asia, it fell sharply in 2014 and has been depicting a downward trend thereafter. This shows that the financial development of SSA is low as compared to some other regions of the world.

Trends analysis of financial development for Sample Sub Regions of SSA Economies

A comparative analysis was conducted among trends in financial development of the Sub-regions of SSA to assist in policy decisions among the sub regions of Sub-Saharan Africa. The figure below depicts the trend analysis of financial development among the sample SSA sub regions used in the study. The following figure is constructed from sample data sourced from World development indicators dataset:

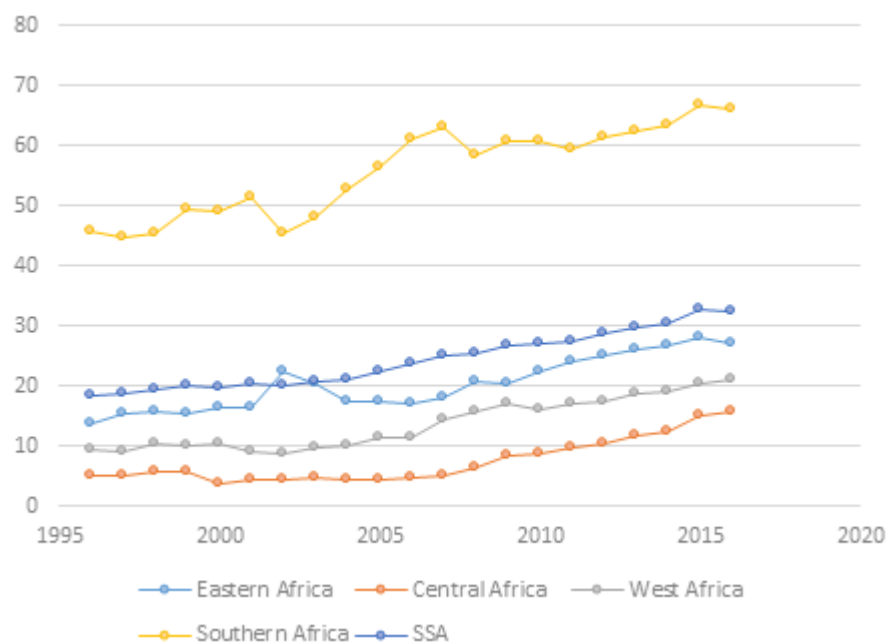


Figure 2 : Trend in financial development of sample SSA economies compared to sub-regions of SSA

Source: Field survey, Abeka (2018)

Figure 2 shows the financial development trends among the various sub regions of SSA economies. The sub regions include Eastern Africa, Central Africa, Western Africa and Southern Africa. The list of the various SSA economies under their sub regions is shown in Appendix A. A careful

observation of figure 2 reveals that financial development of Southern African sub region over the period 1996 – 2016 is well above the average for the entire SSA region as well as the other three sub regions. The financial development in Southern African economies has depicted an increasing trend over time although there is a sharp fall after the year 2015. It is good to note that the trend in financial development for Southern Africa was at its lowest point in the years 1997 and 2002 whilst it reached its highest point in the year 2015.

Eastern Africa is the next sub region that has performed well in the SSA region in terms of financial development. It can be observed from the trend analysis that Eastern Africa performed better than Central Africa and Western Africa but performed below the average for the entire SSA region. Also, the trend in financial development of Eastern Africa recorded its lowest point in the year 1996 and recorded its highest point in the year 2015. However it falls after the year 2015. Western Africa ranks third among the four regions sub regions of SSA in terms of financial development trends. Also, it is below the average of the entire SSA region. The trend in financial development of West Africa recorded its lowest point in the year 2001 and its highest point in the year 2016. Central Africa performed poorly among the four sub regions in SSA. Also the trend in financial development of Central Africa is obviously below the average of the entire SSA region. It recorded its lowest point in the year 2000 and its highest point in the year 2016.

It is worth noting that the financial development of southern Africa sub-region is far above the composite for the entire SSA region as well as the other

sub-regions of SSA. However, as will be revealed by the robustness check in chapter 4, this does not pose an outlier problem to the regression equations.

Trend analysis of trade openness and financial development in SSA

The following figure is constructed from sample data sourced from World development indicators dataset:

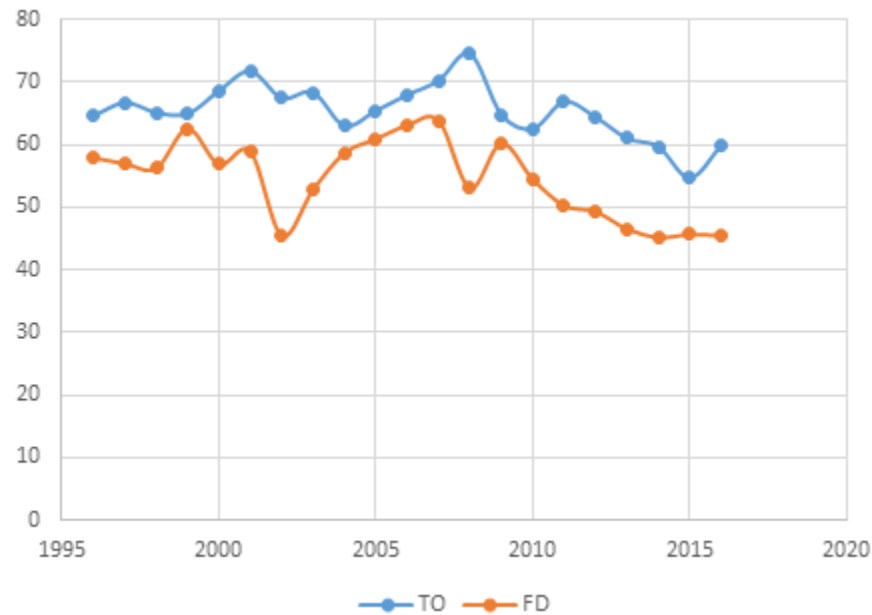


Figure 3 : Trends in Trade openness and financial development in SSA

Source: Field survey, Abeka (2018)

From figure 3 above, it can be seen although there are fluctuations in the movement of financial development (FD) in SSA over the years, it has generally depicted a falling trend. Also trade openness (TO) in SSA over the years has depicted a slightly falling trend as compared to financial development. A comparative analysis of the trend in trade openness and financial development reveals that over the years that trade openness has been above financial

development. This gives an indication that trade openness may not be contribution much to financial development in SSA.

Trend analysis of institutional quality in SSA

The following figures (4 and 5) is constructed from sample data sourced from worldwide governance indicators dataset:



Figure 4 : Trend in composite institutional quality of SSA

Source: Field survey, Abeka (2018)

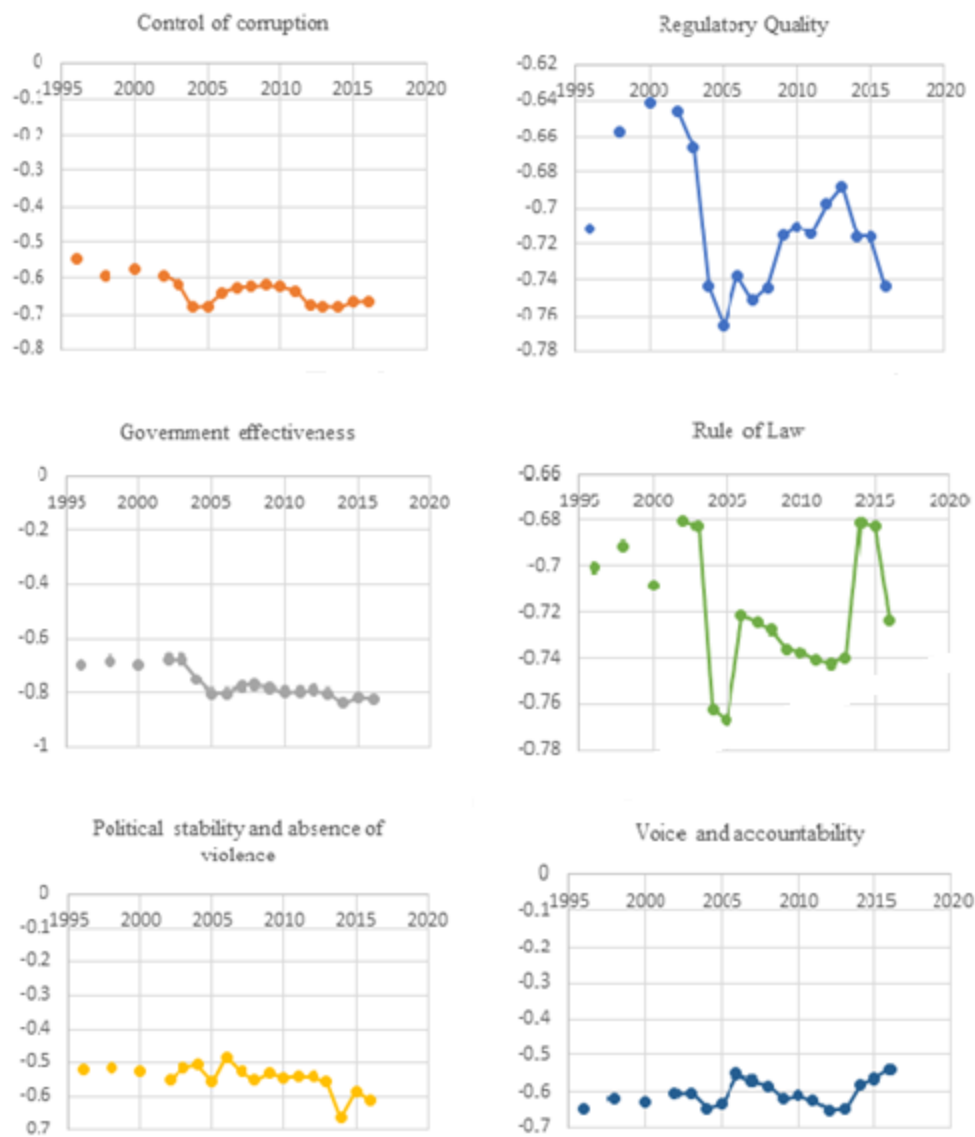


Figure 5 : Trends in institutional indicators of SSA economies

Source: Field survey, Abeka (2018)

Figure 4 shows that on the average SSA has a bad image when it comes to institutional quality because the institutional quality has depicted a falling trend over time. This is due to the fact there has been negative reporting concerning the African continent as a whole. From figure 5, government effectiveness has depicted a falling trend over the period which indicates that the perception that government officials make use of government power for private gains has not

been any better over the years. Also the downward trend of government effectiveness in SSA indicates that policy formulation and implementation in the public service and the civil service is increasingly being influenced by the governments in power. Furthermore, political stability shows a slight downward trend which indicates that pockets of political instability still exists in SSA. Voice and accountability has depicted an upward trend which suggests that media freedom, freedom of association, freedom of expression, and the ability of citizens to elect their governments have improved in SSA over the period 1996 – 2016. Rule of law and regulatory quality depicts a downward trend which shows that there is legal and regulatory gaps in SSA.

Statement of the Problem

There is limited literature on the effect of trade openness on financial development, especially in the SSA context. The few empirical works done on the relationship between trade openness and financial development too depicts inconclusive results. For instance, Asiama and Mobolaji (2011) found that there is a positive significant effect of trade openness on financial development in SSA economies. On the contrary, Kim, Lin and Suen (2010) found a negative effect of trade openness on financial development in the short run. Furthermore, Zhang, Zhu and Lu (2015) found a negative effect of trade openness on financial development. Meanwhile, David et al. (2014) found no direct robust link between trade openness and financial development in SSA economies.

The difference in findings could be as a result that these empirical works have not examined the relationship between trade openness and financial

development when absorptive capacities like institutional quality is taken into account. This is because Asiama and Mobolaji (2011) argued that financial development in SSA can still be impeded by weak institutions even if there is enough trade openness. However, the study did not employ an interaction term between trade openness and financial development to capture how institutional quality moderates the relationship between trade openness and financial development. Following the work of David et al. (2014) , there is a little indication that trade openness will only translate into financial development in SSA economies when the required levels of institutional quality is achieved. David et al. (2014) measured institutional quality by ‘constraints on the power of the executive’ and found that countries with stronger institutional quality also tend to present more positive coefficients for trade openness in the regression even though the same study pointed out to the fact that the institutional quality measure employed represented a poor proxy for institutions that actually matter for financial development. Also the study did not employ an interaction term between trade openness and financial development to capture the net effect of trade openness on financial development when institutional quality is taken into consideration.

This is because ‘Constraints on the power of the executive’ depicts the extent of constraints on the decision-making powers of chief executives, whether individuals or collectivities. However, institutional quality goes beyond decision making powers of chief executives to examine the extent to which citizens and the

state as a whole, have respect for the institutions that govern economic and social interactions among them (Kaufmann, Kraay & Mastruzzi, 2010).

It is against this background that this study employs a broad proxy for institutional quality that encompasses six aspects of institutional quality namely, control of corruption, government effectiveness, political stability and absence of violence; regulatory quality; rule of law; and voice and accountability (Kaufmann, Kraay & Mastruzzi, 2005). These indicators are based on several hundred variables measuring perceptions of governance, drawn from 25 separate data sources constructed by 18 different organizations including the World Bank, World Markets Research Centre, think tanks, Non-Governmental Organisations and business and political risk-rating organizations (Agyemang, 2018; Kaufmann et al., 2005).

This study therefore fills a gap in existing literature by employing a broad proxy for institutional quality to examine the relationships among trade openness, institutional quality and financial development in SSA. Another literature gap in the SSA context that is filled by this study is the employment of an interaction term between trade openness and financial development to capture the net effect of trade openness on financial development.

Purpose of the Study

This study sought to examine the moderating effect of institutional quality on the relationship between trade openness and financial development in SSA.

Research Objectives

1. To determine the effect of trade openness on financial development in SSA economies.
2. To assess the relationship between institutional quality and financial development of SSA economies.
3. To examine how institutional quality moderates the relationship between trade openness and financial development in SSA economies.

Research Hypotheses

1. There is no significant effect of trade openness on financial development in SSA economies.
2. There is no significant relationship between institutional quality and financial development in SSA economies.
3. There is no significant moderating effect of institutional quality on the relationship between trade openness and financial development in SSA economies.

Significance of the Study

This research examines how institutional quality moderates the relationship between trade openness and financial development in SSA and thus has both empirical and social relevance. The empirical significance of this study is that it will contribute to existing literature on the relationships among trade openness, institutional quality and financial development in the context of SSA economies by employing a measure that encompasses several aspects of institutional quality. In terms of social relevance, this study would motivate SSA

economies to strengthen their institutional quality so that increase in trade openness will contribute more to financial development, granted there is a moderating effect of institutional quality on the relationship between trade openness and financial development in SSA.

Delimitations

The study is conducted on SSA and thus excludes countries from other regions of the world. Although there is a total of 48 countries in SSA, only 39 were employed in this study because of data availability. The study used the trade (% of GDP) as a proxy for trade openness and used the ratio of private sector credit to GDP as a measure of financial development because they have both been widely used in literature. Institutional quality was measured by the aggregate of six institutional indicators namely, voice and accountability; control of corruption, government effectiveness, political stability and absence of violence; regulatory quality and rule of law. This measure was used because it encompasses several aspects of institutional quality as compared to other measures used in some empirical works.

Definition of Terms

Financial development

According to Huang (2006) financial development is the process of improving efficient allocation of financial resources by strengthening healthy competition leading to an increase in the overall relevance of the financial system. Therefore the level of financial development generally tells the ease with which

the finance system provides funding for business activities, and the ease with which financial services are accessed by all parties in the financial system.

Trade openness

Trade openness measures the extent to which economic policies restrict and invite international trade. That is, the more open the trade of an economy is, the more the economic policies invite international trade (Mputu, 2016).

Institutional quality

Kaufmann et al. (2010) defined institutional quality as ‘the traditions and institutions by which authority in a country is exercised. This includes the process by which governments are selected, monitored and replaced; the capacity of the government to effectively formulate and implement sound policies; and the respect of citizens and the state for the institutions that govern economic and social interactions among them’.

Organisation of the Study

This study is divided into five chapters. Chapter one presents an introduction of the study. Specifically it covers items such as the background to the study, statement of the problem, the purpose of the study, objectives of the study, research hypothesis, significance of the study, delimitations, the definition of terms, organisation of the study and a chapter summary. Chapter two, literature review, provides the theoretical justifications as well as empirical review of literature on the study.

The research methods are discussed in chapter three. The chapter includes the research design, data sources, variables and measurement, data processing and

analysis as well as a chapter summary of the research methods. Chapter four presents the regression results, an in-depth discussion of the hypothesis stated and a chapter summary. Chapter five gives the summary, conclusions and recommendations and suggestion for future research.

Chapter Summary

SSA economies over the years have attained a low level of financial development as compared to other regions of the world. Therefore this chapter began by describing the context within which the problem exists and sets the tone for the statement of the problem. This research placed special focus on the roles played by trade openness and institutional quality to ensure financial development in SSA. This is because the extent to which trade openness will contribute to financial development in SSA will depend on institutional quality. The chapter ended by providing definitions of the key terms used in the study and finally an outline of how the rest of the study is organised.

CHAPTER 2

LITERATURE REVIEW

Introduction

This chapter discusses and compares the insight from the past studies on trade openness, institutional quality and financial development in SSA economies. This chapter mainly presents the theoretical and empirical justifications for the study. Two theories are employed in this study, namely, the interest group theory of financial development and the law and finance theory. The chapter also presents a comprehensive review of empirical literature that supports the objectives of the study. Finally, the chapter provides theoretical and empirical justifications of the control variables employed in the study.

Interest group theory of financial development

Rajan and Zingales (2003) proposed the interest group theory of financial development to explain the difference in financial development across several countries. The theory explained that the power of incumbents who oppose financial development will be weakened when an economy opens up to trade flows. In this context, incumbents refer to powerful and well established large industrial firms in an economy.

Rajan and Zingales (2003) argued that, trade openness is required to enhance financial development because opening up a country's boarder to trade increases foreign competition in the domestic markets. Hauner, Prati and Bircan (2013) further explained that the foreign competition will reduce profits of incumbents and create more investment needs for incumbents to counter compete

with the foreign goods. The sourcing and use of funds by these incumbents will trigger the development of the financial sector, which will also give opportunities to other promising startup firms to easily acquire funds for expansion. In line with the interest group theory of financial development, Hauner et al. (2013) also argued that trade liberalization is a leading indicator of the development of domestic financial markets and institutions. For instance, Adam Smith observed that the opening up of the Scottish economy to international trade in the eighteenth century contributed to the establishment of two public banks (Reid, 2010).

However, Reid (2010) posited that a reverse financial development may occur when incumbent groups, which dread the competitive consequences of financial deepening, erect barriers to change. Therefore, one of the main conclusions by Rajan and Zingales (2003) was that, strong institutional quality matters, especially when it comes to tempering interest group activities. That is, a country's institutional quality might slow or speed-up interest group activities. This means that even though the power of the incumbents can be reduced by trade openness, the effectiveness of such phenomenon can also depend on the country's institutional structures.

The law and finance theory

Various literature that examines the importance of legal institutions to enhancing financial development stems from the contributions of Porta, Lopez-de-Silanes, Shleifer, and Vishny (1998). The law and finance theory argues that, the origin of legal rules covering protection of corporate shareholders and

creditors, the rules themselves as well as the quality of their enforcement shapes financial development. Therefore Beck et al. (2003) explained that cross country differences in financial development can be attributed to the legal institutions and that such explanation is the main focus of the law and finance theory. To provide further evidence on the law and finance theory, Himmelberg, Hubbard and Love (2002) explained that economies which have legal institutions that support rights for foreign investors have financial systems which re-allocate more efficiently. This means that cross country differences in financial development can be attributed to the nature of institutional quality of these countries.

Relation of theories to the research

This research is based on two main conclusions of the interest group theory of financial development by Rajan and Zingales (2003). One of the main conclusions is that trade openness is required to enhance financial development. Another main conclusion of Rajan and Zingales (2003) is that institutional quality matters when it comes to tempering interest group activities. In the current study, a broad proxy for institutional quality is employed to capture the moderating effect of institutional quality on the relationship between trade openness and financial development of SSA economies. This study therefore argues that, institutional quality plays a major role in tempering or lowering the power of the incumbents and as such strong institutional quality is required to ensure that trade openness policies are breeding the competition needed to lower the barriers to financial development posed by these incumbents.

The law and finance theory cannot be left out of this discussion. This is because, in order to examine how institutional quality moderates the relationship between trade openness and financial development in SSA economies, the separate effects of institutional quality and trade openness on financial development needs to be examined. The main argument of the law and finance theory is that legal systems, and for that matter institutional quality, play a major role in ensuring financial development. Thus, in relation to this study, strong institutional quality is also required to ensure financial development even though economies may put in measures to reduce trade restrictions.

Financial development in sub-Saharan Africa

Financial development is a state of continuous improvement in efficient allocation of financial resources by strengthening healthy competition, thereby leading to an increase in the overall relevance of the financial system (Huang, 2006). Therefore, the level of financial development generally depicts the ease with which the financial system provides funding for business activities, and the ease with which financial services are accessed by all parties in the financial system.

Gries, Kraft and Meierrieks (2009) describes the financial systems in SSA as underdeveloped. The financial development in SSA over the years has been relatively low as compared to other regions (IMF, 2016). The current study therefore explains how greater trade openness coupled with strong institutional quality will breed healthy competition to elicit new financial products and make them more accessible to various parties in an economy.

Trade openness and financial development

Mputu (2016) explained that trade openness measures the extent to which economic policies restrict and invite international trade. This means that the more open the trade of an economy is, the more the economic policies in that economy invite imports and promotes exports. Although findings from several empirical studies suggest that trade openness is necessary for financial development, some still contend that it impedes financial development or even does not affect financial development at all.

Trade openness have been argued to positively affect financial development in some empirical works. This is because increasing trade may trigger demand for new financial products which will eventually lead to the development of the financial sector. Gries, Kraft and Meierrieks (2009) explained that increasing trade will increase risks linked to external shocks and foreign competition. Therefore, an increase in the supply of more sophisticated financial instruments normally accompanies the increase in trade openness. Svaleryd and Vlachos (2002) further explained that many financial institutions also evolve to provide more adequate insurance and diversification options to reduce risk of external shocks and foreign completion.

Baltagi, Demetriades and Law (2007) argued that trade openness is considerably more effective in promoting financial development across several countries. The study employed two measures of financial development, the ratio of country's foreign assets and liabilities to GDP and the financial liberalization index constructed by Abiad and Mody (2005). Trade openness was also measured

by the ratio of sum of exports and imports to GDP. The dynamic panel general method of moments (GMM) estimation results indicated that trade openness is a major driver of financial development.

Also, Takyi and Obeng (2013) posited that trade openness is an important determinant of financial development in Ghana. Thus, the study argued that the development of the financial sector should be a great incentive to governments of developing countries whose economies are closed to international trade to open up their economies to international trade. By employing the auto-regressive distributed lag model, the study found a long run relationship between trade openness and financial development and also explained that previous growth and expansion in the financial sector serves as an indication of future growth and expansion in the financial sector. Trade openness was measured by the ratio of total trade to GDP whilst financial development was measured by the ratio of private sector credit to GDP.

Huang and Temple (2005) also hold similar stance that trade openness is strongly required for financial development in low-income countries. The study employed the Arellano and Bond GMM estimator on a panel data of 88 countries covering the period 1960 – 1999. Financial development was measured by a single index composed of ratio of liquid liability to GDP, ratio of private credit to GDP and ratio of commercial bank assets to sum of commercial bank assets. Results from the estimations revealed that there is a strong evidence for a positive effect of trade openness on financial development for low income countries than high income countries. Moreover, Touny (2014) compared the determinants of

banking sector development in Egypt and Saudi Arabia. The study employed the Johansen cointegration model and found that trade openness had a positive and significant effect on the ratio of private sector credit to GDP in Egypt.

Kim, Lin and Suen (2010) found that opening up trade will increase the development of the financial sector in the long run but will impeded it in the short run. The study examined the dynamic effects of trade openness on financial development using a panel data of 88 countries covering the period from 1960–2005. The average of ratio of private credit to GDP, ratio of domestic assets of deposit money bank to GDP and the ratio of liquid liabilities was used as a proxy for financial development. The study also employed trade share, which is the logarithm of the ratio of sum of imports and exports to GDP as a proxy for trade openness. The econometric approach that was used to estimate the long-run effect of trade openness on financial development is the pooled group mean estimator. The results from the estimations suggested that there is coexistence of positive long-run effects and negative short-run effects of trade openness on financial development.

Other strands of literature contend that trade openness negatively affects financial development. Although Kim et al. (2010) found trade openness to positively affect financial development, the same study found out that trade openness negatively influenced financial development in the short run. Another major study by Zhang, Zhu and Lu (2015) found a negative effect of trade openness on financial development. Financial development was measured by banking and non-banking financial institutions to the nominal GDP ; ratio of

credit allocated to private enterprises to total domestic credit ; and the ratio of deposits in non-state-owned financial institutions to the total amount of deposits in all financial institutions. Specifically, the results from the study suggested that although trade openness significantly affects financial development, such effect is negative.

Institutional quality and financial development

Gani and Prasad (2006) defined institutional quality as “the process by which governments are selected and replaced; the capacity of the government to effectively formulate and implement sound policies; and the respect of citizens and the state of the institutions that govern economic and social interactions among them”.

Several studies have assessed the role played by institutional quality to ensure financial development. In that context, some studies have placed special focus on how the legal and regulatory environment ensures a well-functioning financial system. Law and Azman-Saini (2012) explained that a legal and regulatory system involving protection of property rights, contract enforcement, and sound accounting practices are essential for financial development. Law and Azman-Saini (2012) posited that low-income countries are located at the low side of institutional quality and that improvement in their institutional quality will enhance development of their stock market. Using dynamic panel system GMM estimations, two institutional quality data sets (from WGI and ICRG), as well as two measures of financial development (ratio of private sector credit to GDP and ratio of stock market capitalization to GDP) , the empirical results suggested that

institutional quality had a significant positive effect on banking sector development and stock market development.

By focusing on the roles of property rights and the legal system as determinants of financial market development, Levine (1998) also explained that countries with legal and regulatory systems that support creditors to receive their claims on corporations have well-functioning financial system than countries in which the legal and regulatory system does not provide such support to creditors. Rajan and Zingales (2003) examined why there are cross-country differences in financial development and found that political forces shape policies that enhance the development of financial markets. Rajan and Zingales (2003) explained that in countries where incumbents control political decisions, financial development may be opposed so as to deny potential competitors of these incumbents access to finance.

To provide further evidence on the role that institutional quality plays to enhance financial development, Shortland and Girma (2008) investigated the effect of democracy and political government transitions on financial development. The study argued that the degree of democracy and political stability are key determinants of the momentum of financial development. Also, the study explained that the banking sector further develops when there is increasing democracy and stable political regime whereas the stock market grows quickly when there is increasing democracy only.

Haber (2008) also assessed the effect of politics on financial development in the United States and Mexico from the year 1790 – 1914. The study argued that

the institutions that promote political competition reduce the chance for governments who always want to take advantage of the financial system for their personal benefit. This will in turn make the financial system more effective by breeding healthy competition in the financial sector.

One major study on the relationship between institutional quality and financial development was done by Huang (2010). Huang (2010) opined that political institutions play a key role in the development of the financial sector. The study examined whether improvements in institutions stimulate financial development by comparing results from two panel data techniques, system and bias-corrected least square dummy variable estimator and system GMM estimator. Financial development was measured by a single index of ratio of liquid liabilities to GDP, the ratio of private sector credit to GDP and the ratio of the commercial bank assets to the sum of commercial bank and central bank assets. On the other hand, “polity2” was used as a proxy for institutional quality. Results from the two estimators indicated that improvement in institutional quality will lead to increase in financial development in the short run, and specifically this holds for lower income countries. Huang (2010) further argued that low financial development precedes democratic transitions and the democratic transitions are followed by a short-run boost in financial development.

Another major study by Roe and Siegel (2011) found that the variation in financial development around the world is as result of political instability. The study argued that political instability is a serious impediment to the debt and stock market development. The study employed four conventional measures of national

political instability whilst financial development on the other hand was measured by two indicators, stock market capitalization (% of GDP) and bank loans(% of GDP). The study pointed out that a country's capacity and willingness to build and maintain institutions that protect investors will greatly depend on the country's political stability. That is, there cannot be a well-functioning institutional quality if there is an unstable political environment, and failure of institutional quality may well be a critical channel that connects political instability to financial backwardness. This is because, though different from many of the institutional factors, political instability has many causes, cures, and effects.

Trade openness and institutional quality

Gani and Prasad (2006) explained that strong institutional quality is an integral part of enhancing the benefits of international trade for a country. Therefore, they argued that the level of international trade depends on the quality of institutions. The study examined the influence of institutional quality on trade in six pacific island countries by using four indicators of institutional quality: government effectiveness, rule of law, regulatory quality and control of corruption. Results from the study indicated that strong government effectiveness boosts imports while an improved regulatory quality facilitates increment in levels of trade. Furthermore, the deterioration in rule of law negatively affects exports while the presence of corruption tends to significantly reduce imports.

This means that the extent to which trade openness limits the opposition of incumbents will depend on institutional quality structures which are put in place

to ensure healthy completion in the financial sector. Thus the effectiveness of trade openness will depend on institutional quality.

Trade openness, institutional quality and financial development

Several empirical works supports the stance that a strong institutional quality in addition to trade liberalization is necessary to attain high levels of financial development. That is, trade openness alone may not lead to the desired levels of financial development unless there is a strong institutional quality. This could explain why there are mixed findings on the relationship between trade openness and financial development.

Mishkin (2009) argued that institutional reforms compliments trade openness in developing countries to promote financial development. That is, sound institutions like a strong property right, an effective legal system, and an efficient financial regulation are essential for promoting financial development. Therefore, institutional quality plays an important role in the relationship between trade openness and financial development.

Asiama and Mobolaji (2011) also examined the relationship between trade openness and financial development of 33 SSA countries over the period 2004 - 2009. The panel models were estimated using three different measures of financial development, namely the ratio of private credit to GDP, the ratio of broad money to GDP and the ratio of liquid liability to GDP. Trade openness was measured by the ratio of exports and imports to GDP whilst institutional quality was measured by a composite variable of Country Policy and Institutional Assessment variables. By using both Arellano and Bond GMM estimator, trade

openness showed a more significant positive impact on the ratio of private sector credit to GDP than the ratio of liquid liabilities to GDP. With all the three proxies of financial development, institutional quality always proved that financial development in Sub Saharan Africa can still be impeded by weak institutions even if there is enough trade openness.

Mbulawa (2015) examined the determinants of financial development in 11 Southern Africa Development Council (SADC) countries from the period 1996 – 2010. The study pointed to the fact that institutional quality variables had a complementary effect on other variables that affect financial development in SADC. The determinants of financial development (the ratio of Domestic credit by banks to GDP as a proxy) employed included trade openness, foreign direct investment, remittances, GDP per capita, credit to public sector, inflation, real interest rate, institutional quality, gross fixed capital formation and savings. It could be observed from the results that trade openness had no significant effect on financial development due to the fact that there was no interaction between institutional quality variables and trade openness.

David et al. (2014) also examined the relationship among trade openness, institutional quality and financial development in SSA. They argued that there is some indication that trade openness is more important for financial development in countries with better institutional quality in SSA. A comprehensive measure which comprises of liquid liabilities, credit to the private sector by deposit-taking banks, credit to the private sector by banks and other financial institutions, bank deposits, and financial system deposits, all as a percentage of GDP was used as a

proxy for financial development whilst the power of the executive was used as a proxy for institutional quality. Generally, the results from the study do not point to the fact that there is direct robust effect of trade openness on financial development in SSA. This is primarily because of distortions in domestic financial markets due to relatively weak institutions.

Another possible explanation for the little indication that trade openness is more important for financial development in countries with better institutional quality structures is that institutional quality variable was not measured in a broader perspective and thus represents a poor proxy for institutional quality (David et al., 2014). Le, Kim and Lee (2016) examined the relationships among institutional quality, trade openness, and financial development in Asia. To capture a broader perspective of institutional quality, the study employed a composite institutional quality variable by averaging together six dimensions of governance obtained from the World Bank's Worldwide Governance Indicators (WGI). The main findings from the study suggested that trade openness coupled with better institutional quality will foster financial development in developing economies.

Control Variables

The study controls for macroeconomics indicators such as economic growth, government expenditure, total investment, savings rate, net official aid and development assistance, and inflation.

The demand-following hypothesis by Patrick (1996) postulated that the causation in the economic growth-financial development nexus is a unidirectional

one that runs from economic growth to financial development. The hypothesis implies that as the economy grows, there will be an increase in demand for financial services which will in turn trigger the expansion or development of the financial sector. That is, an increment in the amount of goods and services per head of a country's population presents an opportunity for investment and financing activities.

Another macroeconomic indicator that influences financial development is government expenditure. This is because whenever government engages in major expenditure, funds are released into the economy and these funds can positively or adversely influence the development of the financial sector. Thus, Karikari (2010) argued that government expenditures may either crowd out private credit or probably complement it.

Dorrucci et al. (2009) explained that domestic financial development is positively related to gross fixed capital formation and thus investment decisions are better implemented in developed financial markets. However Naceur and Ghazouani (2007) argued that investment rate rather impedes financial development.

Mbulawa (2015) opined that an increase in the savings rate in an economy reduces the credit expansion by financial institutions, because savings are a withdrawal from the circular flow of income. Thus, savings rate is expected to have a negative influence on financial development. However, Naceur and Ghazouani (2007) argued that the larger the saving rate, the higher the flow of

capital to stock markets and as such the savings rate is expected to have a positive effect on the stock market size.

Net official aid and development assistance cannot be left out of the discussion. This is because Karikari (2010) explained that foreign aid is likely to positively impact financial development since financial aid generally increases the resources available for financial intermediation. Finally, inflation has been found to have a significant negative effect on financial development in several empirical works. For instance, Takyi and Obeng (2013) argued that inflation undermines financial development due to its crowding out effect.

Gaps in existing studies

The theoretical and empirical review generally gives an indication that trade openness and institutional quality matter for financial development in SSA economies. Also, the review of literature explains that institutional quality moderates the relationship between trade openness and financial development in SSA. This is because, the extent to which maximum benefits will be derived from trade openness depends on institutional quality (Gani & Prasad, 2006). Furthermore, there is a little indication that trade openness will enhance financial development in SSA if measures are put in place to improve the state of institutional quality in SSA (David et al., 2014). The little indication is as a result of the fact that although insignificant, trade openness had more positive coefficients for countries that has better institutional quality. The studies by Asiamama and Mobolaji (2011) as well as David et al. (2014) come close to this current study. However, there were not interaction terms of trade openness and

financial development included in the models estimated by Asiama and Mobolaji (2011) as well as David et al. (2014). Furthermore the current study controls for other variables that were not employed in the studies by Asiama and Mobolaji (2011) as well as David et al. (2014). Finally this study employs a broad measure to capture institutional quality in SSA economies.

Contribution to existing studies

The current study contributes to existing studies in the SSA context by employing a broad measure of institutional quality to capture the moderating effect of institutional quality on the relationship trade openness and financial development in SSA. With respect to the SSA context, the current study fills another gap in literature by including an interaction term of trade openness and institutional quality in the regression equation that assesses the moderation effect of institutional quality on the relationship between trade openness and financial development.

Chapter Summary

The chapter begun by explaining the theories employed in the study. The chapter employed the interest group theory of financial development, which explains that the power of incumbents who oppose financial development will be weakened when an economy opens up to trade flows. Also the extent to which the power of these oppositional incumbents can be weakened by trade flows also depends on the nature of institutional quality. Therefore the chapter also employed the law and finance theory which explains that economies which have

strong legal institutions have financial systems that re-allocate financial resources more efficiently.

The chapter then provided the empirical justifications for the relationships among trade openness, institutional quality and financial development. The chapter finally provides empirical justification for the control variables used in the study.

CHAPTER 3

RESEARCH METHODS

Introduction

This chapter deals with the systematic procedures used to explain the role played by trade openness and institutional quality in improving the state of financial development in SSA. Specifically, this chapter presents the research paradigm, research design, research approach, definition, source and measurement of variables, model specifications and justifications, and methods of data processing and analysis.

Research Paradigm

According to Hallebone and Priest (2008), research paradigm reflects the philosophy of a scientific research and the scientific approach that is considered most appropriate to the purpose, context and focus of the research task. This study is in line with the positivism research paradigm. Proponents of positivism paradigm postulate that the positivist approach to scientific research involves researching into an observable social reality and finally making law-like generalisations as done by physical and natural scientists (Saunders, Lewis & Thornhill ,2012). The fact that such social reality is observable means that it can be measured and quantified into variables. Thus, the use of positivism paradigm involves collecting data on variables, analysing data by the use of statistical test of significance and affirming or rejecting hypotheses to make generalisations. Positivism paradigm of research produces generalisable findings which are

normally reported quantitatively, and also allows for the possibility of making predictions about general phenomena (Hallebone & Priest, 2008).

The positivism research paradigm was adopted for this study because this study involved the collection of data on trade openness, institutional quality and financial development, analysis of the data to establish relationships by using statistical test of significance, and finally accepting or rejecting hypotheses to establish whether institutions play a role in the relationship between trade openness and financial development in SSA.

Research Design

Research design can be either exploratory, descriptive or explanatory (Saunders et al., 2012). The study employed the explanatory research design. According to Saunders et al. (2012), empirical studies that seeks to establish cause and effect relationships between variables may be termed explanatory. Explanatory research design places emphasis on studying a situation to explain the relationships between variables. Explanatory research was employed in this study to explain the relationship among trade openness, institutional quality and financial development of SSA economies.

Research Approach

According to Creswell (2014), there are three main approaches to research, namely, the quantitative approach, the qualitative approach and the mixed approach. The study employed the mixed research approach because the institutional quality variable is a qualitative whilst all other variables used in this study are quantitative.

Data Collection Procedures

The study explained the relationships among trade openness, institutional quality and financial development in SSA. Based on that premise, secondary annual data on trade openness, financial development and other macroeconomic indicators for 39 SSA countries were obtained from the World Development Indicators datasets whilst the institutional indicators were obtained from Worldwide Governance Indicators data set. The data were screened to select 39 out of 48 countries because of data availability for those countries. The motivation for the period selection is that the indicators that make up institutional quality currently spans from the year 1996 – 2016.

Models Specification

Model 1- The relationship between Trade Openness, Institutional Quality and Financial Development in SSA

Model 1 is the regression equation for the objective (1) and objective (2), and it was adapted from the regression equations of David et al. (2014) and Le et al. (2016). These two studies explained that trade openness, institutional quality, the lag of financial development variable, economic growth and financial openness are key indicators of financial development. This study made slight modifications to their base line models by controlling for other macroeconomic variables not employed in their studies. The justifications for these control variables were provided in chapter 2. It is good to note that the lagged dependent variable was included to allow for the partial adjustment of financial development to its long run equilibrium value. This is because financial development is a process and

thus former levels of financial development affects current levels of financial development. Based on the literature review, the models below shows the relationship between trade openness, institutional quality and financial development whilst controlling for other macroeconomic indicators. The baseline models of David et al. (2014) and Le et al. (2016) are first presented whilst the model used for this study is presented afterwards.

Baseline line models:

$lnFD_{it} = \beta_1 lnFD_{it-1} + \beta_2 lnTO_{it} + \beta_3 FO_{it} + \sum_{i=4}^n \beta_i Z_{it} + \mu_{it}$ the
baseline model of David et al. (2014)

$lnFD_{it} = \alpha_i + \beta_1 lnFD_{it-1} + \beta_2 lnEG_{it} + \beta_3 GI_{it} + \beta_4 TO_{it} + \mu_{it}$ the
baseline model of Le et al. (2016)

where lnFD is the natural log of financial development

lnTO is the natural log of trade openness

lnFO is the natural log of financial openness

lnZ is the natural log of control variables

lnEG is the natural log of economic growth

lnGI is governance indicator or the institutional quality indicator

Model 1:

$lnFD_{it} = \beta_1 lnFD_{it-1} + \beta_2 lnTO_{it} + \beta_3 INST_{it} + \sum_{i=4}^n \beta_i Z_{it} + \mu_{it}$
..... (1)

where

- $\ln FD$ is the natural log of financial development
- $\ln FD_{t-1}$ is the natural log of the lag of financial development
- $\ln TO$ denotes the natural log of trade openness
- $INST$ represents the composite institutional quality variable
- $\ln Z$ also denotes the natural log of the control variables
- β denotes the coefficients
- μ represents the error term

$$\mu_{it} = \alpha_i + \gamma_i f_t + \varepsilon_{it}$$

α_i are country-specific fixed-effects intended to capture persistent country characteristics like institutional quality ; and f refers to intermittent common factor that affects all countries and is not directly observable. In the context of this study, the common factor could capture, for example, the impact of technological change (such as the introduction of mobile telephony-based financial services) on financial development. ε_{it} is the white noise.

Model 2 – The moderating role of institutional quality in the relationship between trade openness and financial development of SSA economies.

To examine the role played by institutional quality in the relationship between trade openness and financial development, which is the third objective of this research, trade openness and institutional quality were interacted and the interaction term entered the model as a separate independent variable. The interaction term could give an indication that institutional quality enhances the

effect of trade openness on financial development if the coefficient of the interaction term is positive and significant. Model 3 is given as:

$$\ln FD_{it} = \beta_1 \ln FD_{it-1} + \beta_2 \ln TO_{it} + \beta_3 INST_{it} + \beta_4 (\ln TO * INST)_{it} + \sum_{i=4}^n \beta_i Z_{it} + \mu_{it} \dots\dots\dots (2)$$

Where

- lnFD is the natural log of financial development
- lnFD_{t-1} is the natural log of lag of financial development
- lnTO denotes the natural log of trade openness
- INST denotes the institutional quality variable
- lnTO*INST denotes the interacting term of the natural log of trade openness and the institutional quality variable
- lnZ also denotes the natural log of control variables
- μ represents the error term

A Priori Expectations

Table 1 depicts the expected signs of the independent variables based on theoretical and empirical literature discussed in chapter 2.

Table 1- *A Priori expected signs of the independent variables*

Variables	Expected signs Model 1	Expected signs Model 2	Expected signs Model 3
TO	Ambiguous		+
INST		+	
TO*INST			+

Source: Field survey, Abeka (2018)

Data Processing Tool and Analysis Technique

The data were processed by Stata version 13.0 and the study employed System General Method of Moments (GMM) panel estimator to estimate the models. The original GMM panel estimator, difference GMM, was propounded by Arellano and Bond (1991). Arellano and Bond (1991) estimated panel data equations by using the first-differences of the variables and the levels of the lagged values of time-varying variables as instruments for the equations in differences which was effective at removing country fixed effects and eliminating unobservable simultaneity bias respectively (Law & Azman-Saini , 2012; Miletkov & Wintoki, 2012).

However, Arellano and Bover (1995) argued that the difference GMM may lead to wrong estimations especially when the regressors are consistent. This is crucial for this study specifically because, the institutional quality indicators are likely to remain unchanged when it becomes established in the society (Acemoglu & Robinson, 2008). Therefore Blundell and Bond (1998) argued that lagged levels of the variables were weak instruments for the equation in first differences and then introduced system GMM estimation which combines the equations in levels with those in first-differences whilst using the lagged differences of the regressors as additional instruments for the levels equation to estimate the system. Another reason why system GMM is suitable for this study is that it extracts the exogenous components of the endogenous variables or variables that have simultaneity bias to address the issue of reverse causality (Miletkov & Wintoki, 2012). The GMM estimator deals with potential endogeneity problem between the

independent variables and the dependent variable by extracting the exogenous components of the endogenous independent variables and using them as instruments to represent the independent variables. Theoretically, variables like economic growth and inflation are proven to have reverse causality with financial development.

There are two variants of the system GMM: the one step-estimator and the two step-estimator. This study employed the 2-step GMM estimator because it is theoretically proven to be more efficient than the one-step estimator. Notwithstanding, a main disadvantage of the system GMM estimator is that since it uses the lags of the dependent and independent variables as instruments, there could be a problem of instrument proliferation especially when there is a small time series dimension as compared to the cross sectional dimension (Roodman, 2009). Since the panel data consist of 39 countries and 21-year time span, the study employed the approach by Roodman (2009) to reduce the possibility of a bias from instrument proliferation by restricting the moment conditions to maximum of two lags of the dependent variable. As a rule of thumb, the number of instruments must be less than or equal to the number of groups to avoid instrument proliferation (Mileva, 2007).

To ensure the model is adequate, diagnostic tests were carried out. The GMM estimator requires 2 main diagnostic, that is, the tests of serial correlation using the Arellano and Bond serial correlation and the test of validity of the instruments using the Sargan test. According to Mileva (2007), the Arellano – Bond test for autocorrelation has a null hypothesis of no autocorrelation and is

applied to the differenced residuals. It is normally expected that the null hypothesis for the test for AR (1) process in first differences is rejected. However, the test for AR (2) in first differences is more important, because it will detect autocorrelation in levels and therefore its null hypothesis should be accepted. The Sargan test of over identifying restrictions has a null hypothesis of “the instruments as a group are exogenous” and it is worth noting that a rejection of this null may be indicative that the exclusion restrictions for these instruments may be inappropriate. Therefore, the higher the p-value of the Sargan statistic the better because it is an indication that the instruments employed in the GMM estimations are valid and exclusion restrictions for these instruments are appropriate.

Measurement of Variables

The choice of measurement for all the variables was influenced by the fact that those measures have been widely used in literature. Financial development, the dependent variable, was measured by domestic credit to private sector scaled by GDP. The World Bank explains domestic credit to private sector as financial resources provided to the private sector by financial corporations, such as through loans, purchases of non-equity securities, and trade credits and other accounts receivable, that establish a claim for repayment. Trade openness, the independent variable, was measured by the ratio of sum of imports and exports to GDP. This measure of trade openness is widely used and accepted in literature.

Institutional quality was measured by the simple average of the six worldwide governance indicators, namely rule of law, regulatory quality, control

of corruption, government effectiveness, political stability and absence of violence, and voice & accountability. The World Bank gives a comprehensive definition of these variables as espoused below:

Control of corruption captures perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests. Government effectiveness captures perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies. Political stability and absence of violence measures perceptions of the likelihood of political instability and/or politically-motivated violence, including terrorism.

Regulatory quality captures perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development. Rule of law captures perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence. Voice and accountability captures perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media.

The study controlled for six macroeconomic indicators consisting of economic growth, government expenditure, investment, savings rate, net official aid and development assistance, and inflation.

The table below shows how the variables were measured, their source and the empirical justifications for their measurements.

Table 2 - *Description of Variables and Source of Data*

Variable	Measurement	Data source	Empirical Justification
Financial Development	Domestic Credit to private sector (% of GDP)	World Development Indicators 1996 – 2016	Takyi and Obeng (2013); Asiamama and Mobolaji (2011); Kim et al. (2010); Huang and Temple (2005)
Trade Openness	Sum of Exports and Imports (% of GDP)	World Development Indicators ,1996 – 2016	Touny (2014); Takyi and Obeng (2013); Asiamama and Mobolaji (2011) Kim et al. (2010); Baltagi et al. (2007)
Institutional Quality	Simple average of the estimates of the six Worldwide Governance Indicators	World Development Indicators ,1996 – 2016	Agbloyor , Gyeke-Dako ,Kuipo and Abor (2016); Law and Azman-Saini (2012)
Control of Corruption (Estimate)	Estimates ranging from approximately -2.5 to 2.5.	World Development Indicators ,1996 – 2016	Law and Azman-Saini (2012); Kaufmann, Kraay and Mastruzzi (2011); Karikari (2010).
Government Effectiveness (Estimate)	Estimates ranging from approximately -2.5 to 2.5.	World Development Indicators ,1996 – 2016	Law and Azman-Saini (2012); Kaufmann et al. (2011); Karikari (2010).
Political Stability and Absence of Violence/Terrorism	Estimates ranging from approximately -2.5 to 2.5.	World Development Indicators ,1996 – 2016	Law and Azman-Saini (2012); Kaufmann et al. (2011); Karikari (2010).
Regulatory Quality	Estimates ranging from approximately -2.5 to 2.5.	World Development Indicators ,1996 – 2016	Law and Azman-Saini (2012); Kaufmann et al. (2011); Karikari (2010).
Voice and Accountability	Estimates ranging from approximately -2.5 to 2.5.	World Development Indicators ,1996 – 2016	Law and Azman-Saini (2012); Kaufmann et al. (2011); Karikari (2010).

Rule of Law	Estimates ranging from approximately -2.5 to 2.5.	World Development Indicators ,1996 – 2016	Law and Azman-Saini (2012) ; Kaufmann et al. (2011) ; Karikari (2010).
Economic growth	Real GDP per Capita	World Development Indicators ,1996 – 2016	Odhiambo (2009); Guryay, Safakli, and Tuzel (2007) ;Agu and Chukwu (2008)
Table 2 continued			
Government expenditure	General Government Consumption Expenditure (% of GDP)	World Development Indicators ,1996 – 2016	Kim et al. (2010) ; Karikari (2010). Gulde, Patillo, and Christensen (2006)
Investment rate (Gross capital Formation)	Gross Capital Formation (% of GDP)	World Development Indicators ,1996 – 2016	Mbulawa (2015) ; Naceur and Ghazouani (2007)
Savings rate	Gross Savings (% of GDP)	World Development Indicators ,1996 – 2016	Mbulawa (2015) ;Naceur and Ghazouani (2007)
Net official aid and development assistance	Net Official Aid and Development Assistance	Worldwide Governance Indicators ,1996 – 2016	Karikari (2010)
Inflation	Changes in consumer price index	Worldwide Governance Indicators ,1996 – 2016	Mbulawa(2015); Kim et al. (2010) Takyi and Obeng (2013) ; Naceur and Ghazouani (2007)

Source: Field survey, Abeka (2018)

Chapter Summary

This chapter presented the research methods employed in conducting the study. The study is based on the positivism research paradigm and the quantitative research approach. The study also employed explanatory research design as it seeks to explain the relationships between trade openness, institutional quality and financial development in SSA economies. It must be noted that the study included only 39 out of a total of 48 SSA economies due to availability of data. The study developed three baseline models. The first model specification sought to establish a relationship among trade openness and financial development of SSA

economies. The second model was developed to determine the relationship between institutional quality of SSA economies and financial development and finally the third model examined the role played by institutional quality in the relationship between trade openness and financial development of Sub-Saharan Africa economies. The study mainly employed the Generalized Method of Moment estimation techniques to estimate all the models as it controls for endogeneity.

CHAPTER 4

RESULTS AND DISCUSSION

Introduction

The results obtained from the empirical analysis are presented and discussed in this chapter. First of all, the chapter that presents descriptive statistics are on all the variables to give an idea of the state of trade openness, institutional quality and financial development of SSA economies. The chapter then presents a correlation matrix which aids to avoid issues of multicollinearity in the empirical specification. Subsequently, the chapter presents the formal discussions on the various models estimated in the study. Finally, the chapter presents a sensitivity analysis of the third model by employing broad money (% of GDP) as measure of financial development and also by excluding southern Africa sub-region from the sample data.

Descriptive Statistics

The descriptive statistics is presented on a sample of 39 SSA economies out of a total of 48 SSA economies due to data unavailability of some of the variables for 9 SSA economies. The list of the sample SSA economies included in the study is shown in Appendix A. The descriptive statistics presented in this section is the mean, which is the measure of average, the standard deviation which is the measure of degree of variability, the minimum and the maximum values for each variable, as well the number of observations.

Table 3 - *Descriptive Statistics of the Regressand and the Regressors*

Variable	Mean	Standard Deviation	Minimum	Maximum	Observations
FD	19.043	24.303	0.410	160.125	788
TO	77.493	49.417	17.856	531.737	814
INST	-0.641	0.607	-2.100	0.890	702
COC	-0.660	0.606	-1.813	1.217	702
GE	-0.742	0.623	-1.885	1.049	702
PSAV	-0.526	0.899	-2.845	1.282	702
RQ	-0.642	0.605	-2.298	1.127	702
ROL	-0.704	0.640	-2.130	1.077	702
VA	-0.572	0.697	-2.000	1.007	702
GDPPC	1684.746	2940.807	72.746	22742.380	819
GEP	15.074	6.400	2.047	59.723	795
GCFP	21.888	16.666	-2.424	219.069	796
GSP	13.989	12.431	-146.164	80.728	626
NADA	6.41E+08	8.05E+08	-1.45E+07	1.14E+10	819
INF	50.606	882.005	-35.837	24411.030	790

Source: Field survey, Abeka (2018)

FD represents Financial Development which is measured by domestic credit to private sector as a percentage of GDP. TO represents Trade Openness as measured by the Trade (imports and exports) as a percentage of GDP. INST represents aggregate Institutional Quality variable which is measured by the average of the six institutional indicators. The six institutional indicators include Control of Corruption (COC), Government Effectiveness (GE), Political Stability and Absence of Violence (PSAV), Regulatory Quality (RQ), Rule of Law (ROL) and Voice and Accountability (VA) as shown in Table 1. GDPPC represents Real GDP per capita. GEP represents Government Expenditure (% of GDP). GCFP represents Gross Capital Formation (% of GDP). GSP represents Gross Savings (% of GDP). NADA represents Net Official Aid and Development Assistance. INF represents Inflation.

From the descriptive statistics, average domestic credit to private sector (% of GDP) was as low as 19.043% within the ranges of 0.410% and 160.125%. However, the sample of 39 SSA economies recorded an average trade openness of 77.493% within the limits 17.86% and 531.734%. This depicts that although most SSA economies have engaged in greater openness of trade over time, the trade openness is not contributing much to financial development. Regarding institutional quality, the aggregate institutional quality variable had an average of

-0.641 within the limits of -2.100 and 0.880. This suggests that institutional quality in SSA is weak because even the best economies in terms of institutional quality had an average of 0.880.

To enable an in-depth understanding of the specific state of the institutional quality in the sample SSA countries, the study also presented the descriptive statistics of each of the six institutional indicators. Control of Corruption and Government Effectiveness had averages of -0.660 within the limits -1.813 and 1.217 as well as -0.742 within the limits -1.884 and 1.049 respectively. Political Stability & Absence of Violence and Regulatory Quality recorded averages of -0.526 within the limits -2.845 and 1.282 as well as -0.642 within the limits -2.298 and 1.127 respectively. Furthermore, Rule of Law and Voice & Accountability recorded averages of -0.704 within the limits -2.130 and 1.077 as well as -0.572 within the limits -2.000 and 1.007 respectively. Together, these statistics on the various institutional quality dimensions reveal that Government Effectiveness is weakest dimension of institutional quality of most SSA economies whilst Political Stability and Absence of Violence is the strongest.

The real GDP per capita variable recorded an average of US\$ 1684.75 and this is low because the World Bank classifies countries with per capita income of less than US\$ 1,035 as low-income countries and countries with a per-capita income of US\$ 1,036 to \$4,085 as the lower-middle-income countries. The government expenditure (% of GDP) recorded an average of 15.074% whilst gross capital formation (% of GDP) recorded an average of 21.887% among the sample

SSA economies. Gross savings (% of GDP) had an average of 13.989% whilst net official aid and development assistance recorded an average of US\$ 641 million. Finally, inflation recorded an average of 50.606%.

Correlation Analysis

Table 4 - Correlation Matrix

	lnFD	lnTo	INST	COC	GE	PS	RQ	ROL	VA	lnGDPPC	lnGE	lnGCF	lnGSP	lnNODA	lnINF
lnFD	1														
lnTo	0.189*	1													
INST	0.603*	0.205*	1												
COC	0.575*	0.181*	0.913*	1											
GE	0.612*	0.141*	0.923*	0.870*	1										
PSAVT	0.373*	0.379*	0.828*	0.675*	0.650*	1									
RQ	0.609*	0.052	0.907*	0.818*	0.887*	0.621*	1								
ROL	0.583*	0.168*	0.968*	0.885*	0.896*	0.760*	0.889*	1							
VA	0.556*	0.103*	0.866*	0.732*	0.747*	0.634*	0.753*	0.819	1						
lnGDPPC	0.507*	0.497*	0.441*	0.405*	0.456*	0.452*	0.360*	0.425*	0.261*	1					
lnGEP	0.462*	0.244*	0.433*	0.460*	0.413*	0.379*	0.340*	0.382*	0.362*	0.301*	1				
lnGCFP	0.197*	0.425*	0.314*	0.261*	0.285*	0.296*	0.311*	0.316*	0.216*	0.340*	0.173*	1			
lnGSP	0.290*	0.252*	0.312*	0.296*	0.375*	0.170*	0.341*	0.305*	0.256*	0.414*	0.163*	0.508*	1		
lnNADA	0.033	-0.38*	-0.09*	-0.13*	-0.02	-0.32*	0.06	-0.08*	0.09*	-0.32*	-0.11*	0.035	0.121*	1	
lnINF	-0.14*	-0.03	-0.16*	-0.10*	-0.07	-0.18*	-0.20*	-0.15*	-0.12*	-0.15*	-0.12*	-0.21*	-0.04	0.096*	1

Source: Field survey, Abeka (2018)

Note: lnFD is the log of Financial Development variable, lnTO refers to log of Trade Openness, INST refers to Institutional Quality, COC is Control of Corruption, GE is Government Effectiveness, PSAV is Political Stability and Absence of Violence, RQ is Regulatory Quality, ROL is Rule of Law, and VA is Voice and Accountability (VA). lnGDPPC represents the log of Real GDP per Capita. lnGEP represents log of Government Expenditure (% of GDP). lnGCFP represents the log of Gross Capital Formation (% of GDP). lnGSP represents the log of Gross Savings (% of GDP). lnNODA represents the log of Net Official Aid and Development Assistance. lnINF represents the log of Inflation. * represents significant at 5%.

Table 4 presents the pairwise correlation matrix for the all the variables employed in the empirical analysis. Predictably, the aggregate institutional quality variable depicts a high pairwise correlation with each of the six institutional indicators and this is because the aggregated institutional quality variable is a simple average of the six institutional indicators. It does not pose multicollinearity problems because the aggregate institutional quality variable does not enter the same model with any of the six institutional indicators. Also, a close examination of the correlation matrix reveals that there are no issues of multicollinearity in the empirical specification because the other independent variables do not exhibit correlation coefficients more than 0.90 (Adam, 2015).

Regression results on the relationship among trade openness, institutional quality and financial development in SSA.

This subsection present and discusses the empirical results on the objectives of the study. The regression results are presented in Tables 5 and Table 6. Table 5 presents the results of the separate effects of trade openness and institutional quality on financial development of SSA economies. Table 6 presents the results for the moderating role played by institutional quality in the relationship between trade openness and financial development of SSA economies.

The table below shows the individual effects of trade openness and institutional quality on financial development of SSA economies. The column labeled Model 1 depicts the results on the effect of trade openness and institutional quality on financial development of SSA countries, which is in line with the first and second objective of the study. The table further presents the

effect of each of the institutional indicators on financial development of SSA countries in sub-models 1a – 1f.

Table 5 – *Separate effects of Trade openness and Institutional Quality on Financial Development of SSA Economies*

Dependent variable: Financial Development							
	Model 1	Model 1a	Model 1b	Model 1c	Model 1d	Model 1e	Model 1f
InFD-1	0.588*** [0.047]	0.582*** [0.046]	0.593*** [0.051]	0.594*** [0.039]	0.575*** [0.048]	0.574*** [0.046]	0.578*** [0.046]
InTO	0.117*** [0.038]	0.108** [0.043]	0.102** [0.047]	0.108*** [0.009]	0.104*** [0.040]	0.120*** [0.040]	0.116*** [0.035]
INST	0.088** [0.044]						
COC		-0.000 [0.005]					
GE			-0.023 [0.023]				
PSAVT				0.015 [0.010]			
RQ					0.077 [0.033]		
ROL						0.140*** [0.030]	
VA							0.014 [0.037]
Control							
InGDPPC	0.138*** [0.041]	0.138*** [0.041]	0.130*** [0.045]	0.128*** [0.044]	0.140*** [0.038]	0.145*** [0.043]	0.142*** [0.042]
InGEP	-0.038*** [0.037]	0.204*** [0.030]	0.202*** [0.034]	0.194*** [0.037]	0.199*** [0.037]	0.203*** [0.039]	0.201*** [0.037]
InGCFP	-0.375** [0.015]	-0.039*** [0.015]	-0.039*** [0.013]	-0.037*** [0.013]	-0.036*** [0.013]	-0.031* [0.016]	-0.037** [0.01]
InGSP	-0.066*** [0.010]	-0.064*** [0.010]	-0.062*** [0.010]	-0.063*** [0.010]	-0.065*** [0.009]	-0.065*** [0.009]	-0.065*** [0.010]
InNODAP	0.0117 [0.011]	0.01131 [0.011]	0.0142 [0.010]	0.01145 [0.011]	0.01107 [0.011]	0.0159 [0.011]	0.0123 [0.010]
InINF	-0.014*** [0.004]	0.015*** [0.004]	-0.015*** [0.004]	-0.015*** [0.004]	-0.016*** [0.004]	-0.012*** [0.004]	-0.015*** [0.004]
Diagnostic							
Wald Chi2	31971	74714.0	8651.33	94801.9	9909.82	15214.8	5990.0
P(Wald)	0.000	0.000	0.000	0.000	0.000	0.000	0.000

AR(1):z	-3.203	-3.1604	-3.133	-3.138	-3.115	-3.214	-3.155
Table 5 contd.							
P-value	0.0014	0.0016	0.0017	0.0017	0.0018	0.0013	0.0016
AR(2):z	-1.242	-1.291	-1.398	-1.255	-3.421	-1.363	-1.309
P-Value	0.2143	0.1966	0.162	0.2096	0.1554	0.1728	0.1907
Sargan Chi2	27.612	27.5537	27.7311	27.0763	27.39539	27.48734	27.4516
Prob(Sargan)	0.4312	0.4342	0.4249	0.4597	0.4426	0.4378	0.4396
No. of grps	36	35	36	37	35	36	36
No. of inst	34	35	366	36	35	36	34
No.of Obs.	345	345	345	345	345	345	345

Source: Field survey, Abeka (2018)

Note: lnFD(-1) is the first lag of the log of Financial Development variable, lnTO refers to log of Trade Openness, INST refers to Institutional Quality , COC is Control of Corruption, GE is Government Effectiveness , PSAV is Political Stability and Absence of Violence, RQ is Regulatory Quality, ROL is Rule of Law, and VA is Voice and Accountability (VA). lnGDPPC represents the log of Real GDP per capita. lnGEP represents log of Government Expenditure (% of GDP). lnGCFP represents the log of Gross Capital Formation (% of GDP). lnGSP represents the log of Gross Savings (% of GDP). lnNADA represents the log of Net Official Aid and Development Assistance. lnINF represents the log of Inflation. Apart from the diagnostics section, all values in bracket are the standard errors of the coefficients values and values other than those in bracket represent the coefficient values; *** represents significant at 1%, **represents significant at 5%, * represents significant at 10%. The diagnostics section presents the values of the wald test, probability values of the Wald test, z values of AR (1), probability of z values of AR (1), z values of AR (1), probability of z values of AR(1), probability of the Sargan test, number of groups, number of observations in order as shown in diagnostics section of table 5.

Trade openness and financial development of SSA economies

Model 1 in table 5 presents the results on the relationship between trade openness and financial development of SSA economies. The result from model 1 depicts that, at 10% significance level, trade openness has a significant positive effect on financial development of the sampled SSA economies. The coefficient of 0.117 shows that a percentage increase in trade openness will lead to 0.117% percent increase in financial development of SSA economies. Hence, the results rejects the first hypothesis that there is no significant effect of trade openness on financial development. This is because greater trade openness tends to undermine

the power of incumbents who oppose financial development thereby leading to the development of the financial sector, and this is the main argument of the interest group theory of financial development put forth by Rajan and Zingales (2003).

The results is in line with the findings of Hauner et al. (2013) who argued that opening up an economy to entry of foreign goods will reduce profits of incumbents and will create more investment needs for incumbents to counter compete with the foreign goods. They explained that the reduction in profit of incumbents will create more investment needs for incumbents to counter compete with the foreign goods. The sourcing and use of funds by these incumbents will trigger the development of the financial sector, which will also give opportunities to other promising startup firms to easily acquire funds for expansion.

The results is also consistent with Huang and Temple (2005) who opined that that increases in goods market openness are typically followed by sustained increases in financial depth. Specifically with SSA african economies , the study is consistent with Asiama and Mobolaji (2011) who found that trade openness shows a significant positive impact on financial development of a sample of SSA economies.

However, the study is inconsistent with David et al. (2014) who found no direct robust link between trade openness and financial development of a sample of SSA economies using the mean-group estimator, common correlated effects estimator, and the augmented mean-group estimator. The results is also inconsistent with the findings of Zhang et al. (2015) who argued that trade

openness had a negative impact on financial development in China . They argued that the negative impact of trade openness on the financial development indicator might be due to an unbalanced development between trade and the financial sector that may cause further financial repression when thwarted by industrial incumbents (interest groups). However, such might not be the case of SSA economies.

Based on the ongoing discussions the study rejects the null hypothesis that there is no significant effect of trade openness on financial development of SSA economies for the period under consideration and concludes that there is a significant positive effect of trade openness on financial development of SSA economies.

Institutional quality and financial development of SSA economies

Model 1 again presents the results on the effect of institutional quality on financial development of SSA economies. The results from model 1 in table 5 indicated that at 5% significant level, institutional quality had a positive significant effect on financial development by showing a coefficient of 0.088. This in line with the law and finance theory put forth by Porta et al. (1998). Porta et al. (1998) explained that legal origins, the rules themselves as well as the quality of their enforcement shapes financial development. Thus, Beck et al. (2003) opined that cross country differences in financial development can be attributed to institutional quality.

The results is also consistent with Law and Azman-Saini (2012) who posited that low-income countries are located at the low side of institutional

quality and that further improvement in their institutional quality will enhance their financial development. Recent ranking by Krasue (2016) revealed that most SSA economies rank low on institutional quality and therefore Aluko and Ajayi (2017) argued that low institutional quality in most SSA countries is a plausible reason for their lower levels of banking sector development. Based on the ongoing discussion of this results, the study rejects the null hypothesis that there is no significant relationship between institutional quality and financial development of SSA economies for the period under consideration.

Table 5 further presents the results from sub-models 1a – 1f in order to examine the specific effects of each of the institutional indicators on financial development of SSA economies. Although insignificant, the results from model 1a in Table 5 showed a negative coefficient for control of corruption signifying very little indication that it is important for financial development in SSA economies. This is means that there are high levels of corruption in SSA economies and this serves as an impediment to financial development. The results is consistent with the empirical findings of Ayaydin and Baltaci (2013) that suggested that there was a devastating effect of poor levels of corruption on financial development of 42 emerging economies. Results from the model 1b showed a negative insignificant effect of government effectiveness on financial development due to the weak nature of government effectiveness of SSA countries. Results from model 1c depicted a very weak insignificant positive effect of political stability on financial development of SSA countries. The results is consistent with Roe and Siegel (2011) who found political instability to be a

serious impediment to financial development and that the variation in financial development around the world is as result of political instability. Regulatory quality and voice and accountability also had positive insignificant effects on financial development as present in the results from model 1d and 1f. However, results from model 1e depicted a positive significant effect of rule of law on financial development. Generally all the macroeconomic variables proved to be important determinants of financial development in all the models in table 5.

Results of the control variables for the models assessing the separate effects of trade openness and institutional quality on financial development in SSA.

All the models in table 5 controls for six macroeconomic variables consisting of real GDP per capita, government expenditure, investment, savings, net official aid and development assistance and inflation.

In line with the demand following hypothesis by Patrick (1966), GDP per capita as a measure of economic growth had a positive effect on financial development in all the models in table 5. With respect to model 1, GDP per capita had a significant coefficient of 0.138 at 1% significance level. This means that a percentage increase in GDP per capita will lead to 0.138% increase in financial development. Similar results were obtained in sub-models 1a – 1f because GDP per capita had a positive effect on financial development in all those models. This is because as the economy grows, there will be an increase in demand for financial services which will in turn trigger the expansion or development of the financial sector. That is, an increment in the amount of goods and services per

head of a country's population presents an opportunity for investment and financing activities.

In model 1, government expenditure had a significant coefficient of -0.038 which is significant at 1%. This implies that a percentage increase in government expenditure will lead to a 0.038% decrease in financial development. Also, government expenditure had a significant coefficient of 0.229 in model 2. This could mean that government expenditures crowd out private credit due to the weak institutional quality of SSA economies. These results are inconsistent with Karikari (2010) who argued that government expenditures do not crowd out private credit but probably complements it. However, government expenditure had a significant positive effect of financial development in sub-models 1a – 1f. This could as a result that unlike the composite institutional quality variable, each of the institutional quality indicators may not have a devastating effect on the relationship between government expenditure and financial development.

Gross capital formation had a negative impact on financial development in model 1. At 5% significance level, a percentage increase in gross capital formation will lead to 0.038% decrease in financial development. This result is inconsistent with Dorrucchi et al. (2009) who explained that domestic financial development is positively related to gross fixed capital formation and thus investment decisions are better implemented in developed financial markets. The results are inconsistent with Dorrucchi et al. because most SSA economies do not have well developed financial markets. In addition, similar results were obtained in 1a – 1f. These results are consistent with Naceur and Ghazouani (2007).

The savings rate had a negative significant effect on financial development in model 1. At 1% significance level, a percentage increase in the savings rate reduces financial development by 0.066%. This is consistent with the findings of Mbulawa (2015) who argued that an increase in the savings rate in an economy reduces the credit expansion by financial institutions because savings are withdrawals from the circular flow of income. Similar results were obtained for all the institutional indicators in sub-models 1a – 1f.

The net official aid and development assistance variable had positive insignificant relationships with financial development in model 1 and sub-models 1a – 1f, which points out to the fact that there is a little indication that net official aid and development assistance matter for financial development. This is in line with Karikari (2010) who explained that net official aid and development assistance is likely to have a positive impact on financial development since financial aid and development assistance generally increases the resources available for financial intermediation.

At 1% significant level, inflation had a coefficient of -0.014 in the first model and this explains that a percentage increase in inflation will lead to a 0.014% decrease in financial development of SSA economies. This is in line with the findings of Takyi and Obeng (2013) that explained that financial development is negatively influenced by inflation. This is basically due to the crowding out effect of inflation. Similar results were obtained in sub-models 1a – 1f.

Diagnostics on the models assessing the effects of trade openness and institutional quality on financial development in SSA.

According to Mileva (2007) the null hypothesis for the test for AR (1) process in first differences usually should be rejected and most importantly the null hypothesis for the test for AR (2) in first differences should not be rejected. For all the models in Table 5, at 5 % significance level, all the p-values of AR(1) showed rejection of null hypotheses of no autocorrelation process whilst the p-values of the AR(2) process showed no rejection of the null hypothesis of no autocorrelation. This shows that there is an absence of autocorrelation in all the models. Also all the probability values of the Wald test depicted rejection of the null hypothesis that the coefficients of all the regressors are simultaneously zero and this means that all the independent variables together adequately explains the dependent variable. Finally, the probability values of the Sargan test depicted no rejection of the null hypothesis that the instruments as a group are exogenous and this means all the instruments used for each model in table 5 are valid. The insignificance of the Sargan test also shows that the instruments employed in the GMM estimations have appropriate exclusion restrictions.

The moderating role of institutional quality in the relationship between trade openness and financial development of SSA economies

Model 2 depicts the moderating role played by the aggregate institutional quality variable in the relationship between trade openness and financial development of SSA economies. The sub-models of model 2 depicted as model 2a – 2f shows the moderating role played by each institutional indicator in the

relationship between trade openness and financial development of SSA economies. All these models are shown in table 6 below:

Table 6 - *The role of Institutional Quality in the relationship between Trade Openness and Financial Development of SSA Economies.*

Dependent variable: Financial Development							
	Model 2	Model 2a	Model 2b	Model 2c	Model 2d	Model 2e	Model 2f
InFD-1	0.574*** [0.0469]	0.565*** [0.1046]	0.598*** [0.0469]	0.551*** [0.0553]	0.563*** [0.0490]	0.565*** [0.0466]	0.573*** [0.0429]
InTO	0.300*** [0.0774]	0.213** [0.1046]	0.264*** [0.0849]	0.242** [0.1188]	0.191*** [0.0774]	0.333*** [0.0786]	0.169*** [0.0650]
INST	-1.058*** [0.4192]						
COC		-0.747* [0.3893]					
GE			-0.991*** [0.3480]				
PSAVT				-0.415 [0.3154]			
RQ					-0.712** [0.333]		
ROL						-1.011** [0.428]	
VA							-0.579* [0.3019]
Interaction	0.263*** [0.0963]	0.171* [0.0933]	0.231*** [0.0841]	0.099 [0.0729]	0.175** [0.0755]	0.269*** [0.0983]	0.145** [0.0681]
Control Var.							
InGDPPC	0.134*** [0.040]	0.128*** [0.0444]	0.125*** [0.0408]	0.133*** [0.0432]	0.134*** [0.0362]	0.136*** [0.0449]	0.140*** [0.04202]
InGEP	0.232*** [0.0441]	0.217*** [0.0444]	0.215*** [0.0447]	0.209*** [0.0389]	0.226*** [0.047]	0.207*** [0.0397]	0.210*** [0.0413]
InGCFP	-0.052*** [0.0166]	-0.036** [0.0181]	-0.053*** [0.0146]	-0.038*** [0.0138]	-0.043*** [0.014]	-0.063** [0.0185]	-0.047*** [0.0151]
InGSP	-0.065*** [0.0097]	-0.063*** [0.0103]	-0.057*** [0.0110]	-0.061*** [0.0097]	-0.061*** [0.0105]	-0.063*** [0.0094]	-0.060*** [0.0104]
InNADA	0.008 [0.0111]	0.009 [0.0108]	0.013 [0.0097]	0.009 [0.0110]	0.012 [0.0106]	0.015 [0.0122]	0.010 [0.0100]
InINF	-0.014 [0.0043]	-0.017*** [0.0041]	-0.016*** [0.0036]	-0.016*** [0.0042]	-0.017*** [0.0043]	-0.014*** [0.0122]	-0.014*** [0.0037]
Diagnostics							

Wald Chi2	15415.36	15266.18	5480.4	46693.95	39441.58	3964.67	10843.8
P(Wald Chi2)	0.000	0.000	0.000	0.000	0.000	0.000	0.000
AR(1):z	-3.0995	-3.0014	-3.1819	-3.0466	-3.0369	-3.0088	-3.1616
P(z)	(0.0019)	(0.0027)	(0.0015)	(0.0023)	(0.0024)	(0.0026)	(0.0016)
Table 6 cont'd							
AR(2):z	-1.3056	-1.3004	-1.4747	-1.2012	-1.0825	-1.5985	-1.1896
P(z)	(0.1917)	(0.1935)	(0.1403)	(0.2297)	(0.2790)	(0.1099)	(0.2342)
Sargan Chi2	26.2804	25.17078	26.2061	25.9808	25.65956	27.4802	26.6498
P(Sargan Chi2)	0.5031	0.5649	0.5072	0.5197	0.5376	0.4381	0.4828
No. of grps	37	37	37	37	37	36	37
No. of Inst.	34	34	34	34	34	34	34
No. of Obsv.	345	345	345	345	345	345	345

Source: Field survey, Abeka (2018)

Note: lnFD(-1) is the first lag of the log of Financial Development variable, lnTO refers to log of Trade Openness, INST refers to Institutional Quality, COC is Control of Corruption, GE is Government Effectiveness, PSAV is Political Stability and Absence of Violence, RQ is Regulatory Quality, ROL is Rule of Law, and VA is Voice and Accountability (VA). lnGDPPC represents the log of Real GDP per Capita. lnGEP represents log of Government Expenditure (% of GDP). lnGCFP represents the log of Gross Capital Formation (% of GDP). lnGSP represents the log of Gross Savings (% of GDP). lnNADA represents the log of Net Official Aid and Development Assistance. lnINF represents the log of Inflation. Interaction represents the interaction of Trade Openness and Institutional Quality variables. Apart from the diagnostics section, all values in bracket are the standard errors of the coefficients values and values other than those in bracket represent the coefficient values; *** represents significant at 1%, ** represents significant at 5%, * represents significant at 10%. The diagnostics section presents the values of the Wald test, probability values of the wald test, z values of AR(1), probability of z values of AR(1), z values of AR(1), probability of z values of AR(1), probability of the Sargan test and the number of observations in order as shown in diagnostics section of Table 5.

Table 6 presents results on the moderating role of institutional quality in the relationship between trade openness and financial development by introducing an interaction term of trade openness and institutional quality.

Results from model 2 in Table 6 explains a very interesting phenomenon. The interaction term between trade openness and institutional quality had a positive coefficient of 0.2632 which is significant at 1%. The introduction of the interaction term causes the trade openness variable to attain a coefficient of 0.3004 as compared to a coefficient of 0.117 in model 1. However, the coefficient of institutional quality attained a negative coefficient in table 6 as compared to a positive coefficient in table 5. This means that the interaction term reveals the true

nature of institutional quality is SSA. That is, although the weak nature of institutional quality in SSA may impede financial development, it compliments trade openness to contribute better to financial development. The net effect of trade openness on financial development can be estimated from the partial differential of financial development with respect to trade openness. The net effect of trade openness on financial development is $0.3004 + 0.00263 \cdot \text{INST}$, which is 0.2987 (computed as $0.3004 + 0.00263 \cdot -0.641$). The net effect of trade openness is 0.2987 as compared to the coefficient of 0.117 in model 1. This explains that trade openness in isolation may not contribute much to financial development in SSA unless strong institutional quality structures are put in place.

The results are consistent with Mbulawa (2015) who found that institutional quality variables had a complementary effect on other variables that affect financial development. Huang and Temple (2005) also explained that trade openness is very likely to boost financial development when there is a strong institutional improvement. The results are also consistent with findings in SSA context. Asiama and Mobolaji (2011) argued that financial development in SSA can still be impeded by weak institutions even if there is enough trade openness. Furthermore, findings from David et al. (2014) suggested that there is some indication that trade openness is more important for financial development in countries with better institutional quality in SSA.

The introduction of the interaction term of trade openness and control of corruption causes the trade openness variable to attain a coefficient of 0.2128 as shown in sub-model 2a as compared to a coefficient of 0.117 in model 1. The

interaction term between trade openness and control of corruption had a positive coefficient of 0.1710 which is significant at 10%. This result is also in line with Mbulawa (2015) who found institutional indicators to have a complementary effect on other variables that affect financial development.

Results from sub-model 2b depicts the moderating role of government effectiveness in the relationship between trade openness and financial development of SSA economies. The introduction of the interaction term of trade openness and government effectiveness causes the trade openness variable to attain a significant coefficient of 0.2639 in sub-model 2b as compared to a coefficient of 0.117 in model 1. The interaction term between trade openness and government effectiveness had a positive coefficient of 0.2306 which is significant at 1% level. This shows that strong government effectiveness will be needed to compliment trade openness in order to further develop the financial sector of SSA economies.

Results from sub-model 2c depicts the moderating role of political stability and absence of violence in the relationship between trade openness and financial development of SSA economies. The interacting term between trade openness and political stability and absence of violence was insignificant but still the coefficient of trade openness becomes 0.2423 as compared to 0.117 in model 1. This results is in line with the results of Roe and Siegel (2011) who argued that the variation in financial development around the world is as result of political instability. Also Huang (2010) found that political institutions play a key role in the development of the financial sector.

The results from the moderating role of regulatory quality in the relationship between trade openness and financial development of SSA economies is shown in model 2d. The interaction term between trade openness and regulatory quality had a positive coefficient of 0.1754 which is significant at 10% level whilst the coefficient of trade openness became 0.1905 significant at 1% level. This results also are consistent with Mbulawa (2015) who found institutional quality variables to have a complementary effect on other variables that financial development.

The results on the moderating role of rule of law in the relationship between trade openness and financial development of SSA economies as shown in sub-model 2e depicts that a better rule of law is required to better translate trade openness into desired levels of financial development in SSA economies. This is because the coefficient of trade openness became 0.3331 significant at 1% level whilst the coefficient of the interaction term is 0.2687 significant at 1% level as well. The result again is consistent with Mbulawa (2015) who explained that institutional indicators compliment other variables to enhance financial development.

Finally, results from the moderating role of voice and accountability in the relationship between trade openness and financial development as shown in sub-model 2f depicts that voice and accountability is required to enhance the effect of trade openness on financial development in SSA economies. The coefficient of trade openness is 0.1688 which is significant at 1% level whilst the coefficient of the interaction term is 0.1149 significant at 1% level as well.

Results of the control variables for the models assessing the moderating role of Institutional Quality in the relationship between Trade Openness and Financial Development of SSA economies

All the models in table 6 also controlled for the same macroeconomics variables as controlled for in Table 5. With respect to model 2, GDP per capita had a coefficient of 0.134 at 1% significance level. This means that a unit increase in GDP per capita will lead to 0.134% increase in financial development of SSA economies. Similar results were obtained in sub-models 2a – 2f because GDP per capita had a positive effect on financial development in accordance with the demand following hypothesis by Patrick (1996).

In model 2, government expenditure had a coefficient of 0.2320 which is significant at 1%. This implies that a percentage increase in government expenditure will lead to a 0.2320% increase in financial development of SSA economies. Similar results were obtained for the rest of the models in Table 6. These results are consistent with Karikari (2010).

Gross capital formation had negative impact on financial development in the model 2. At 5% significance level, a percentage increase in gross capital formation will lead to 0.052 % decrease in financial development. This results are inconsistent with Dorrucchi et al. (2009). Similar results were obtained in sub-models 3a – 3f. This provides an evidence that the coefficient of gross capital formation becomes negative when institutional quality variables are introduced in models. This may be due to the fact that the weak institutional quality in SSA prevents investments from formally passing through the financial sector.

The savings rate had a significant negative coefficient of 0.065 at 1% level in model 2. This means that a percentage increase in savings rate will lead to a 0.065% reduction in financial development. Similar results were obtained in the rest of the models in Table 6. These results are also consistent with the findings of Mbulawa (2015) who explained that savings are withdrawals from the financial system and as such an increase in savings rate will adversely affect financial development.

At 1% significance level, inflation had a coefficient of -0.014 in model 2 and this explains that a percentage increase in inflation will lead to a 0.014% decrease in financial development of SSA economies. Similar results was obtained for models 2a – 2f. This is in line the findings of Takyi and Obeng (2013).

The net official aid and development assistance variable had no significant relationship with financial development in all the models in table 6 and this is inconsistent with the findings of Karikari (2010).

Diagnostics tests on the models assessing the role moderating role of institutional quality in the relationship between trade openness and financial development of SSA economies

For model all the models in Table 6, at 5 % significance level, all the p-values of AR(1) showed rejection of null hypotheses of no autocorrelation process whilst the p-values of the AR(2) process showed no rejection of the null hypothesis of no autocorrelation. This shows that there is no autocorrelation in any of the models. Also, all the probability values of the Wald test depicted rejection of the null hypothesis that the coefficients of all the independent

variables are simultaneously zero and this means that all the independent variables adequately explain the dependent variables. Finally, the probability values of the Sargan depicted acceptance of the null hypothesis that the instruments as a group are exogenous and this means all the instruments used in each model are valid. Also, the insignificance of the Sargan test shows that the instruments employed in the GMM estimations have appropriate exclusion restrictions.

Agglomerating effect in all the models

The lagged form of the financial development variable was included in all the models to allow for the partial adjustment of financial development to its long run equilibrium value. This is because financial development is a process, and thus previous levels of financial development affect current levels. It can be seen from all the models discussed in this chapter that the coefficient of the lag financial development variable was positive and significant. The positive sign of the coefficient of the lag financial development variable in all the models means that financial development of SSA economies in previous periods contribute positively to that of the current periods. The significance of the lagged dependent variable implies that the system GMM is an appropriate estimator and the empirical results can be relied upon for statistical inference.

Sensitivity Analysis

This section presents and discusses the results from sensitivity analysis of the baseline models already discussed. The sensitive analysis gives an indication of the strength and adequacy of the main models estimated in the study. The

sensitivity analysis employed places special focus on the moderating role played by institutional quality in the relationship between trade openness and financial development of SSA economies as it is the main purpose of this study. The study employs two main robustness methods, that is, the use of broad money (% of GDP) as proxy for financial development; and exclusion of southern Africa sub-region from the data sample.

The use of broad money (% of GDP) as proxy for financial development

The study employed broad money (% of GDP) as proxy for financial development instead of domestic credit to private sector (% of GDP). Broad money (% of GDP) has been used in several literature including Asiana and Mobolaji (2011); and Agu and Chukwu (2008).

Model 3 in Appendix B presents the results on the relationship between trade openness and financial development when broad money (% of GDP) is used as a proxy for financial development. For further analysis, Appendix B also presents sub-models of model 4 to assess the role played each of the six institutional indicators in the relationship between trade openness and financial development of SSA economies.

The result of model 4 in Appendix B shows that, at 1% significance level, trade openness had a significant positive relationship with financial development of the sample SSA economies. The coefficient of 0.249 depicted that a percentage increase in trade openness will lead to 0.249% percent increase in financial development of SSA economies. The introduction of the interaction term of trade openness and the aggregate institutional quality variable as shown in model 4 in

Appendix B caused the coefficient of trade openness to increase from 0.256 to 0.259 although the interaction term was statically insignificant. Notwithstanding, the trade openness coefficient was significant at 1%. From the ongoing discussion, there is at least an evidence that institutional quality is required to enhance the effect of trade openness on financial development of SSA economies. Therefore, a further analysis as shown in sub-models 4a–4f was performed to reveal the extent to which each institutional quality variable that enhances the effect of trade openness on financial development.

Results from sub-model 4a in Appendix B shows that control of corruption is required to enhance the effect of trade openness on financial development of SSA economies. Although, the interaction term of trade openness and control of corruption is statistically insignificant, trade openness variable attained a significant coefficient of 0.309 in model 4a as compared to 0.256 in model 4. Also, the interaction term of trade openness and political stability and absence of violence as shown in sub-model 4c attained an insignificant coefficient as well. Predictably, the introduction of the interaction into the model causes the trade openness variable to attain a significant coefficient of 0.279 as compared to 0.256 in model 3.

However, the interaction term of trade openness and government effectiveness as shown in sub-model 4b attained a significant positive coefficient of 0.076. In addition, the introduction of this interaction term caused the trade openness variable to attain a coefficient of 0.326 as compared to 0.256 in model 3. Furthermore, the interaction term of trade openness and regulatory quality as

shown in sub-model 4d attained a significant positive coefficient of 0.032. Again, the introduction of this interaction term caused the trade openness variable to attain a coefficient of 0.291 as compared to 0.256 in model 3.

Conversely, the interaction term of trade openness and rule of law as well as trade openness and voice and accountability as shown in sub-models 4e and 4f respectively were statistically insignificant. The coefficients of trade openness in both models were slightly lower as compared to that of model 3.

It is good to note that the Wald tests, the Arrelano and bond serial correlation as well as the Sargan tests showed that all the models estimated in appendix B are adequate.

Exclusion of southern Africa sub-region from the data sample

A careful observation of the comparative analysis of the trends in financial development of sub-regions of SSA economies revealed that the financial development of southern African sub-region is high above that of the entire sub-Saharan African region and the other three sub-regions. This could pose outlier problems in the regression models estimated. Therefore the main regression models were re-estimated using sample data that excludes the southern region. The results are presented in Appendix C. A careful observation of the results in appendix C reveals similar results presented in models 5 and 6. This shows that the regression results obtained when the full sample was used is robust and free from extreme value or outlier effect.

To sum it up, the results obtained from the robustness checks provide some evidence that generally institutional quality enhances the effect of trade

openness on financial development of SSA economies. Such results are similar to the results obtained from employing the domestic credit to private (% of GDP) as a proxy for financial development for the full sample data of SSA economies.

Chapter Summary

The chapter presented a trend analysis of financial development of the four sub regions in SSA. The trend analysis reveals that Southern Africa are the best among the four sub regions, followed by Eastern Africa, West Africa and finally Central Africa. After that the chapter presented descriptive analysis of the variables used in the study. The descriptive analysis revealed that on the average, SSA economies have engaged in greater trade openness from the period 1996 to 2016 and yet the financial development is very low. The descriptive analysis also reveal that SSA have a bad image when it comes to institutional quality.

The chapter went on further to discuss the separate effects of trade openness and institutional quality on financial development in SSA economies. From the discussions, it is evident in data that both trade openness and institutional quality are required to enhance financial development. The chapter also discussed the moderating role of institutional quality in the relationship between trade openness and financial development in SSA economies. The discussions revealed that strong institutional quality is required to enhance the effect of trade openness on financial development. The study finally employed another measure of financial development to check the robustness of the results obtained. The robust tests yielded similar results as compared to the results

obtained from the baseline models. This shows the baseline models results discussed in this chapter are robust.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

This chapter presents the major findings obtained from conducting the entire study. The chapter also presents a summary of the findings, conclusions, recommendations as well as the suggestions for further research.

Summary of the Research

SSA economies over the years have attained a low level of financial development as compared to other regions although there is a potential for SSA countries to close the financial development gap. Literature suggests that various forms of factors that could spur up financial development. However, in the first chapter, emphasis was placed on the absorptive capacity role played by institutional quality in the relationship between trade openness and financial development of SSA economies. This is because the higher levels of trade openness in SSA economies are not contributing much to the level of financial development in SSA economies as a result of weak institutional quality in the SSA region.

The literature review provided supporting theories as well as empirical evidence on the relationship among trade openness, country level governance and financial development in the context of SSA. Specifically the interest group theory of financial development as well as the law and finance theory were employed in the study. The empirical review posited that there is inconclusiveness of findings on the relationship between trade openness and financial development

in SSA. This is because the effects of trade openness and institutional quality on financial development have primarily been analyzed separately in prior research efforts. This research however interacted trade openness with institutional quality of various SSA economies, to hypothesize that institutional quality moderates the relationship between trade openness and financial development in SSA.

This study was based on the positivism research paradigm and the quantitative research approach. The study also employed the explanatory research design to estimate the various models. In addition, the study included only 39 out of a total of 48 SSA economies because of data availability. Furthermore, the study developed three baseline models. The first model specification sought to establish the effect of trade openness on financial development of SSA economies. The second model sought to establish the relationship between institutional quality and financial development of SSA economies and finally a third model to determine the moderating role played by institutional quality in the relationship between trade openness and financial development of SSA economies. The study employed the Generalized Method of Moment estimation technique to estimate all the models.

Summary of Findings

Several insightful and significant results that have good implications emerged from the findings of this study. The first objective of the study was to examine the effect of trade openness on financial development of SSA economies. The second objective examined the relationship between institutional quality and financial development whilst the third objective examined the moderating role of

institutional quality in the relationship between trade openness and financial development of SSA economies. The summary of the findings on these objectives are summarized in the table below:

Table 7 – *Summary of Results on the Hypothesis*

Hypotheses	Confirmation
Ho: There is no significant effect of trade openness on financial development of SSA economies.	Rejected
Ho: There is no significant relationship between institutional quality and financial development of SSA economies.	Rejected
Ho: There is no significant moderation effect of institutional quality on the relationship between trade openness and financial development of SSA economies	Rejected

Source: Field survey, Abeka (2018)

From the results on the first objective, a strong evidence is found that trade openness had a significant positive effect on financial development of the sample of SSA economies. This implies that opening up SSA economies to trade will increase financial development. Also, based on the second objective, institutional quality was found to have a significant positive effect on financial development of SSA economies. This signifies that maintaining strong institutional quality is necessary for financial development of SSA economies.

Results on the third objective indicated that institutional quality gives support to trade openness to contribute more to financial development of SSA economies. This is because the introduction of the interaction term of trade openness and institutional quality in the model of objective 1 causes the trade openness variable to attain a coefficient of 0.3004 as compared to a coefficient of 0.117 in the first model and the interaction term itself was positive and significant. The study further examined the specific roles played by each of the

six institutional indicators in the relationship between trade openness and financial development of SSA economies. The coefficient of the interaction term of trade openness and each of control of corruption, government effectiveness, regulatory quality, rule of law and voice and accountability were found to be positive and significant. This means that specifically control of corruption, government effectiveness, regulatory quality, rule of law and voice and accountability strengthens the relationship between trade openness and financial development of the sample SSA countries.

Conclusion

Based on the results, the conclusion on the first hypothesis is that trade openness is required to increase the financial development of SSA economies because trade openness had a significant positive effect on financial development. Also, the conclusion on the second hypothesis is that the improvement in the institutional quality of SSA economies will be required to increase financial development by overcoming some of the resistance posed by incumbents who oppose financial development.

Finally, in relation to the third hypothesis, the study concludes that strong institutional quality will be required to enhance the effect of trade openness on financial development of SSA economies.

Recommendations

In relation to the first objective, it is recommended that SSA economies should continue to institute economic policies that invites international trade so as to enhance financial development. However, in relation to the third objective,

such efforts will yield much more financial development if policies are also put in place to improve the quality of institutions. Such policy decisions will be mostly needed by Central Africa sub-region followed by Western Africa sub-region, Eastern Africa sub-region and finally Southern Africa sub-region. Specifically, trade openness can better enhance financial development by improving government effectiveness, reducing corruption, enhancing regulatory quality, abiding by the rule of law, and allowing voice and accountability. Improvement in government effectiveness will allow the civil and public service to be more independent in formulating quality policies to temper interest group activities. Reduction in corruption will prevent incumbents from bribing their way through to erect barriers to financial development. Also, the enhancement in regulatory quality will mean that governments will formulate and promote sound policies that will permit and promote private sector development. When incumbents abide by laws, they will have respect for government policies aimed at tempering their opposition to financial development. Finally, allowance of voice and accountability will enable individuals as well as the press to address issues concerning the oppositional activities of incumbents. As an extra benefit, the improvements in institutional quality on their own yield too will yield positive impact on financial development of SSA economies in accordance with the second objective.

Suggestions for Future Research

First of all, other studies can extend this current study by examining the moderating role played by institutional quality in the relationship between trade

openness and financial development of other developing economies. Also, further studies can examine the effect of trade components (Export and imports) that affect financial development and how they interact with institutional quality to affect financial development.

Other sources of institutional quality variables include the International Country Risk Guide website, African Governance Indicators (AGI), the World Bank's Country Policy and Institutional Assessment (CPIA) and the Country Assessment Reports Service of the fund for peace. Data on institutional quality indicators were not obtained from these other sources. It is therefore recommended that further studies should employ these indicators from these other sources if possible. Furthermore, there are several measures of financial development although the ratio of private sector credit to GDP is the most commonly used and preferred measure of financial development in literature. It is therefore suggested that further research can employ ratio of liquid liabilities to GDP, the ratio of bank claims on the private sector to GDP and the ratio of currency in circulation to narrow definition of money financial assets to GDP. Finally, further studies could employ other estimation techniques than those employed in this study.

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APPENDICES

A – A list of sample of 39 SSA economies and their Sub Regions

Eastern Africa	Equatorial Guinea
Burundi	Western Africa
Comoros	Benin
Kenya	Burkina Faso
Madagascar	Cote D'ivoire
Malawi	Gambia
Mauritius	Ghana
Mozambique	Guinea-Bissau
Rwanda	Liberia
Seychelles	Mali
South Sudan	Mauritania
Tanzania	Niger
Uganda	Senegal
Zambia	Sierra Leone
Zimbabwe	Togo
Central Africa	Southern Africa
Angola	Botswana
Cameroon	Namibia
Central African Republic	South Africa
Chad	Swaziland
Democratic Republic of Congo	

Source: Field survey, Abeka (2018)

B – Effect of Trade Openness on Financial Development of SSA economies and the role played by Institutional Quality in the relationship between Trade Openness and Financial Development of SSA Economies

Dependent variable: Financial Development (M2 as a percent of GDP)

	Model 4	Model 5	Model 5a	Model 5b	Model 5c	Model 5d	Model 5e	Model 5f
lnFD(-1)	0.658*** [0.051]	0.670*** [0.038]	0.667*** [0.033]	0.668*** [0.034]	0.684*** [0.044]	0.675*** [0.046]	0.656*** [0.041]	0.677*** [0.039]
lnTO	0.249*** [0.015]	0.259*** [0.057]	0.309*** [0.079]	0.326*** [0.332]	0.279*** [0.018]	0.291*** [0.019]	0.231*** [0.062]	0.237*** [0.036]
INST	0.198* [0.109]	0.116 [0.338]						
COC			-0.287 [0.437]					
GE				-0.367*** [0.108]				
PSAVT					-0.020 [0.039]			
RQ						-0.165** [0.192]		
ROL							0.246 [0.324]	
VA								0.182** [0.091]
Interaction		-0.015 [0.076]	0.059 [0.105]	0.076*** [0.023]	0.013 [0.009]	0.032** [0.016]	-0.038 [0.074]	-0.040 [0.026]
Control								
lnGDPPC	0.094*** [0.026]	0.066*** [0.017]	0.065*** [0.021]	0.055*** [0.016]	0.054** [0.021]	0.059*** [0.022]	0.067*** [0.016]	0.052** [0.022]
lnGEP	0.208*** [0.046]	0.158*** [0.022]	0.158*** [0.019]	0.158*** [0.021]	0.148*** [0.023]	0.161*** [0.018]	0.162*** [0.023]	0.152*** [0.024]
lnGCFP	-0.080*** [0.013]	-0.075*** [0.016]	-0.081*** [0.016]	-0.078*** [0.014]	-0.076*** [0.012]	-0.078*** [0.015]	-0.072*** [0.016]	-0.069*** [0.011]
lnGSP	-0.008 [0.006]	-0.021*** [0.005]	-0.020*** [0.004]	-0.019*** [0.005]	-0.018*** [0.005]	-0.019*** [0.005]	-0.022*** [0.005]	-0.021*** [0.005]
lnNADA	0.007 [0.007]	0.005 [0.008]	0.002 [0.009]	0.003 [0.006]	-0.001 [0.006]	0.005 [0.007]	0.009 [0.008]	0.005 [0.006]
lnINF	-0.031*** [0.005]	-0.031*** [0.003]	-0.031*** [0.003]	-0.032*** [0.003]	-0.031 [0.004]	-0.031*** [0.003]	-0.029*** [0.003]	-0.030*** [0.004]
Diagnostics								
Wald	4794.38	1228.14	2158.23	1310.56	18375.24	2662.50	1500.86	6367.26
P(wald)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
AR 1:z	-3.517	-3.723	-3.724	-3.753	-3.619	-3.693	-3.736	-3.706

Appendix B

cont'd

P-value	0.0004	0.0002	0.0002	0.0002	0.0003	0.0002	0.0002	0.0002
AR 2: z	-1.1696	-1.280	-1.330	-1.351	-1.363	-1.305	-1.215	-1.2818
P-value	0.2422	0.2004	0.1833	0.1767	0.1729	0.1919	0.2244	0.1999
Sargan	29.545	30.677	30.567	29.846	31.141	30.120	29.903	30.226
P(Sargan)	0.9999	0.2846	0.2893	0.3211	0.2654	0.3088	0.3185	0.3041
No. of grps	36	36	36	35	36	36	36	35
No. of Inst.	34	34	34	34	34	34	35	35
No of Obs.	345	345	345	345	345	345	345	345

Source: Field survey, Abeka (2018)

Note: lnFD(-1) is the first lag of the log of Financial Development variable, lnTO refers to log of Trade Openness, INST refers to Institutional Quality, COC is Control of Corruption, GE is Government Effectiveness, PSAV is Political Stability and Absence of Violence, RQ is Regulatory Quality, ROL is Rule of Law, and VA is Voice and Accountability (VA). lnGDPPC represents the log of Real GDP per capita. lnGEP represents log of Government Expenditure (% of GDP). lnGCFP represents the log of Gross Capital Formation (% of GDP). lnGSP represents the log of Gross Savings (% of GDP). lnNADA represents the log of Net Official Aid and Development Assistance. lnINF represents the log of Inflation. Apart from the diagnostics section, all values in bracket are the standard errors of the coefficients values and values other than those in bracket represent the coefficient values; *** represents significant at 1%, ** represents significant at 5%, * represents significant at 10%. The diagnostics section presents the values of the Wald test, probability values of the Wald test, z values of AR(1), probability of z values of AR(1), z values of AR(1), probability of z values of AR(1), probability of the Sargan test and the number of observations in order as shown in diagnostics section of appendix B.

C – Separate effects of trade openness and institutional quality on financial development of SSA economies, and the role played by institutional quality in the relationship between trade openness and financial development of SSA economies (excluding Southern African sub-region)

Dependent variable: Financial Development- Domestic Credit to Private Sector (% of GDP)								
	Model 6	Model 7	Model 7a	Model 7b	Model 7c	Model 7d	Model 7e	Model 7f
lnFD(-1)	0.507*** [0.052]	0.489*** [0.056]	0.515*** [0.051]	0.503*** [0.053]	0.469*** [0.063]	0.445*** [0.057]	0.501*** [0.041]	0.488*** [0.043]
lnTO	0.121*** [0.042]	0.377*** [0.098]	0.311** [0.123]	0.370*** [0.113]	0.205 [0.139]	0.303*** [0.099]	0.441*** [0.071]	0.216*** [0.061]
INST	0.149*** [0.048]	-0.965** [0.419]						
COC			-0.827* [0.454]					
GE				-1.136** [0.453]				
PSAVT					-0.262 [0.356]			
RQ						-0.736* [0.441]		
ROL							-1.112*** [0.361]	
VA								-0.641* [0.364]
Interaction		0.260*** [0.095]	0.230** [0.115]	0.278** [0.112]	0.065 [0.086]	0.205** [0.100]	0.306*** [0.087]	0.157* [0.091]
Control								
lnGDPPC	0.202*** [0.058]	0.194*** [0.061]	0.187*** [0.064]	0.222*** [0.050]	0.207** [0.058]	0.183*** [0.060]	0.194*** [0.052]	0.199*** [0.060]
lnGEP	0.162*** [0.055]	0.197*** [0.056]	0.202*** [0.056]	0.192*** [0.061]	0.196*** [0.060]	0.210*** [0.053]	0.183*** [0.054]	0.193*** [0.045]
lnGCFP	-0.049** [0.022]	-0.066*** [0.022]	-0.061*** [0.018]	-0.074*** [0.024]	-0.057** [0.023]	-0.050** [0.021]	-0.074*** [0.020]	-0.055*** [0.021]
lnGSP	-0.066*** [0.013]	-0.062*** [0.013]	-0.063*** [0.011]	-0.059*** [0.014]	-0.065*** [0.013]	-0.061*** [0.011]	-0.061*** [0.011]	-0.064*** [0.013]
lnNADA	0.0001 [0.012]	0.0012 [0.0119]	0.004 [0.010]	0.004 [0.014]	0.0002 [0.010]	0.0035 [0.013]	0.0075 [0.012]	0.0031 [0.009]
lnINF	-0.014*** [0.004]	-0.018*** [0.005]	-0.016*** [0.004]	-0.014*** [0.005]	-0.014*** [0.004]	-0.022*** [0.006]	-0.014*** [0.004]	-0.015*** [0.004]
Diagnostics								
Wald	1585.27	1679.69	4723.49	3200.89	1548.01	1948.46	9309.51	1510.31
P(wald)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Appendix C cont'd								
AR 1:z	-2.779	-2.346	-2.658	-2.694	-2.4442	-2.1161	-2.6715	-2.5935
P-value	0.0055	0.0190	0.0079	0.0071	0.0145	0.0343	0.0076	0.0095
AR 2: z	-0.9026	-0.8862	-0.9348	-1.1164	-0.8565	-0.7633	-1.4533	-0.9199
P-value	0.3667	0.3755	0.3499	0.2642	0.3917	0.4453	0.1461	0.3576
Sargan	23.874	23.849	23.054	25.741	23.746	24.180	24.561	23.587
P(Sargan)	0.6373	0.6387	0.6821	0.5530	0.6444	0.6203	0.5990	0.6531
No. of grps	32	32	31	38	35	36	35	33
No. of inst.	31	32	30	39	35	37	32	34
No of Obs.	290	290	290	290	290	290	290	290

Source: Field survey, Abeka (2018)

Note: lnFD(-1) is the first lag of the log of Financial Development variable, lnTO refers to log of Trade Openness, INST refers to Institutional Quality, COC is Control of Corruption, GE is Government Effectiveness, PSAV is Political Stability and Absence of Violence, RQ is Regulatory Quality, ROL is Rule of Law, and VA is Voice and Accountability (VA). lnGDPPC represents the log of Real GDP per capita. lnGEP represents log of Government Expenditure (% of GDP). lnGCFP represents the log of Gross Capital Formation (% of GDP). lnGSP represents the log of Gross Savings (% of GDP). lnNADA represents the log of Net Official Aid and Development Assistance. lnINF represents the log of Inflation. Apart from the diagnostics section, all values in bracket are the standard errors of the coefficients values and values other than those in bracket represent the coefficient values; *** represents significant at 1%, **represents significant at 5%, * represents significant at 10%. The diagnostics section presents the values of the Wald test, probability values of the wald test, z values of AR(1), probability of z values of AR(1), z values of AR(1), probability of z values of AR(1), probability of the Sargan test and the number of observations in order as shown in diagnostics section of appendix B.