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**Impact of Private Sector Credit on Economic Growth in the East African
Community**

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DECLARATION

I declare that this work has not been previously submitted and approved for the award of a degree by this or any other University. To the best of my knowledge and belief, the Research Project contains no material previously published or written by another person except where due reference is made in the Research Project itself.

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Abstract

The levels of credit extended to the private sector by banks is considered as an important factor when measuring the extent of financial development of a country. Credit extended to the private sector by banks is considered more efficient approach to support the development of economies compared to extension of credit to the public sector. In countries where the government through the public sector dominates in terms of receipt of credit, the private sector experiences challenges funding its investments through credit. In this study, vector error correction model has been applied, on annual panel data from 1988 to 2015 to investigate the relationship between credit extended to the private sector by commercial banks and economic growth in the EAC member states. This study focused only on Kenya, Uganda and Tanzania due to data availability. Other control variables used were; government expenditure, inflation and interest rates. The results show that bank credit to the private sector has a positive impact on the economic growth in the EAC in the long run. Interest rates, inflation and government expenditure also have a significant impact on the gross domestic product of Kenya, Uganda and Tanzania. The EAC member countries have implemented reforms aiming to achieve macroeconomic convergence before the on-coming East African Monetary Union, thus the expected empirical results show that policy makers in the EAC should focus on long run policies to promote economic growth – such as innovations in the banking and financial markets in order to increase the private sector credit and maximize on the benefits of regional integration.

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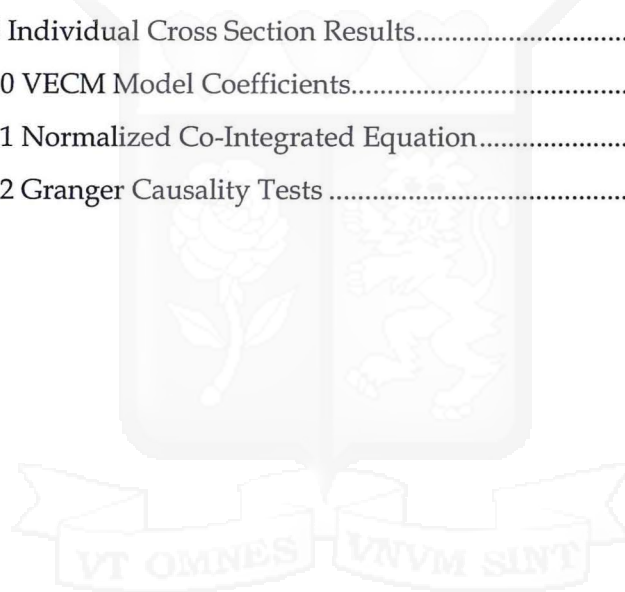


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List of Abbreviations

ARMA – Auto-Regressive Moving Average

CE – Cointegrating Equation

CRDT – Private Sector Credit

EAC – East Africa Community

GDP – Gross domestic product

GMM – Generalized method of moments

MENA – Middle East and North Africa Region



CHAPTER ONE: INTRODUCTION

1.1 Background to the study

Sub Saharan Africa's economy as a whole has continuously been growing from 30.183 billion dollars in 1960 to 1.595 trillion dollars in 2015 in gross domestic product (GDP) according to the World Bank National Accounts data (2017). GDP is defined as the total value of goods and services in an economy plus taxes on those goods and services; World Bank National Accounts data (2017).

This growth has been attributed to various sources of financing such as: foreign direct investment (FDI), foreign aid, domestic savings and bank credit to the public and private sector. This research focuses on credit extended to the private sector by banks, which is defined as allocation of funds in terms of loan and bank overdrafts by financial institutions, such as commercial banks to privately owned firms and businesses (Olowefeso, Adeleke, & Udoji, 2015). This may also include financial intermediaries such as commercial banks and even involve the government itself. A financial intermediary in a financial transaction, is an institution that acts as the middleman when transferring funds from lenders to borrowers such as commercial banks. Increase in the impact of credit extended to the private sector by banks in an economy is an important indicator of development in the country. The economic performance of the private sector is measured by its overall contribution to GDP. Access to finance is a key aspect towards the growth of the private sector. The private sector in this study is defined by its role which is; firms that sell products or provide services to consumers for profits in order to create wealth to be paid to the owners (shareholders) (Sims, 2010).

High levels of private sector credit, means greater opportunity for the private sector to grow and develop thus increasing its role in the national economy. According to the data by the World Bank on credit extended to the private sector by banks; World Bank National Accounts data (2017), most developed nations have the highest levels of domestic credit, with China being among the

highest at 207 percent of gross domestic product in 2015. The United States, Japan and Switzerland follow closely at 189 percent, 181 percent and 172 percent of GDP respectively. On the other hand, domestic credit extended to the private sector by banks is relatively low with Sudan, Nigeria, Algeria and South Africa at 7 percent, 14 percent, 21 percent and 148 percent of GDP respectively as at 2015. This could be an indication that the private sector in Africa plays a smaller role to the growth of GDP in the respective countries. Considering that the financial and banking systems in many African countries are still developing, the private sector in Africa has thus been doing well over the years, not only with growth of million-dollar valued private companies but small-medium enterprises as well, which are the key drivers of the growth of many economies. This has substantially been influenced by access to credit. This study focussed on the impact of credit extended to the private sector by commercial banks on economic growth in countries in the East African Community; Kenya, Uganda, Tanzania, Rwanda and Burundi. Should these countries focus more inwards towards private sector credit growth?

Domestic financing in a country is significantly affected by the levels of saving in the economy. Ndikumana and Blankson (2015) argue that domestic savings and credit to private sector prove to be the most robust sources of financing for domestic investment. They insist that the positive impact of foreign direct investment cannot be ignored, but the magnitude is relatively smaller in comparison. Ndikumana and Blankson (2015) also state that official development aid, public external debt and migrant remittances have no statistically significant effect on domestic investment.

The growth model by Robert Solow (1956) shows the existence of a link between growth in an economy and aggregate savings. The model indicates that higher saving leads to higher investment, eventually leading to higher economic growth. Private saving in Sub-Saharan Africa has decreased over the years. In the 1970s it was about 11 percent of disposable income and then in the 1980s, reduced to 8 percent (Elbadawi & Mweya, 2000). Africa still has not

adopted a savings and investment culture with most people living below the 1.90 dollars per person per day revised international poverty line, (The World Bank, South Africa Economic Update, 2017) with very little to save or invest. This in turn largely affects the levels of domestic credit available to the private firms and businesses leading to slow growth of these firms.

1.2 EAC's Economic Background

The East African Community (EAC) is a regional organisation comprised of 6 countries: Burundi, South Sudan, Tanzania, Kenya, Rwanda, and Uganda (The East African Community, n.d.). The main objective of this regional integration is to facilitate co-operation among the partner states and other states and regional organisations in; political, economic and social fields for their mutual benefit.

The EAC countries' economic growth performance over the past 10 years has been at around 6 percent. This performance is notable seeing as the past ten years have been entangled with the financial and economic crisis globally that began in 2007/2008. Also, historical political conflict and widespread government mismanagement has been a significant obstacle in reduction of poverty and economic development, and therefore these EAC countries growth rates are commendable.

It is estimated that in Kenya, gross domestic product expanded by 5.8 per cent in 2016 from the previous year's 5.7 per cent. The growth of domestic credit has indeed slowed down from 20.8 per cent in 2015 to 6.4 per cent in 2016 which is mainly attributed to a decline in credit extended to the private sector by banks according to the 2017 Economic Survey from the Kenya Bureau of Statistics. Domestic credit provided by banking sector as a percentage of gross domestic product in Uganda was reported at 17.12 percent, in Tanzania, at 15.17 percent, in Rwanda, at 21.61 percent, in Burundi at 14.26 percent, all as at 2015 according to the World Bank collection of development indicators, (The World Bank, Domestic Credit to Private Sector , 2015). Despite commendable improvement in economic performance, domestic credit in the EAC member

states remains low, and on the decline taking the case of Kenya. In this regard, could increasing levels of domestic credit extended to the private sector by banks boost growth of these economies even further? Developing countries' economies heavily rely on agriculture taking the case of Kenya with agriculture contributing 32 percent to GDP, Tanzania at 31 percent, Uganda at 25 percent as at 2015, according to the World Bank National Accounts Data (2017). According to an International Monetary Fund (IMF) Survey, low-income countries should increase their efforts to expand beyond their traditional reliance on agriculture to achieve higher growth and hedge themselves against volatility in food price (Abhijit, 2011). In this regard, in the finance-growth literature, credit availability impacts capital accumulation and technological innovation which in the long run influences economic growth. (King & Levine, 1993b).

1.3 Problem Statement

In Africa, a significant number of small manufacturing firms especially Sub Saharan Africa are credit constrained due to the level of underdevelopment of the financial systems in the countries, in comparison to those of developed economies, shown by studies such as Loening, Rijkers and Soderbom (2008). Monetary authorities such as central banks globally seek to ensure that their financial system is sensible and functioning well, which leads to improved economic outcomes.

The relationship between economic growth and credit extended to the private sector by banks has been a major topic in economic discussions all around the world and literature based on studies and analysis carried out so far has not been conclusive on the matter. However, a significant level of evidence appears to tilt towards a positive link between credit extended to the private sector by banks and economic growth and this belief has motivated the Nigerian government with advice from the Central Bank of Nigeria to establish and maintain a strong, inclusive and robust financial system to speed up economic growth; (Olowefeso, Adeleke, & Udoji, 2015). In this regard, this

study evaluated the impact of private sector credit on the output of the EAC member countries. It aimed at contributing to the discussion on whether domestic credit extended to the private sector by banks matters in the performance of the EAC member states' economies, and analysed if the EAC should look inwards (domestic savings and credit) towards boosting economic growth and development. Also in terms of policy, if financial intermediation to the private firms and businesses exerts an economically significant impact on growth, then this importance of legal, regulatory, and policy reforms designed to enhance domestic financial development (Levine, Loayza, & Thorsten, 2000).

1.4 Research Objective

- This research aimed at analysing the impact of the private sector credit on the growth of East African Community member states' gross domestic product.

1.5 Research Question

- Does private sector credit significantly impact the growth of East African Community member states' gross domestic product?

1.6 Scope of the study

Mbulawa (2015) finds that there is lack of evidence on the importance of domestic credit by banks, inflation, real interest rates, trade openness and government debt on their contribution to expansion of credit extended to the private sector in the Southern Africa Development Community study as a region. This study aimed at analysing the impact of domestic credit in Kenya, Uganda and Tanzania from 1988 to 2015. More still needs to be done to enhance credit extended to the private sector by banks in the EAC region where there is a call for combined efforts to foster growth. Regional blocs seek to attain development and growth by taking advantage of the complementary role between regional and national strategies; (SADC, 2011). Eliminating poverty and increasing growth is achievable where more resources are provided to strategic areas like the private sector (Mbulawa, 2015). Thus,

taking an EAC regional approach to financial development provides synergy and scale economies which are not possible at country level. It also provides financial institutions with a platform for reducing credit risk as they pool resources together and channel them to productive sectors at low cost Mbulawa (2015).

1.7 Significance of the study

To achieve overall increasing growth and poverty elimination in Africa, which is the first goal in the global sustainable development goals, more resources should be provided to strategic areas such as the private sector as it makes available more finances and deposit opportunities and avoids inequality (Mbulawa, 2015). This helps to bring out key issues that are vital for effective regional financial sector development which can only take place where there are good quality regulatory frameworks and policies on supervision at regional level. Also, this study will specifically be beneficial in guiding policies on interest rate, such as the interest rate cap in Kenya in 2016 passed by the Kenyan parliament with constrained allocation of credit extended to the private sector by banks, specifically small medium enterprises (SMEs) rather than expand.

This study will also be beneficial to researchers. The significance of credit extended to the private sector by banks is also important when conducting economic and financial research and specifically when discussing their forecasts. Rapid increases in domestic credit extended to the private sector by banks has been detected as a crucial factor that influences financial crises (Masood, Butt, Ali, & Bellalah, 2011), therefore gradual but steady increase in domestic credit extended to the private sector by banks is beneficial to ensure financial stability in all economies.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

Researchers such as Akpansung and Babalola (2011), Masood, Butt, Ali and Bellalah (2011) and Mbulawa (2015) have tried to establish the causal link between domestic credit extended to the private sector and gross domestic product growth in different dimensions and perspectives. One perspective is that economic growth will demand growing and efficient financial systems (demand-leading) to enable access to credit, on the other hand another perspective is that, for the gross domestic product in an economy to grow, there needs to be a proper financial system connecting borrowers and lenders (supply-leading) so as to access funding needed for investment and eventually growth. Below are theoretical and empirical perspectives, not only on the direction of causality of domestic private sector credit and gross domestic product (GDP) but also on theories on economic growth and various research techniques undertaken in the past.

2.2 Theory of Economic Growth

Literature provides numerous economic growth theories on strategies that achieve success but there is no consensus yet. The existing models are the Two-Gap Model, Harrod-Domar Growth Model, Neo-Classical Growth Model and Endogenous Growth Model. This study focusses on Neo-Classical Growth Model, and Endogenous Growth Model, since these growth models best explain the situation in developing economies.

2.1.1 Neo-Classical Model of Growth

This model was engineered by Robert Solow. According to Haji (2015) neoclassical growth theory is an economic theory that explains how significant levels of growth in an economy can be accomplished with sufficient levels of three factors: labour, capital and technology. The theory focusses a lot on increasing levels of capital in the economic growth process. It is observed by a long-run growth model that includes; capital and labour that are denoted by production function written as: $Y = F(K, AL)$.

Y denotes an economy's GDP, K denotes capital; L denotes the amount of unskilled labour and A denotes technology. A pattern of growth is shown by the ratio of capital to labour. Capital is seen to be the main factor that contributes to growth in the long term. Technological change as a channel of financial development, has also been found to be efficient, which also distributes incentives for sustained accumulation of capital. Therefore, increase in levels of capital supported by change and improvements in technology leads to an increase in the production, which in the long run expedites the level of economic growth of a country. According to theory, growth of an economy is shown to be positively impacted on by financial development, Haji (2015).

2.1.2 Endogenous growth theory

This theory was developed in the 1980s responses to criticism of the neo-classical model of growth. The endogenous growth theory states policies in a country can have an impact on growth rate of an economy, in the long run. The variables within the model determine the long run growth rate, in comparison to the Neo-Classical model of growth that includes technological progress as an exogenous variable. The main assumptions included in the Neo-Classical model of growth which are; technological change is an exogenous variable, and that all countries in the world can obtain the same opportunities with regards to technology have been dismissed, Haji (2015).

Romer (1994) observes that when developing and developed countries are compared, the per capital income in the different countries does not converge in all countries. A higher rate of investment, and better institutions would be necessary to achieve the same result. Developing countries do not develop any faster than developed countries, and the rate of growth of the latter is expected to increase in the future, which shows that the level of technology in different countries is indeed not similar. Romer (1994) argues that the Neo-Classical model of growth is characterised by perfect competition there is existence several buyers and sellers in an economy, information is free and easily

accessible, physical activities may be replicated, in the end showing that innovation and change in technology is not simply accidental and many businesses and individual people hold the market power and that monopoly profits can be earned since the opportunity cost of obtaining information is not there.

In the endogenous growth model, development of financial systems and access to finance can impact growth in the following ways; improving the efficiency of financial intermediation, increasing the marginal productivity of capital and also increasing the average savings rate in an economy. Financial institutions can therefore affect economic growth by efficiently and transparently undertaking their functions, for example through the provision of credit Adekola (2016) which is the main factor discussed in this study.

2.2 Empirical Literature

In 1911 Joseph Schumpeter, argued that the services provided by financial institutions such as; project evaluation and risk management are essential for economic development. He also observed that production requires credit in order to be actualized, an individual can only become an entrepreneur by previously becoming a debtor and he or she needs funding through credit services (Schumpeter, 1911). Thus, he was one of the first advocators for the theory that financial development leads to economic growth. Credit extended to the private sector by banks by banks is crucial in order to increase the levels on investment by the private sector and overall development in an economy. Banks play a key role in increasing employment levels, improving productivity and inducing growth in an economy by financing investments. In countries where most funding is available to the public sector alone, the private sector experiences major challenges in financing their potential investments, in terms of credit facilities. This thus sets the pace for studies such as the topic at hand, analysing the impact of domestic credit on economic performance of Kenya, Uganda and Tanzania. On the other hand, in the past several economists did not consider financing as a crucial factor contributing

to economic development such as Robinson (1952) whose study contends that financial development comes as a result of growth of the economy.

2.2.1 Cross-Country Analysis

King and Levine (1993b) undertook a study where they analysed whether development in financial systems, delivery of financial services and development of the economy have a positive relationship using data on over 80 countries from 1960 to 1989. They particularly study the relationship between a range of variables influencing financial and economic development. Cross-country regressions are used to measure the relationship between the variables affecting development in financial systems, delivery of financial services and development. They carry out a regression of real per capita gross domestic product growth rate on the natural logarithm of the initial secondary school enrolment rate, the natural logarithm of initial income and each financial indicator. They also include the ratio of trade (exports plus imports) to gross domestic product, the ratio of government spending to gross domestic product, and to control for other economic phenomena they employ the average inflation rate. The results of this study show that the variables; the ratio financial intermediary sector to gross domestic product, the percentage of credit extended to the private sector by banks, and the ratio of credit extended to the private sector by banks to GDP-are significantly correlated with growth of the economy. This paper's cross-country analysis sets a global perspective on the causal relationship between development in financial systems, delivery of financial services and development of the economy which sets a sufficient base before narrowing down to country specific, and finally sector specific analysis.

Rachdi and Mensi (2012) study the link between institutional environment, development of financial systems, delivery of financial services and development of the economy. The test if the institutional environment of a country is significant in the link between economic growth and development of finance. The study uses Generalised Method of Moments because of the

assumption that the fixed effects are not correlated with first differences of the variables used.

The institutional variables used include; corruption, socioeconomic conditions, investment profile, external conflicts, law and order and democratic accountability. The paper also explores the relationship between financial development, quality of institutions and economic growth in the countries in the Middle East and North Africa (MENA). They use 13 MENA countries over the period 1990 through to 2008 and use the Generalised Method of Moments estimation. The results show that using Liquid liabilities, Private credit by financial institutions and assets of the central bank and corruption, socioeconomic conditions, investment profile, external conflicts, law and order and democratic accountability as measures of the quality of institutions, they find that domestic credit extended to the private sector is a significant variable in their study.

The recommended policy implications in their study are that; in order for all MENA countries to promote economic growth, they put in concerted efforts to strengthen institutions and governance. Increasing efforts to uphold the law in terms of property rights for example, improve the quality of socioeconomic conditions, properly define and increase their investment profile, encourage an environment of democratic accountability and reduce corruption and external conflicts is essential because a well-functioning financial system can impact economic growth positively; (Rachdi & Mensi, 2012).

Mbulawa (2015) used annual panel data from 1996 through to 2010 for eleven Southern Africa Development Community Countries so as to identify the factors that determine levels of credit extended to private sector and also the possibility of public debt by the government crowding out credit extended to the private sector by banks and the contribution made by the quality of institutions in the country. Mulwa (2015) uses the static approach which makes estimations by using either random or fixed effects but the choice is determined using Hausman test. The difference between the two approaches

is that random effects take the individual effects and explanatory variables to be uncorrelated while the fixed effects model accepts the individuality of variables employed; (Mbulawa, 2015). He also uses dynamic modelling for comparison with the static model. The study finds that as the economy grows it enhances the need to supply more financial resources to the strategic areas of the economy, thus his theory is more demand-leading. Mbulawa (2015), also finds that there is lack of evidence on the importance of domestic credit extended to the private sector by banks, inflation, real interest rates, trade openness and government debt on their contribution to expansion of private sector credit in the Southern African Development Community study as a region. These factors may be important on an individual country level basis.

2.2.2 Country Specific Analysis

Masood, Butt, Ali and Bellalah (2011) analyse private sector domestic credit in Pakistan using data from 2001 to 2007. This was a period characterised by low interest rates, and interestingly domestic credit to the private sector (DCPS) was increasingly high in Pakistan in the period 2008 to 2009 when the interest rates were increasing and domestic credit extended to the private sector by banks and economic growth were on the decline yet evidence showed that there was indeed growth in the financial sector during this period. This study is particularly interesting as the financial sector in Pakistan has been directed in an unusual direction due to political unrest in Pakistan in comparison with the global trends in Financial Sector; (Masood, Butt, Ali, & Bellalah, 2011).

Their main objectives were to determine; if there exists a link between economic development and domestic credit extended to the private sector by banks in Pakistan, and the factors that contribute more to gross domestic product; and economic development. Also, they put into consideration that in Pakistan, domestic government debt crowds out the capabilities of lending of financial institutions, and thus examine the effect of government public debt on domestic credit extended to the private sector by banks in Pakistan. The variables used are; domestic credit to private sector, money supply, savings,

industrial value addition, imports and export, gross domestic product and domestic debt to public sector. Masood, Butt, Ali and Bellalah (2011) calculate the long-term relationship among the variables of the model and construction of the error correction model was done using ARMA (Auto Regressive Moving Average) and least squares techniques. The results of the study show that domestic credit growth does not have a significant relationship with growth in the economies studied. This also leads to the conclusion that the financial sector in Pakistan is in not effective for enhancing economic growth in the country.

Osman (2014) empirically investigates the link between credit made available to the private sector by commercial banks on growth of the economy in Saudi Arabia using annual data from 1974 to 2012. In his research, the author applies autoregressive distributed lag (ARDL) approach to determine the causal relationship. The ARDL approach is advantageous as it is characterised with yielding consistent long-run coefficients in the resulting estimates and is also useful even when the variables are stationary at different levels. In addition, the ARDL approach can simultaneously estimate the long -run and short-run parameters of the model, Pesaran (1996), thus, sufficient for the period chosen in this study.

Osman incorporates six variables which are gross domestic product, commercial bank's credit, control variables: commercial bank's deposits, government expenditure, inflation rate and open economy. It is discovered that there is long-run relationship between credit made available to the private sector by commercial banks and growth of the economy, not only in short-run, but also in the long-run. He also finds that allocation of resources by banks if fair and efficient and the investment in the private sector thus promotes growth of the economy in the long run. However, the elasticity is significantly low. Osman's paper narrows down from the broader financial intermediaries' perspective taken by Schumpeter (1911), focusing more on domestic credit by commercial banks to specifically the private sector which is the main aim of

this study thus the study can show clear differences or similarities if any in the EAC member states and Saudi Arabia.

Akpansung and Babalola (2011) examine the link between credit made available to the private sector by commercial banks and growth of the Nigerian economy from 1970 to 2008. In Nigeria, credit facilities extended by commercial banks are not only allocated to the public sector but also to the public sector in the economy. Empirical evidence however shows the impact of credit to the private sector from commercial banks is more significant and higher than credit to the public sector. The study proposes use of a simultaneous equation model. This is because of the joint determination of credit from commercial banks and growth of the economy. The paper establishes the causal relationship between the credit extended to the private sector by commercial banks and growth in the economy by using the Granger causality test. For the regression models, they also incorporate a Two-Stage Least Squares estimation technique. The rate of growth of the economy is the explained variable while explanatory variable is change in the amount of commercial bank credit extended to the private sector. The commercial bank credit to the private sector was expressed as a percentage of gross domestic product. The lagged variables were also used in the regressions to act as control variables. This was so as to appreciate the dynamic nature of growth in the economy, and credit in the banking sector as well. The effect of inflation on the credit market development is examined through the inclusion of the consumer price index. Addition of the exogenous variables is in order to strengthen the robustness of the results.

The results of Granger causality test indicated the presence of a unidirectional causal relationship. This was from gross domestic product to credit extended to the private sector by banks, and also from industrial production index to gross domestic product. The results also show that private sector credit has a positive impact on economic growth. However, interest rates on loans impedes economic growth. In the end, the paper recommends that financial

sector deepening is an important factor that needs to be encouraged as these favours increase in credit extended to the private sector by banks. Interest rate charged by banks should be kept low in order to stimulate growth in the economy.

Still on Nigeria, Pelesai and Okumoko (2013) evaluate the impact development of the financial sector on growth of the Nigerian economy by employing annual data from 1970 to 2012. Pelesai and Okumoko (2013) argue that; a key factor that should be considered is government deficit, and the additional financing to supplement the national budget, that the government seeks from the banking sector. Governments that have to seek financing from domestic resources provide and irresistible opportunity to banks in the countries to allocate funds to a safer investment opportunity in comparison to the private sector. This crowds out the private sector from receiving adequate amount of funding, therefore credit facilities extended to non-financial firms in the private sector and small businesses is sometimes regarded as a better measure of the impact of deepening and growth of the financial sector on economic growth. In this study Ordinary Least Squares (OLS) regression was used to estimate the model. To test for cointegrating relationships, the Vector Error Correction models and cointegration techniques were used. The Augmented Dickey-Fuller test was employed to test the orders of integration of the data. Nominal gross domestic product was used as the explained variable. The explanatory variables were: the ratio of money supply to gross domestic product, monetary aggregate, ratio of deposits made in banks to the gross domestic product, credit extended to the private sector by banks and real interest rate. The results show that all of the variable used in the study have significant impact on the gross domestic product.

2.2.3 Sectoral Analysis

Were, Nzomoi and Nelson (2012) explore the relationship between credit extended to the private sector by banks and the performance of the economy at the sectoral country level. The study investigates the impact of access to

commercial bank credit on the performance of key sectors of the economy using sectoral panel data for Kenya, using the fixed effects model. Cross-country studies have however failed to explain the significant differences among countries and hence, points to the need for country-specific studies to inform the policy debate; (Ang, 2008).

Panel data estimation methodology is employed. They incorporate a panel data model with lagged explained variable using Generalized Method of Moments (GMM) which is appropriate when dealing with issues to do with endogeneity, Wooldridge (2001).

The study concludes that banks providing funding to the private sector in terms of credit towards efficient economic sectors of the economy potentially promotes sectoral economic growth. The study further recommends that policies towards deepening of the financial sector and reducing interest rates which are high, especially in Kenya, before the capping of interest rates in 2016. These policies however cannot work without strategies that complement them, specifically strategies that enhance productivity which will also enhance growth of key economic sectors of Kenya, Uganda and Tanzania. This a different approach that previous papers have failed to do, that gives a more inclusive outlook on the impact of private sector domestic credit specifically influenced by the activities of different sectors in an economy.

2.3 Conceptual Framework

In this study, Real GDP is the dependent variable, while the independent variables are private sector credit, real interest rates, inflation and government expenditure as shown in figure 1. Impact of domestic credit extended to the private sector by banks on economic performance will be measured by its short run and long run effect on output. Real GDP is defined as the total value of goods and services in an economy plus taxes on those goods and services; World Bank National Accounts data (2017). Domestic credit extended to the private sector by banks is measured by provisions of loans and overdrafts to the private sector (Olowefeso, Adeleke, & Udoji, 2015). Real interest rates are

measured as lending rates adjusted for inflation. Government expenditure is measured as all annual current expenditure done by the governments of Kenya, Uganda and Tanzania for the purposes of purchasing goods and services. Inflation is measured by the annual change of prices in the economies. The choice of these variables was influenced by past literature discussed above, specifically by the study by Osman (2014), as adequate to determined the link between domestic private sector credit and GDP.

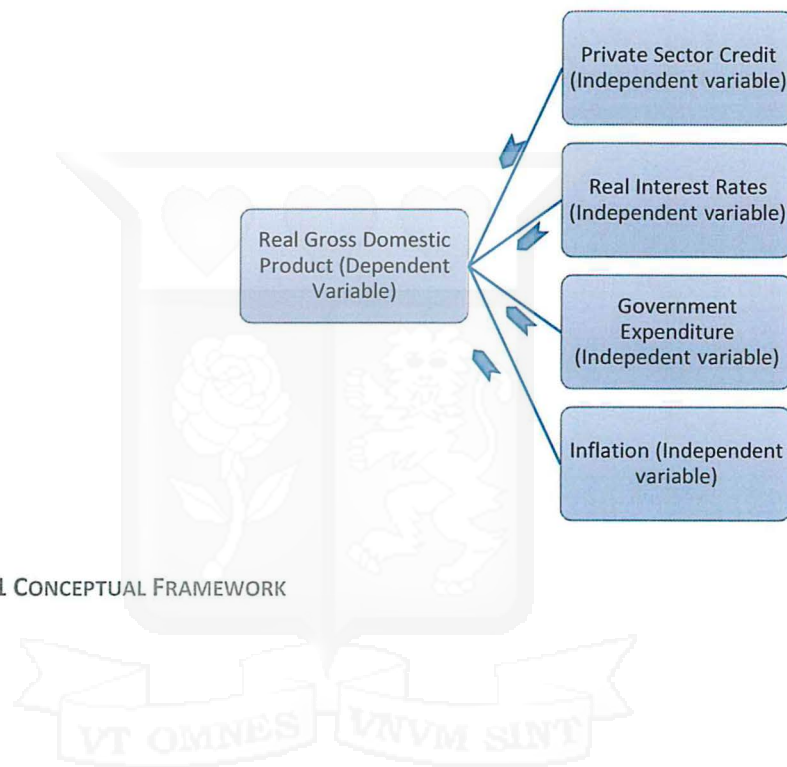


FIGURE 1 CONCEPTUAL FRAMEWORK

CHAPTER THREE: METHODOLOGY

3.1 Introduction

The section below includes the approaches that were undertaken to prepare and study the data, including comprehensive description of the variables, the tests and the models used in the analysis of the data.

3.2 Research Design

The research took a causal research design, as the study analysed the impact of credit extended to the private sector by banks on economic performance. This study included other independent variables such as; real interest rates, inflation and government expenditure and analysed if they help in explaining the relationship between domestic private sector credit to real gross domestic product, which involved quantitative analysis.

3.2 Population and Sampling

This study analysed annual panel data spanning 1988 to 2015 on the following macroeconomic variables: real gross domestic product, real interest rates, private sector credit, inflation and government expenditure. The countries in the East African Community are; Burundi, Kenya, Rwanda, South Sudan, Tanzania, and Uganda. Study however focused on; Kenya, Uganda and Tanzania due to availability of data. The population if total data of all East African Community member states since its inception. This study picked a sample of data from 1988 to 2015 for Kenya, Uganda and Tanzania.

3.3 Data Collection

This study used secondary data. Data on credit extended to the private sector by banks was obtained from the World Bank International Financial Statistics and Data Files. Data on real interest rates was obtained from the Central Banks of Kenya, Uganda and Tanzania. Data on real gross domestic product, inflation was obtained from the World Bank Development Indicators data. Real gross domestic product was used to measure the overall economic activity in the East African Community member states, while credit to the private sector captures credit extended to the private sector by deposit money

banks as a proportion of gross domestic credit. Data on government expenditure was obtained from World Bank National Accounts data files.

3.4 Data analysis

3.4.1 Stationarity Test

This was the first step in analysis of data in this study. A variety of tests were used in this study to check for unit root such as the Levin-Lin-Chu (2002), Harris-Tzavalis (1999), Fisher-type (Choi 2001) and Im-Pesaran-Shin (2003). These tests were applied to the stochastic variables to test for stationarity, in order to avoid a spurious regression. It was important to examine whether the variables are stationary, and the order of integration as this was important when deciding what model to use. The null hypothesis was defined as; all panels contain a unit root. Failure to reject the null implies that first differences of the data need to be calculated in order to induce stationarity (Akpanung & Babalola, 2011).

3.4.2 Engle and Granger (1987) Cointegration Test

After conducting stationarity tests for each of the variables and finding the order of integration and specifying optimal lag length, the next step was to determine whether the variables are co-integrated or not, using Engle and Granger and Johansen's Cointegration test. Cointegration shows the long-run relationship between the dependent variable, which is GDP in this study, and independent variables. This test required that at levels, the variables are not stationary but become stationary when they are differenced once. Macroeconomic variables such the ones used in this study are usually non-stationary. This test involves testing the null hypothesis that there is no cointegration, against the alternative hypothesis that cointegration exists.

3.4.2 Johansen's Cointegration Test

For robustness, this study also conducted the Johansen's test for cointegration so as to provide for all the weaknesses of the Engle and Granger test which are; the Engle and Granger test is weak for finite sample data, one needs to specify the dependent and independent variables

3.4.3 Error Correction Model

After conducting the cointegration tests, and finding the existence of cointegrating relationships between the independent and dependent variables, a vector error correction model is estimated. The error correction model is advantageous as it captures not only the long-run equilibrium to which output converges over time but also the short run dynamics and the rate of adjustment to equilibrium after a disequilibrium; and it is of the form:

$$\Delta \ln GDP_t = \alpha_0 + \sum_{i=0}^4 \beta_i \Delta X_{t-i} + \sum_{j=1}^4 \gamma_j \Delta \ln GDP_{t-j} + \rho \varepsilon_{t-1} + \mu_t$$

Where Δ shows the first difference aspect of the model, ε_t is the estimated residual from the selected Engle and Granger cointegration equation, $\ln GDP$ is natural logarithm of GDP while X_{it} is the vector of exogenous variables, including domestic credit allocated to the private firms and businesses by banks, government expenditure, inflation and real interest rates. For stability of the system in the model, the ρ coefficient, which measures the speed of adjustment of the gross domestic product to the value implied by the long run equilibrium relationship should be statistically significant and have a negative value as well; (Olowefeso, Adeleke, & Udoji, 2015).

3.4.4 Granger Causality Test

Granger (1969) suggested an approach to test past values of the explanatory variables can explain the dependent variable. This study tested whether there is unidirectional or bidirectional causality between gross domestic product and private sector credit from banks. The empirical analysis done in this study was calculated using a simple Granger-causality test in order to test whether private sector credit helps in the prediction of GDP growth or vice versa.

CHAPTER FOUR: DATA ANALYSIS AND FINDINGS

4.1 Descriptive Statistics

Variable	Ingdp	Indc	InterestRate	Inflation	InGovtexp
Observations	87	87	87	87	87
Mean	23.276050	2.442318	8.028963	15.077280	13.982460
Std Deviation	0.830560	0.718999	11.235130	22.762170	3.217514
Sum	2025.017000	212.481700	698.519800	1311.723000	1216.474
Range	3.206092	3.086667	80.365210	196.406300	13.55786
Kurtosis	2.003338	2.460328	14.206860	47.454310	2.61175
Skewness	0.272455	-0.048398	-2.707900	6.05843	-0.52593

TABLE 1 DESCRIPTIVE STATISTICS

Summary statistics obtained from Stata 9 based on all explanatory variables and Ingdp as the only dependent variable. Data is for 3 EAC countries, being balanced panels for the period 1988-2015. Variables used: Domestic Credit to private sector (Indc), economic growth (Ingdp); inflation; Government Expenditure (InGovtexp); Real interest rate.

As shown in table 1 above, inflation was quite high at an average of 15 percent over the sample period. The standard deviation was also high at 22.7 percent which means that price levels fluctuated a lot during the sample period. Over the sample period the maximum value of inflation has been surprisingly high at 196 percent in Uganda.

Interest rates were moderate at an average of 8.02 percent with a standard deviation of 11 percent which is low.

Skewness is a measure of the symmetry of the data. If the skewness value is between -0.5 and 0.5 the data is fairly symmetrical and the results showed that the data on Ingdp, government expenditure and Indc between this range, and inflation and interest rate were highly skewed.

4.2 Diagnostic Checks

4.2.1 Normality Tests

Variable	Observations	W	V	Z	Prob>z
LnGDP	87	0.96204	2.792	2.26	0.0119
InterestRate	87	0.77201	16.768	6.207	0.0000
Inflation	87	0.4511	40.371	8.141	0.0000
Ln dc	87	0.95679	3.178	2.545	0.00546
LnGovtexp	87	0.96141	2.838	2.296	0.01082

TABLE 2 SHAPIRO WILCOXON NORMALITY TEST

The null-hypothesis of this test is that the sample is normally distributed. The study results as seen in table 2 above showed that all the variables used were not normally distributed this was attributed to the relatively small sample data. This was identified using the probability values are all below the 5 percent significance level. Non-normality, or lack thereof is useful as it provides important information not only in identifying cointegration rank but also identifying the unobserved factors governing the observed data.

4.2.2 Correlation Tests

	LnGDP	Ln dc	Interest Rate	Inflation	LnGovtexp
LnGDP	1				
Ln dc	0.6188	1			
Interestrates	0.0004	0.2238	1		
Inflation	-0.2943	-0.3177	-0.6775	1	
LnGovtexp	-0.0041	0.4204	0.2132	-0.1998	1

TABLE 3 PAIRWISE CORRELATION

Table 3 shows results on the relationship among the variables and the study shows that there were both positive and negative relationships among the variables. Values greater 0.8 would indicate the presence of multicollinearity which is not present in this case.

4.3 Stationarity Tests

The first tests done on the data to test for stationarity is Levin-Lin-Chu (2002), Harris - Tzavalis and Im-Pesaran-Shin tests. The null hypothesis is that panels contain unit root, while the alternative is that panels are stationary. The results of the tests as shown in the table below show that data on; first differences of natural log of GDP, first differences of interest rates; first differences of natural log of domestic credit and first differences of government expenditure is stationary.

Stationarity Tests					
Macro variables	Level			First Difference	
	H ₀ : y=0	Lag-length	Inference	H ₀ : y=0	Inference
InGDP	-1.53598	2	Fail to Reject	-23.9420	Reject
InDomestic Credit	-0.44243	0	Fail to Reject	-8.22191	Reject
Interest rates	-3.3407	0	Fail to Reject	-2.8729	Reject
InGovernment Expenditure	-0.41671	0	Fail to Reject	-5.78141	Reject
Inflation	-9.60418	0	Reject	-10.2839	Reject

TABLE 4 UNIT ROOT TEST

The Schwarz Bayesian Criterion was used at an automatic selection of maximum number of lags. Individual intercept and trend were included in the equation when conducting the unit root test of all series at levels. The five percent critical values were (-3.475) at levels and (-2.903) in first differences. All unit-root non-stationary variables are stationary in first differences.

4.4 Cointegration Tests

4.4.1 Engle and Granger Cointegration Test

Cointegrated series have compatible long run properties. The superior test for cointegration is Johansen's test as it permits more than one cointegrating relationship.

The first tests conducted was the Pedroni Residual Cointegration test which is an Engle and Granger based Test.

Pedroni Residual Cointegration Test			
	No deterministic trend	Deterministic intercept and trend	No deterministic intercept and trend
Probabilities	8/11	7/11	7/11

TABLE 5 PEDRONI RESIDUAL COINTEGRATION TEST

The null hypothesis is that there is no cointegration. 8 out of the 11 cointegration statistics probabilities as shown in table 5 above are below the 5 percent confidence level (significant) thus we can reject the null and thus lnGDP, interest rate, lnGovernment expenditure and lnDomestic credit have a long run relationship when there is no trend.

When the trend and intercept were included 7 out of 11 cointegration statistics probabilities as shown in table 5 above are significant thus we reject the null hypothesis. The same result applied with no trend and no intercept. The conclusion from both tests is that the variables; lnGDP, interest rate, lnGovernment expenditure and lnDomestic credit were cointegrated.

The test further required testing whether the residuals from the cointegrating relation were stationary. From the following table on the unit root test for the residuals, the probabilities were less than the 5 percent confidence interval thus we reject the null, the series is thus stationary.

Method	Statistic	Probability
Levin, Lin and Chu t*	-4.94868	0.0000

Im, Pesaran and Shin W-stat	-4.48652	0.0000
ADF – Fisher Chi-square	34.8908	0.0000

TABLE 6 UNIT ROOT TEST ON RESIDUALS

Cointegration refers to long run relation. In this study, the short run dynamics and convergence to the long run dynamics are also of interest. Thus, a richer model that incorporates both is needed.

4.4.2 Johansen's Cointegration Test

The study further evaluated the existence of long-run equilibrium relations using the Johansen (1988) trace statistic test for cointegration. These tests incorporate both the Trace test and Maximum Eigen Value tests whose differences lie only in their hypothesis. The trace statistic checks whether the smallest eigenvalues are statistically different from zero.

Hypothesized No. Of CE(s)	Trace Test	Probability	Max-Eigen Test	Probability
None*	53.40	0.0000	38.37	0.0000
At most 1	23.45	0.0007	11.41	0.0764
At most 2	15.44	0.0171	7.310	0.2932
At most 3	13.38	0.0373	10.49	0.1056
At most 4	12.79	0.0465	12.79	0.0465

TABLE 7 JOHANSEN'S COINTEGRATION TEST – LINEAR DETERMINISTIC TREND INCLUDED

Cross Section	Trace Test Statistic	Prob**	Max Eigen test Statistic	Prob**
Hypothesis of no cointegrating relationship				
Kenya	98.8307	0.0001	58.9657	0.0000
Tanzania	105.4559	0.0000	41.1592	0.0057
Uganda	80.5006	0.0055	32.6617	0.0693
Hypothesis of at most 1 cointegrating relationship				
Kenya	39.8650	0.2274	19.2790	0.3932

Tanzania	64.2967	0.0007	27.4142	0.0525
Uganda	47.8389	0.0502	23.3017	0.1610
Hypothesis of at most 2 cointegrating relationships				
Kenya	20.5859	0.3840	12.0065	0.5470
Tanzania	36.8825	0.0065	19.7109	0.0525
Uganda	47.8389	0.1787	11.4149	0.6059
Hypothesis of at most 3 cointegrating relationships				
Kenya	8.5794	0.4057	8.2503	0.3538
Tanzania	17.1716	0.0277	15.3226	0.0330
Uganda	13.1223	0.1104	12.3314	0.4406
Hypothesis of at most 4 cointegrating relationships				
Kenya	0.3292	0.5661	0.3292	0.5661
Tanzania	1.8490	0.1739	1.8490	0.1739
Uganda	5.7012	0.0169	5.7012	0.0169

TABLE 8 INDIVIDUAL CROSS SECTION RESULTS

The result displayed above were when the linear deterministic trend was included in the cointegration test. It is important to note that the results are consistent when the specifications; no intercept or trend, intercept no trend, intercept and trend are used. The result showed that there are at most one cointegrating relationship with a 5 percent critical value. This is shown in table 8 with the probability values of both the Max Eigen value test and the Trace test being greater than 0.05.

4.5 Lag Selection

Based on Schwarz information criterion, the optimal lag selection used for the Vector Error Correction Model for this study was one lag, using the VAR lag order selection criteria.

4.5 Vector Error Correction Model

The Vector Error Correction Model (VECM) based on annual panel data for the period 1988 to 2015 is estimated for robustness. This is applied on an autoregressive model which in this study was a 5-dimensional vector: $X_{it} = (\ln GDP_{it}, \ln dc_{it}, I_{it}, R_{it}, \ln ge_{it})$, (GDP_{it}), an indicator of output growth, domestic credit (ln_{dc}_{it}), inflation(I_{it}), interest rates(R_{it}) and government expenditure (ln_{ge}_{it}). The vector error correction model requires that the variables are integrated at order 1 and cointegrated. The first difference and the ECM term should be stationary hence the error term is stationary.

$$\begin{aligned} D(LNGDP) = & C(1)*(LNGDP(-1) - 0.724480610154*LNDC(-1) + \\ & 1.19957074818*LNGE(-1) + 0.129619968454*INFLATION(-1) + \\ & 0.177538704704*INTERESTRATE(-1) + 0.278366627372) + C(2)*D(LNGDP(- \\ & 1)) + C(3)*D(LNGDP(-2)) + C(4)*D(LNDC(-1)) + C(5)*D(LNDC(-2)) + \\ & C(6)*D(LNGE(-1)) + C(7)*D(LNGE(-2)) + C(8)*D(INFLATION(-1)) + \\ & C(9)*D(INFLATION(-2)) + C(10)*D(INTERESTRATE(-1)) + \\ & C(11)*D(INTERESTRATE(-2)) + C(12) \end{aligned}$$

Short Run Dynamics

This equation shows the vector error correction model with the coefficient of the first difference sum showing the short run dynamics. Thus, in the short run, C (1) is the speed of adjustment of the model to equilibrium in the short run which is at a rate of 0.028.

Long Run Dynamics

The long run relationship between lngdp, ln_{dc}, ln_{ge}, inflation and interest rate for one cointegrating vector for the Kenya, Uganda and Tanzania in the period 1988-2015 is displayed below. This is the first part of the VECM resultant equation.

$$\begin{aligned} LNGDP (-1) = & -0.278366 + 0.7245*LNDC(-1) - 1.1996*LNGE(-1) - \\ & 0.1296*INFLATION(-1) - 0.1775*INTERESTRATE(-1) \end{aligned}$$

When only one cointegrating relationship exists and the variables are in terms of logarithms, the coefficients can be interpreted as long run elasticities (Solnik, 2000). Increase in levels of gross domestic product are related to increasing domestic credit, thus, the estimated model was able to produce an expected result that is consistent. A 1 percent increase in domestic credit is likely to increase GDP by 0.7245 percentage points and this estimate was significant. In the long run, increased government expenditure was found to not be favourable to GDP growth. For a 1 percent increase in government expenditure to the private sector by banks, gross domestic product is reduced by 1.1996 percent, this coefficient was significant at 5% level of significance. Consistent with economic theory, an increase in interest rates in an economy will reduce the borrowing levels of consumers and firms, and instead encourage them to save the money in banks to earn interest. Therefore, overall economic activity will decrease thus, consumption will decrease as well and less investment and therefore less economic growth in an economy. The results of the model are in line with this, as a 1 percentage point increase in interest rate decreases GDP by 17.75 percent. Inflation also has the correct sign, as a 1 percentage point increase in inflation means that real GDP decreases by 12.96 percent.

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.028095	0.018274	1.537489	0.1290
C(2)	0.415757	0.14699	2.828394	0.0062
C(3)	0.054134	0.137581	0.393471	0.6952
C(4)	0.110669	0.105287	1.051116	0.2970
C(5)	0.009595	0.051122	0.187697	0.8517
C(6)	-0.035136	0.122566	-0.286672	0.7753
C(7)	0.065569	0.122601	0.534812	0.5946
C(8)	0.000131	0.001948	0.067271	0.9466
C(9)	0.0000848	0.001058	0.080155	0.9364
C(10)	-0.001678	0.002833	-0.592286	0.5557

C(11)	-0.001821	0.001876	-0.970895	0.3351
C(12)	0.044403	0.019898	2.231593	0.0290

TABLE 9 VECM MODEL COEFFICIENTS

From the above results all the coefficients of the variables are statistically insignificant, except the coefficient for the first lag of lngdp, and the c intercept, C(12).

	LNGDP	LNDC	LNGE	INFLATION	INTERESTRATE
β estimates	1.000	0.7245	1.1996	0.1296	0.1775
A	0.0281	-0.0649 (-4.2920)	-0.0359 (2.2933)	-3.6546 (8.6857)	-5.0076 (9.3963)

TABLE 10 NORMALIZED CO-INTEGRATED EQUATION

From the results in table 11, the error correction term is statistically significant (from its t values in brackets) with the correct (negative) sign in the LNDC equation, adjusting by 6.49 percent of the previous year's deviation from equilibrium. This implies that, for the variables considered in this model, when the system is pushed out of the long run steady state, equilibrium is reinstated through adjustments in domestic credit.

4.7 Granger Causality Tests

The Granger Causality test shows that there is unidirectional causality between domestic credit and gross domestic product for the sample data of the three countries. The test null hypothesis that Indc does not Granger Cause lngdp is rejected and the test fails to reject that lngdp does not Granger cause Indc. The study therefore concluded that domestic credit helped in the prediction of economic growth (GDP).

Null Hypothesis	Observations	F-Statistic	Probability
Indc does not Granger Cause lngdp	54	2.35572	0.0300
lngdp does not Granger Cause Indc	54	0.91948	0.5344

TABLE 11 GRANGER CAUSALITY TESTS

CHAPTER FIVE: DISCUSSIONS AND CONCLUSION

5.1 Summary of findings

This study aimed at establishing the impact of private sector credit on economic growth in the East African Community. The study used balanced annual panel data from 1988 to 2015 for 3 EAC member states, particularly Kenya, Uganda and Tanzania. This was done by using 5 variables; real interest rates, inflation and government expenditure, gross domestic product and domestic credit by commercial banks. Findings using the Vector Error Correction model suggest that the level of domestic credit as a proportion of gross domestic product was one of the key variables that increase economic growth (GDP). Thus, for the three states to further increase economic growth in the respective countries, expansion of private sector credit has to be enhanced. This was consistent with past empirical literature by Osman (2014) who incorporated six variables which are gross domestic product, commercial bank's credit and control variables: commercial bank's deposits, government expenditure, inflation rate and open economy. The author's study discovered that there is a long-run relationship between commercial banks credit to the private sector and economic growth, not only in short-run, but also in the long-run.

However, variables such as interest rate, inflation and government expenditure cannot be ignored as they were significant using the VECM model, as an increase in all three variables decreases GDP growth in Kenya, Uganda and Tanzania. Mbulawa (2015) found that there was lack of evidence on the importance of domestic credit by banks, inflation, real interest rates and government debt on their contribution to expansion of private sector credit in the Southern African Development Community study. Which is the opposite of the situation in the East African Community according to this study.

Therefore, monetary policy initiatives of central banks like use of open market operation to control interest rate and inflation levels depending on their target,

should be undertaken as expansion of private sector credit is also done, to ensure success of such an economic move.

EAC member states should endeavour to contain inflationary pressures to avoid the reduction in the extension of financial resources to the private sector.

5.2 Recommendations for Policy

Based on the results of this study, it is recommended that the Central Banks of Kenya, Uganda and Tanzania should create policies to keep interest rates and inflation rates low. This is because in the sample period of this study, high interest rates and inflation were found to be detrimental to the allocation of domestic private sector credit and economic growth in the long run as shown in Chapter Four. This however should be done in moderation and after testing the feasibility of the policy unlike the interest rate cap policy in Kenya which contracted levels of credit available for the private sector rather than expand them.

The three countries can introduce policies that incentivise commercial banks to lend more to the private sector. This can be done through tax policies for example. The governments of these three countries can also avoid crowding out private sector investment by maintaining a sufficient balance between domestic and foreign borrowing for its expenditure.

5.3 Recommendations for further studies

This study leaves room for further studies exploring the same research topic, using additional variables such as; imports, exports and credit to the government. This is because regional integration involves a lot of trading amongst the member countries, thus imports and exports are expected to play a major role. Also, it would be interesting to expand the time period to 2016 to include the effect of the 2016 interest rate cap in Kenya on credit to the private sector.

Addition of Rwanda and Burundi, when data is made available would also give a comprehensive outlook on the EAC on the impact of private sector credit to the GDP of the 5-member states as a whole.

Further studies can also do a comparative analysis comparing the EAC region to other regional blocks in Africa, testing if the results are the same or there exists significant differences which can be attributed to differences; for example, in policies or use of different variables.

5.3 Conclusions

This study has confirmed the important role played by banks in providing credit to the private sector. Domestic credit to the private sector by banks has a significant impact on gross domestic product holding all other factors constant. Interest rate has a significant impact on gross domestic product. Government expenditure has a significant impact on gross domestic product.

5.4 Limitations of the study

The study was limited to the period 1988 to 2015 for lack of data, and also limited to Kenya, Uganda and Tanzania for the same reason.



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