

**EFFECT OF SECTORAL ALLOCATION OF COMMERCIAL BANKS'
CREDIT ON ECONOMIC GROWTH IN KENYA**

BY

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DECLARATION

I declare that this Research Paper is my original work and has not been submitted to any other university or institution of higher learning for examination purposes.

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DEDICATION

To all parties both individuals and organizations who in various capacities have enabled me to achieve this great mile in life To my mother, Joyce for her unwavering support in all spheres of my live including academics.

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I am much indebted to all parties both individuals and organizations who in various capacities have enabled me to achieve this great milestone in life. I take the chance to present my gratitude sincerely to them all.

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ABBREVIATIONS AND ACRONYMS

ADF	:	Augmented Dickey-Fuller
APR	:	Annual Percentage Rate
ARDL	:	Autoregressive Distributed Lag
ARMA	:	Autoregressive and/or moving average
CBK	:	Central Bank of Kenya
CBN	:	Central Bank of Nigeria
CBR	:	Central Bank Rate
CLRM	:	Classical Linear Regression Model
CRB	:	Credit Reference Bureau
DBM	:	Deposit Money Banks
ECM	:	Error Correction Model
EMU	:	Economic and Monetary Union
FGLS	:	Feasible Generalized Least Squares
GDP	:	Gross Domestic Product
GMM	:	Generalized Method of Moments
KBRR	:	Kenya Bankers Reference Rate
KCB	:	Kenya Commercial Bank
KEPSA	:	Kenya Private Sector Alliance
KNBS	:	Kenya National Bureau of Statistics
MFIs	:	Micro Finance Institutions
NBK	:	National Bank of Kenya
NPL	:	Non – Performing Loans
OLS	:	Ordinary Least Squares
PSC	:	Private Sector Credit
RESET	:	Regression Specification Error Test
RGDP	:	Real Gross Domestic Product
USA	:	United States of America
VAR	:	Vector Auto Regression
VECM	:	Vector Error Correction Model
VIF	:	Variance Inflation Factor

ABSTRACT

The Kenyan economic growth trend has been erratic over the past decades and has mostly been under 6% with negative growth rate of 0.8% recorded in 1992. On the other hand, private sector credit has been on a rising trend over the same period accounting for over 80% of total credit. The association between bank lending and economic growth remains unresolved due to conflicting study results; demand following, supply leading or neutrality hypotheses. There is also paucity of existing literature analyzing the impact on growth of a nation's economy by commercial banks' lending to private sector at sectoral level. The study explored the impact of sectoral credit to the building and construction, agriculture, manufacturing, trade and transport, storage and communication sectors on growth of the economy by employing the ARDL bound approach to identify and establish the relationship. Inflation, trade openness and skilled labor variables were adopted as the control variables in the study. The study utilized data that is time series ranging between 1970 and 2017 and analyzed the same using Stata 14. Diagnostic tests were conducted through Philips-Perron test, ARDL Bound test for cointegration, Jarque Bera test, Multicollinearity VIF test, Breusch-Godfrey test, Breusch- Pagan/Cook-Weisberg test and RESET test to ascertain that the CLRM conditions were not breached.

This study established that lending to the agricultural sector had a positive and significant impact on economic growth while credit to the manufacturing sector had a negative and significant long run impact on economic growth. However, lending to the trade and building and construction sectors was observed to have a positive and negative insignificant impact on economic growth respectively. Among all sectors, only commercial banks' lending to the building construction sector was found to have a significant positive impact on economic growth in the short run.

The study made recommendations centered on the findings; regulation and maintenance of the interest rates at affordable levels so as to enhance lending to the private sector. Inflation should also be monitored and controlled as it impacts negatively on economic growth. The government should protect domestic industries from illicit markets and production of counterfeit, provide infrastructure, create a conducive operating environment as well as provide funding to agriculture sector. The government should promote policies to increase exports of local products and minimize imports so as to enhance trade openness and maintain a favourable balance of payments. Policies to promote local trade should also be implemented.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Disparities in economic growth between countries have been discussed on the global arena and remain unresolved with possible explanations being based on varying levels of education, capital stock accumulation, international trade and economic stability. The analysis of the observable effect of development in finance to the growth of the economy as a contributory factor for the variances in growth rate across nations commenced with the finance led hypothesis highlighting the importance of development in financial terms to the growth of the economy (Werleman, 2016).

Presence of advanced financial systems in developed countries without exception evidently provides probable positive link between credit markets and economic growths (Ananzeh, 2016). The financial sector adds to long term economic growth through resource mobilization and credit expansion; facilitating increased investments and capital accumulation efficiently. Countries having effectual credit systems are observed to grow more rapid while inefficient credit systems are exposed to the peril of bank failure. Well-functioning credit systems assuage the constraints of external financing curbing the growth and expansion of industries. On this ground, it would be expected that policies targeting financial sector development would raise economic growth (Murty, Sailaja & Demissie, 2012).

The importance of credit extended by bank in promoting expansion of the economy is pronounced through various purposes for which the various economic agents opt to borrow; meet business operational expenses, farming, value addition of outputs and the purchase revenue generating assets among others. Bank Credit is also utilized to bail out collapsing businesses due to natural calamities such as floods, seismic quakes and draught (Affoi, & Yakubu, 2014). Access to credit enables enterprises to enhance their productive capacity and their potential to grow (Were, Nzomoi, & Rutto, 2012).

On a contra view, banks are also argued to possibly deter sustainable economic growth, through unproductive consumer loans that lead to inflationary pressure in the economy rather than

sustained economic growth. Credit allocation to large speculative investments has been observed to be a cause of global financial crises (Abou-Zeinab, 2013). Inefficient allocation of resources by banks was also highlighted as a probable cause for the establishment of a negative and insignificant link between bank credit and real GDP in Sudan (Sidiropoulos & Mohamed, 2014). Banks are also argued to deter economic growth by introducing ineptitudes on the account of high charges imposed on services that are financial (Sergeant, 2001).

The European Central Bank has maintained a low real interest rate for the last three decades in order to boost production activity in EMU countries through raised need for advances. Credit to the sectors that are private in the United Kingdom and USA was at a high of 177% and 184% of GDP in 2012 respectively. In many of the developed countries, private sector credit has been over 100% of GDP. The maintenance of low real interest rates and absence of credit regulation is expected to ensure the positive trend of credit growth. The use of credit for investments and consumption positively impacts on the economy but on the other hand, deregulation of the credit market and use of credit for improper reasons may harm the economy (Nilsson, 2014).

In the golden error of the sixties to the mid-eighties, the Arab countries experience high economic growth rates and economic stability majorly due to oil revenue among other factors. The appreciation of the role of the private sector towards achieving economic stability started in early 1990s with the liberalization of the banking sector after strict control and protection from foreign competition strained their effectiveness and led to distortions in the economy. There is weakness in private sector credit offered by firms that are financial in the Arab states which can be explained by the point that most industries in the region are small and lean towards the service sector limiting production processes and production (Khaled, Samer & Abu-Mhareb, 2006).

The Sub Saharan Africa financial market is deteriorating including a credit crunch in banking finance. The scarce bank financing is allocated to sectors with insignificant or no transformational effect including the extractive and middle-class consumer funding. Economic transforming sectors such as manufacturing, trade and agriculture are starved of funding essential for their growth. This trend reduces the chances for advancements that are structural that can

grow and expand the economy as well as contribute in employment creation. Suggestions in terms of policy call for directed lending to priority sectors (Tyson, 2016).

Kenya has embarked on spurring economic growth through the implementation of monetary policy strategies with an attempt to increase credit accessibility (Mulu, 2014). In the country's Vision 2030, the importance of a vibrant financial sector in engendering a double digit economic growth rate has been recognized as key in facilitating increased extension of credit to sectors that are private credit especially to highlighted sectors (Kenya National Bureau of Statistics, 2007).

Private sector credit in Kenya has been on a rising trend over time relative to public sector credit accounting for a percentage of total credit of 80 and 76.5 in the years 2008 and 2009. Firms in the restaurants and hotels, manufacturing industry as well as service, retail trade and wholesale, have been apportioned highest share of overall private sector advances respectively. The aftermath of 2007 general elections contributed to decline lending to the agricultural sector. Conversely, lending to the sector of communication and transport has been increasing mainly due to amplified infrastructure and construction accomplishments (Were et al., 2012).

Conversely, economic growth has much been under 6% growth rate in most years after the first decade following Independence and has been erratic over time. The highest growth rate was experienced in 1971 at 22% but followed by a slump in the following decades with minimal growth rates achieved in 1992 at -0.8%, 2000 at 0.6% and 0.23 in 2008 (World Bank, 2018). This raises the question whether the low economic performance of the country is associated with lending to sectors that do not spur economic growth.

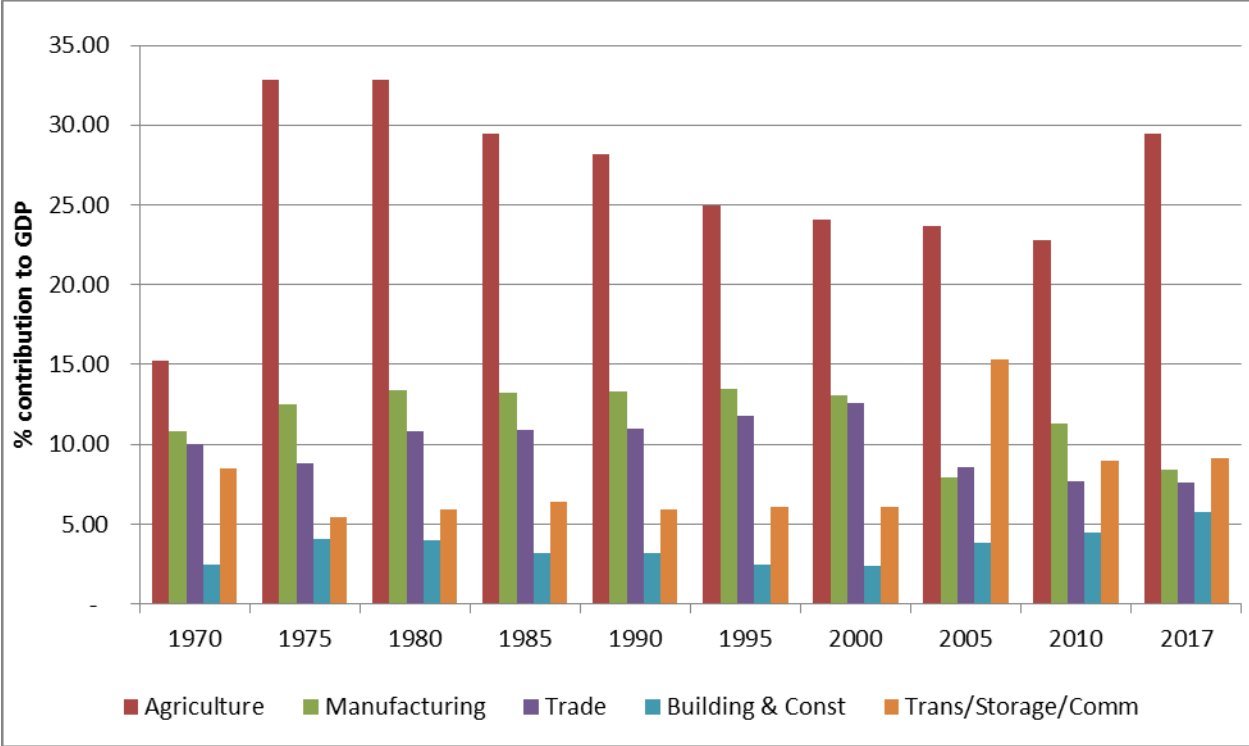
There has been growth of literatures examining the developments in the sector of finance and economic growth link of specific economies. Despite this, there is presence of paucity in studies empirically analyzing the stimulus of credit by banks on expansion of the economy or observed growth at level of sectors of any economy (Ananzeh, 2016). There is also a failure of the studies to explain disparities between countries and the adoption of broad money as a proxy distorts findings since not all money is used for investment. This, therefore, necessitates country-specific studies and also studies that assess the influence of credit by banks to the sectors that are private

on growing of the economy since bank credit to the public sector is applied to provision of social necessities such as health and education but not investments (Were et al., 2012).

1.1.1 Economic Performance and Sectoral Contribution to Growth

The Kenya economy registered an impressive growth rate soon after independence with an average of 6.6% between 1964-1972 due to public investments and promotion of the agricultural and manufacturing sectors. There was a slight decline in the following decade as the growth rate averaged at 5% due to inadequate rainfall, fiscal contractions by the government, high oil prices and poor industrial performance. The economy grew at a dismal 0.3% in 1993, the rate rose to 4% and 4.9% in 1994 and 1995 respectively. There was a second slump in the growth rate in 2002 as the economy grew at 1.1% due to low external capital inflows, low domestic credits and low agricultural output as well as political instabilities. With the election of the NARC government, the economic outlook started to recover as it grew at 5.1%, 5.7% and 6.1% in 2004, 2005, and 2006 respectively and a high of 7.1% in 2007. The effects of post-election violence in 2008 led to low productivity, displaced workforce and destruction of wealth leading to a growth of 1.7% in the same year. The economy improved amid unfair weather conditions and weak currency to register a growth of 5.3% in 2014 and 5.6%. This was due to growth in various economic sectors including Agriculture, Construction, Real Estate, Financial and Insurance sectors (KNBS, 1975, 1995, 2005, 2010, 2016).

The Kenya economy is divided into monetary, non-monetary, Government services and private households. The monetary sector in which the private sector operates forms the largest segment of the country's GDP contributing to 83% of GDP in 2000, and 84% between 2001 and 2003. The monetary economy consists of twelve major sub sectors categorizing the private sector activities undertaken with the five major contributors to monetary GDP being trade & restaurant & hotels, insurance & finance, agriculture, real estate, manufacturing & business, Transport & Storage and Communication (KEPSA, 2004). The contribution to GDP of the monetary sector by Agriculture was 14.82% and 32.1%, Building and Construction 2.52% and 5.0%, Manufacturing 10.96% and 9.1% , Wholesale and Retail trade 7.84% and 7.3% , and Transport, Storage and Communication sectors 8.60% and 8.7% in 1965 and 2016 respectively (KNBS, 1970,2018).



Source: Kenya National Bureau of Statistics (1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2017)

Figure 1: Sectoral Contribution of Private Sector Credit to GDP Growth.

1.1.2 Sectoral Allocation to Private Sector

The Kenyan Banking industry was pioneered by foreign owned banks and the launch of locally owned Banks was not until after independence when Co-operative Bank, NBK and KCB were established. Non-Bank Financial institutions sprouted up in the Kenyan economy in the 1980s alongside indigenously owned banks due to high returns recorded in the financial sector in the period (Mullei & Ng’elu, 1990).

The Banking Act (1985) was later established to govern the entry of financial institutions to the Kenyan financial sector after the collapse of many of those existing due to mismanagement (Lomuto, 2008). The sector has since grown and as at 2014, composition of the industry of banking is CBK, 42 banks that are Commercial, one firm that offers Mortgage Financing, 8 offices that represents bank that are foreign, 12 firms that are categorized as micro finance, 14 firms that offer money remittance, 3 CRB and 80 bureaus of foreign exchange (CBK, 2015).

The majority of Credit in the Kenyan economy is dispensed through the formal banking system. Financial liberalization that happened in Kenya in the late 1980s removed credit allocation controls enabling banks to lend to the private sector governed by their internal credit policies (Gatonye, 1995). This in hand with the elimination of control over credit allocation and interest rates enabled the Banks through their credit policies, and also guided by CBK laws to pursue profitability through preferential lending to high return and low-risk economic sectors.

The private sector in Kenya over time has received a significantly higher share of the total commercial bank credit dispensed relative to the public sector. Commercial banks' finance to the private sector in the Kenyan economy has been on an increasing trend over the years with a few drops experienced in some years (KNBS, 1970, 1980, 1990, 2000, 2010, 2017). Domestic credit to the private sector has increased over the years starting at 12% of GDP in 1964 to 33% in 2016 (World Bank, 2018).

On the sectoral allocation scene, the sector relating to agricultural, that is the backbone of country's economy, is not accorded the priority in Credit allocation (Kiptalam, 2013). Preference has been to the favor of service sectors; retail trade and wholesale, and the Manufacturing sectors. Allocation to the agricultural sector, manufacturing sector, trade sector, building and construction sector and transport, storage and communication sector over the decades averaged at 12.7%, 21.95%, 22.2%, 6.45% and 6.07% of total credit to private sector respectively. Lending to the agricultural sector has declined over time with increased funding allocated to service sectors from over 14% in the 1990s, over 12% between 2000 and 2005 and currently below 10% to date with an all-time low of 4.86% in the year 2016. Lending to building and construction sectors has been below 10% with financing to the Transport, Storage and communication exceeding this limit only after 2006 with a high of 12.29% in 2007 (KNBS, 1970, 1980, 1990, 2000, 2010, 2017).



Source: Kenya National Bureau of Statistics (1970, 1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2017)

Figure 2: Sectoral Allocation of Private Sector Credit and GDP Growth.

1.1.3 Credit to Private Sector Credit and Growth of the Economy

The bank credit and economic growth link has not been resolved and remains controversial among researchers. The role of banks in developed economies is argued to vary from the role they play in emerging economies. There are four main views that explain the relationship between development in terms of finance (where credit by bank is used as a proxy) and expansion of the economy; demand following, supply leading, mutual relation and no remarkable and considerable neutral relation (Zortuk & Celik, 2014).

The supply leading view also known as the finance led growth hypothesis, opines that financial sector mobilizes savings, efficiently allocates resources, allays information asymmetry in the market and lowers transaction costs of transaction, all leading to economic growth. The financial institutions are also viewed to increase capital accumulation (through lending to finance investments) and also engender yield of the factors of production which is critical to stimulate

economic growth (Onuonga, 2014). Bagehot (1873) in her work “Lombard Street” described a process through which finance sector interacts with situations in the real economy. Banks converted unclaimed deposits by economic agents to loanable funds to entrepreneurs which led to economic growth. The investments in the profitable industries led to the growth of other sectors related to them technologically. This spill over process was argued to flow to the overall economy growth (Stolbov, 2015). Assessment done by Were et al. (2012) evaluated sectoral allocation of private sector credit impact on sectoral GDP and the study results indicated that private sector credit do have a constructive influence on sectoral expansion in Kenya.

Hypothesis that is demand following alludes that growth in the economy precedes development of sector of finance. This assessment however lacks consensus and is under immense debate by researchers. Economic growth reduces the costs of accessing financial services resulting to uptake of financial services (Ogola, 2016). Development of the financial sector follows demand formed by economic advancement in a country. This implies that the aspects contributing to economic growth are not driven by financial sector (Onuonga, 2014). Odhiambo (2008) in his study to test the Finance led hypothesis on the Kenyan economy found that the link between credit that is sectoral and domestic and economic expansion is demand following.

The mutual relationship view, also known as the bi-directional hypothesis, implies that developments in terms of finance and expansion in the economy have a two way association where financial advancement results from economic progress and in turn stimulates economic growth (Ogola, 2016). Onuonga (2014) established the presence of a bi-directional relationship between developments in terms of finance measured by credit to sectors that are private and expansion of economy in Kenya.

Developments in terms of finance and growth in the economy also have been argued to be independent of each other under the neutrality hypothesis. Lucas (1988) poised that there is unnecessary over emphasis of the finance-growth relationship basing his theory on the assumptions of perfect information and zero transaction costs. Financial institutions in this environment will be inapt and industries undeterred by the source of finance (Balago, 2014).

1.2 Statement of the Problem

Kenya has been pursuing a satisfactory economic growth rate and as well as becoming a prosperous nation and globally competitive by the year 2030. This vision is pegged on a significant contributory role to growth of a well-functioning and developed financial sector to inject capital to the private sector (GoK, 2007). A review of achievements towards this front in the past and recent decades has been far from impressive. According to World Bank (2018), the economy growth rate grew at an average of 6.6 percent between 1964 and 1972 but slumped to a low of 0.3%, 1.1% and 1.7% in 1993, 2002 and 2008 respectively. Further, recovery has been sluggish in recent years as the growth rate averaged just above 5% standing at 5.85% in 2016. On the other front, credit extended to sector that is private as a ratio to GDP has been on a rising trend maintaining an incremental margin of over 100% across decades standing at 12%, 21%, 26%, 33% in 1961, 1978, 1999 and 2016 respectively (World Bank, 2018). Sectoral allocation of the private sector credit over the decades has also been on an increasing trend priority accorded to the manufacturing and service sectors and less to the agriculture sector (Were et al., 2012).

On the empirical front, in the Kenyan scene, the private sector credit and economic growth link remains unresolved as evidenced by conflicting study results; Waiyaki (2013) and Mulu (2014) established a negative relationship, Kiptalam (2013) and Ogola (2016) confirmed a supply leading relationship while Kagochi (2013) established a weak relationship implying private sector credit deters economic growth. Further, bulk of the previous studies (Waiyaki, 2013; Mulu, 2014; Kiptalam, 2013; Ogola, 2016) did not analyze the relationship at sectoral level but rather utilized aggregate private sector credit; including credit injected in to the economy for consumption and not invested. Estimating the influence of bank credit on growth of state's economy sectoral level in order to understand the response of each sector to funding and formulation of sector specific policies is crucial. Therefore, the study sought to bridge the study gap by analyzing the impact of credit extended to private sectors on growth of Kenya's economy. Further, the study analyzed the relationship applying ARDL methodology digressing from the panel estimation as used by Were et al. (2012) which is the only study that has analyzed the relationship at sectoral level in Kenya as per the author's knowledge. Evaluating and understanding the impact of credit extended to sector that are private on growth of a nation's economy at sectoral level enriches the knowledge base for formulation of strategies and policies that are target specific and achieve an optimum policy mix.

1.3 Objective of the Study

1.3.1 General Objective

The main objective of this study was to assess impact of sectoral allocation of bank credit to the private sector on the growth of the Kenyan economy.

1.3.2 Specific Objectives

- i. To assess the impact of allocation of credit by banks to the agricultural, manufacturing, transport, storage and communication, the building and construction and trade sectors on economic growth.
- ii. To suggest policy recommendations based on findings.

1.4 Research Hypotheses

The study addresses the following null hypothesis;

H₁ Bank lending to agriculture, manufacturing, transport, storage and communication, the building and construction and trade sectors have no significant impact on the performance of the Kenyan economy.

1.5 Significance of the Study

The vision by Kenyan state to being a universally growing and thriving nation is dependent upon success economically of sectors that are private including; manufacturing, agriculture, building and construction, trade etc. Inadequate capital has been flagged as a major constraint limiting growth of these sectors and provision of credit viewed as a plausible solution as the country seeks to advance its development agenda (Were et al., 2012). The study opted to add to the area of the impact of credit to sectors that are private in the Kenyan economy on overall growth rate of the economy.

This is a digression from the bulk of the existing studies that have assessed the impact of credit allocated to sectors that are private on economy's growth at aggregate. This allows a more comprehensive scrutiny of the relationship between credit granted to sectors in the private and growth rate of the economy.

The findings of the assessment are of great utilization in many aspects and by various stakeholders. First and foremost, the findings contribute to the scholarly discussions regarding the impact on economic growth through sectoral allocation of credit by banks that are commercial to the private sector. The study fills the knowledge gap created by existing literature that have analysed the relationship at finance aggregate rather than a sectoral level. The study also analysed the relationship applying an alternate advanced methodology than the panel regression method utilized by the only study that has examined the relationship at sectoral level. Future studies will use the study's findings for reference and advancement of the discussion.

The findings are of great significance to commercial banks' executives in the country by identifying the efficacy of credit injection in the economy at a sectoral level specifically than the efficacy of aggregate credit extended to the private sector. The banks will also be able to understand their significance in steering the nation's economy and plan their short term and long term liquidity preferences, risk ratings and lending to productive sectors.

The study is also be useful in designing and implementation of policy by the various policy makers in an effort to steer economic growth towards the desired targets as enshrined in the Vision 2030 with dependency on the end result of the intended assessment. The findings confirm the direction of association existing between credit to sectors that are classified private and economic growth at the level of sectors and identify which sectors drive growth. The decision therefore to maintain the existing policies or implement alternate strategies that are target specific, can therefore be made by the policy makers can be based on the findings.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter includes an assessment of literature both theoretical and empirical literature on the impact of credit by bank on growth in the economy. The first section is a review of works that are theoretical pertaining financial development and economic growth. The second part forms an analysis of the empirical literature on the nexus between bank lending to private sector and economic growth at the sectoral level. The chapter ends with an outline of the literature highlighting the research gap that motivates the study.

2.2 Theoretical Literature

This section will deal with theoretical framework supported by a number of authors' views.

2.2.1 The Wicksel Theory of Lending and Economic Growth

Knut Wicksell (1898) theory compares of the capital's marginal product with the cost incurred when borrowing money. Entrepreneurs were argued to borrow money to purchase capital; equipment and buildings, if the natural return rate on capital is greater than the interest rates. The quest for all classes pertaining resources would be increased and respective prices. The reverse would hold true whenever the interest rate supersedes the return rate that is natural on capital. According to Wicksell, pressure on the prices would continue even where new credit was advanced against increases in production and price stability would only be experienced when the two rates were equal.

Wicksell's theory of money, output and inflation is considered incomplete as it fails to present a mechanism for assessing the money rate charged as interest. Implementation of monetary policy based on interest rate that is natural is exposed to numerous uncertainties. Energy and financial shocks in the economy would result to the near term real rates of capital deviating largely from capital's long term rate of return. The natural rate is also not observable and would have to be determined through empirical models that are subject to many disagreements (Anderson, 2005). Keynes rejected the position of Wicksell theory that the natural interest rate was equal to the supply side and demand side of funds that are loanable as he viewed income production and

spending as causal while interest rate being an effect. Keynes posited every level of income has its own natural interest rates and levels of investment determines the level of employment (Pilkington, 2014).

The Wicksell theory applies to the study as it relates productivity to borrowing through the cost of money. When the interest rate is lower than the return rate that is natural on capital, lending increases to finance buying of capital goods and production is enhanced (Weise, 2006).

2.2.2 The Schumpeterian Theory

Schumpeters (1911) advanced the concept of innovativeness and entrepreneurial in his work the Theory relating to development of the Economy. Schumpeter's theory concludes that financial intermediation is crucial in the growth process by facilitating the transfer of financial resources from savers to borrowers thus funding investments which spur economic growth. The theory advocates that a system that is operating well would enhance growing of the economy by inducing technological innovation which occurs by identifying and funding selected entrepreneurs that are expected to launch their innovative processes and products into the economy. The advocating for the critical part of an innovative entrepreneur in instigating new combinations was a central contribution by Schumpeters to the theory of market economy. The functions of distribution, redistribution and addition of resources available within a stationary circular flow by government agents are argued not to achieve long term economic development in terms of social welfare. The activities of the genuine entrepreneurs carrying out new combinations of innovations lead to development of a country.

Schumpeter's theory applies to this study as it promotes the relevance of financial intermediation in steering economic growth through provision of credit which is the link that the study empirically analyses. However, the relevance of this theory to developing economies like Kenya has been disputed on various grounds. Firstly, the motivation to develop the economy is derived from the need to supply services, public goods by the state and 'demonstration effect' from developed economies. This is in contradiction with the theory's expectation of development being pioneered by individual entrepreneurs. Secondly, consumption is emphasized in developing economies as consumption needs of the bulk population are catered for, while on the

other hand, Schumpeter's vision was of a profit seeking entrepreneur with minimal levels of consumption and much savings. Thirdly, developing countries are observed to implement already established process methods therefore development is achieved through assimilation rather than innovation. Finally, the government's role in the model is underestimated as it rests on individual investors and banks operating in a highly competitive environment. Governments in developing countries play significant part in defining consumption/ savings through policy (Jhingan, 2014).

2.2.3 Neo Classical Model of Growth

Robert Solow (1956) was the proponent of this theory. The model illustrates how expansion in stock of capital, labor and advances in technology interrelate in the economy and their impact on total output of a country. The theory posits that a sustained growth in capital stock only contributes to increased growth range of output in the shorter run due to assumption of diminishing returns. This is attributed to the phenomena that, as additional units of capital stock are added in the economy, more units of capital are availed for use by each worker, but on the other hand, the capital's additional units' marginal productivity is expected to diminish progressively advancing situation of economy back to lane of long term expansion where real GDP and the work force grow at the same rate and a factor of 'productivity'. The path of growth state that is steady is realized when produce, labor and capital are expanding at an equal rate. At this path, production and capital per worker are constant.

The Neo Classical theorists criticized the Neo Keynesian growth theory on three major fronts. The Neo Keynesian theory regarded only one factor of production; capital accumulation and excluded other factors critically those associated with technological progress. The theory also could not allow for interchangeability of capital and labor as it originated on immutability of capital share in income. Lastly the theory disregarded the ability of market mechanism to automatically rebalance (Sharipov, 2015).

The theory's assumption that aggregate savings is a constant fraction of the aggregate income is also questioned as there is no clarity as to what is the ideal value of the savings rate that is desirable to any given economy. The theory also postulates that increasing capital accumulation

requires the current generation to save and invest more to add to the capital stock for the next generation thus increasing productivity and income. However, it gets to a point where the current generation invests just enough to replace the depleted stock and at this point, income per capita can grow only as rapidly as the technology at its disposal improves (Millin, 2003).

The theory assumes that nations with similar production technologies, resource stock as well as savings and populations growth rates should converge to similar steady- state levels. This implies that poor economies are predicted to grow faster than developed economies by the Neo classical growth theory as they are poised to be further away from their steady state. Disparity across economies that are on the same steady state is argued to be due to their varying levels of initial capital. The movement to the steady state is referred to as absolute convergence. The convergence process is not explained in the theory and further, it has been suggested not to exist based on empirical research findings which largely refutes the theory (Cole & Neumayer, 2003).

The exogenous feature of the theory also delimits the ability to study the actual factors determining technical advance since technological factors are included in the theory's residue and are thus treated as exogenous. They are assumed as to be disregarded during decision making by economic agents. The theory also does not offer an explanation for the large disparities in residues across nations having the similar technology (Millin, 2003). The Neo Classical model assume diminishing returns to factor accumulation which is termed as a growth destroying force overtime therefore makes the model void for modeling long-run growth for economies (Mare, 2004).

2.2.4 Theory of Endogenous Growth

This theory of New growth was formulated as a reaction to the Neo Classical theory. The theory was championed by Robert Lucas (1988) together with Paul Romer (1986). It was based on the critic on the assumption of the Neo Classical theory regarding external factors determining economic growth and poised that economic expansion is as a component emanating from factors that are endogenous and not factors outside to the economy. Investments in human capital, innovation and knowledge are argued to have a significant impact on economic advancement. This theory also fronts that in the longer period economic rate of growing relies on measures of

policy and is as a result of undertakings crafting new technological knowledge. Technological progress is not the sole determinant of growth of the economy in longer time in the theory of endogenous growth as postulated by the neo classical theories. Other factors include; human capital quality which is dependent on investments in development of resources that is human, protection or property that is intellect, state backing of development in technology and science and the prime state's responsibility in creating conducive environment for investments and attracting new technologies.

The Endogenous Growth theory is able to explain the failure of the convergence process that arose from the Neo classical theory through the spillover effects of human capital and knowledge proposed, human capital being the skills and knowledge accumulated and embodied in the labor force. Higher levels of production are achieved by a highly skilled labor force which makes human capital an essential factor input and its addition to the Solow model improves the model itself (Liu, 2007).

Modeling of increasing returns is one of most significant achievements of Endogenous growth theories and the success in generating useful modeling methods for general equilibrium resulted to much appeal for the endogenous theories. However, modeling increasing returns has a setback in that it can lead to explosive growth which is unrealistic and contradicts competitive equilibrium (Mare, 2004).

Pagano (1993) reviewed the endogenous growth models and also criticized the Neo Classical models pointing out that they lacked analytical foundations and the fact that financial intermediation being ascribed to exogenous technical progress. Pagano developed the famous "AK" model illustrating the various conduits through which advances in the sector of finance affects growth of the economy; $Y_t = AK_t$. The model assumes that the economy engages in production of a single commodity Y utilizing capital (K) as the only factor input with A being its productivity. The model also assumes the absence of government in the economy therefore Investments (I) equal Savings (S). Capital is dependent on the rate of savings where only a fraction of the savings i is invested and depreciates at a rate of d . A steady growth equation is then derived as; $g = Ai S - d$. From the equation, financial development is argued to impact growth

through capital productivity or financial system efficiency. Advances in financial sector are poised to affect growth in the economy positively but exceptions are noted such as enhancements in transfer of risk and in the household market pertaining credit that may reduce the savings rate and consequently expansion rate. Development in Financial is also argued to be a generic term and thus the necessity to specify the particular financial market when assessing the impact on growing the economy.

This study applied Endogenous Growth theory due to its strengths that overcome the challenges faced by the Wicksell, Schumpeterian and Neoclassical theory. The Wicksell theory majorly explains the interactions of the interest rate of money at which banks lend and the real interest rate of money also known as the natural return rate to capital and the effects on price commodities in the economy and not economic growth as it is a monetarist theory. The Schumpeterian has been immensely viewed as inapplicable for developing economies such as Kenya.

The endogenous growth theory supersedes the neo classical theory by resolving the issue of diminishing returns that void the latter from modeling long-run economic growth through the introduction of technological transfers. The endogenous theory models are also more complete models since they include factors excluded by the neo classical theories such as human capital, social capital, intellectual capital, public infrastructure (Arestis & Sawyer, 2018). Romer (1994) postulates that the endogenous theoretical work is not based on exogenous technological change to explain per capita growth or measure a growth accounting residual growing differently across nations, but rather attempt to examine the private and public choices resulting to the residue's rate of growth varying across countries. The AK model formulated by Pagano (1993) also provides an analytical foundation for empirical evaluation of the interaction between developments in sector of finance and growth of a nation's economy.

2.3 Empirical Literature

2.3.1 Sectoral Allocation and Economic Growth

Ananzeh (2016) assessment was on influence of credit extended by banks on the economic performance in Jordan at different sectors. The study used data for the period 1993 to 2014 using

VECM and method of Granger causality. Study findings indicated presence of an association between the Jordan's RGDP and the variables that are explanatory which constituted credit by banks; credit by bank extended to agriculture, credit by bank to industry sector, construction as well as to sector classified as tourism sector. Granger causality tests indicated the relationship stemming from growth in the economy to CFA and CFC. In the short term, 1% increment in TBC and CFI resulted to a 0.1035% and 0.0812% increments in RGDP in respective manner. In general, efficiency in bank credit facilities to major economic sectors was found to have a role that is of significance in the Jordanian growth of the economy. The study however did not include the transport and communication sector which are very relevant for analysis in Kenya due to the great extent of advancements and capital inflows.

Balago (2014) assessed the linkage between credit by banks and Nigerian economic growth focusing on bank credit to production sectors (CPS) comprising, agriculture manufacturing, forestry & fishery, quarrying & mining, construction & real estate, general commerce industry (CGCS) as well as industry that offer services. Johansen Multivariate Cointegration test was applied to data for the study period 1983-2012. Models relating to OLS and VEC were applied to assess the association between the interest variables. OLS results indicated that in totality, credit by banks allocated to production, sector of commerce that is general as well as sectors that offer services has an association that is positive with GDP while VEC results indicated causality from bank credit to gross domestic product.

Oladapo and Adefemi (2015) investigated the efficacy of sectoral allocation of advances and loans by banks that are deposit money on growth of Nigerian economy under regulation that is intensive, regimes of deregulation as well as deregulation that is guided for the period 1960-2012. The study applied regression analysis of Ordinary Least Squares OLS method to analyze the impact of lending to the production, general commerce, services and 'other' sectors and concluded that credit allocated to production, services and other sectors had a significant positive contribution to economic growth during intensive regulation and deregulation while advances to the commercial sector had an impact that is negative on growth. Credit to production and other sectors sustained a progressive relationship with growth while credit to the commercial and services sectors had a negative impact on growth under guided relationship. The studies

confirmed the supply leading hypothesis applied in Nigeria which is a developing country as Kenya but noting the economic sectors were however aggregated into three categories; production, general commerce and service sectors. This prompts the need to conduct an analysis for assessing the impact of credit by bank on disintegrated individual sectors.

Makinde (2016) inquired on efficacy of commercial banks' loans on Nigerian expansion of economy for the years between 1986-2014 using secondary data. Gross GDP was adopted as the variable that is dependent and regressed against variables that are explanatory; commercial bank loans to quarrying & mining, construction & building, agriculture, and manufacturing. The study model was estimated using OLS multiple regression techniques and results derived implied that there was no resultant impact of lending to various sectors except for agriculture on economic growth. Ebi et al. (2014) studied the impact of credit by banks that are commercial on the production in industrial subsectors; manufacturing, mining and quarry and real estate and construction sectors and the aggregate Nigerian industrial sector. This study applied ECM method to estimate study model developed using data collected on the sub sectors covering the period 1972-2011. The regression results disclosed that credit by banks had a significantly positive influence on sector of manufacturing and the current mining and quarry sectors output. Previous year bank credit to real estate and construction sector was found to be a positive determinant of the sector's current year output. Bank credit to all the three sub sectors was found to positively correlate with aggregate industrial output with bank credit to the real estate and construction sector being seen to posit a higher positively and significantly impacting relationship with aggregated industrial output.

An analysis of the relationship between distribution into sectors of credit by banks that are Deposit Money and Nigerian growth of the economy using data covering the period 1985-2014, IHEMEJE and CHINEDU (2016) established a positive link between credit to the agricultural and manufacturing sectors on real GDP. On the contrary, lending to commerce and trade was found to have an inverse impact on Real GDP. The study adopted OLS and technique of ECM. The study recommended for the relevant authorities that influence DMB credits to even the distribution and efficient apportionment of credit to the various sectors. These studies however only analyzed the impact of credit by banks to the production sectors and left out the service

sectors. The proposed study will include the service sectors; transport and communication, in its analysis.

Nwaeze, Egwu, Chukwudinma and Nwabeke (2014) evaluated the influence of advances and loans by banks that are commercial to sectors relating to manufacturing as well as agriculture on the growth of economy in Nigerian context. The study covered the period 1994-2013 and adopted OLS technique using multiple regression models to estimate the study hypotheses. Real GDP was adopted as proxy for the real sector growth and as the variable that is dependent and advances and loans by banks that are commercial to sectors relating to manufacturing as well as agriculture as the variables that are explanatory. The results obtained showed that a 1 % increase in advances and loans by banks that are commercial to sectors relating to manufacturing as well as agriculture led to 0.9888 % drop in Real GDP and increase of 0.4097% in Real GDP respectively. In a similar study, Toby and Peterside (2014) assessed the banks' part in funding the sectors relating to manufacturing and agricultural in context of Nigeria by adopting data that is time series annually for time ranging from 1981 to 2010. The study applied OLS on panel data to examine the relationship and established a significantly less strong inverse association between lending by banks that are commercial to sectors in agriculture and its contribution to GDP but an association that is significant and positive between merchant bank lending to agricultural sector and contribution of this sector to GDP. Lending by merchant banks and commercial banks to manufacturing sector was found to enhance its addition to GDP and result to minimal addition by the sector to GDP respectively.

Tokunbo (2017) analyzed the influence of bank's funding on development of manufacturing and agricultural industry in Nigeria employing data that is time series for a time ranging 1984-2014. Study data was analyzed using Vector Auto-regressive models and various tests conducted; unit root test, Co-integration, Causality and VECM to establish the association between study model variables. This study results indicated a positive as well as significant association between credit by banks and the sectors' output expansion. The studies however concentrated on only two sectors; manufacturing and agriculture. Furthermore, the studies by Tokunbo (2017) and Toby and Peterside (2014) analyzed the impact of credit to sectors that are private to the two sectors on the sectoral GDP rather than the economy's overall RGDP.

Ogar, Nkamare and Effiong (2014) assessed contributions of credit by banks that are commercial to the manufacturing sector on expansion of output of the sector in Nigeria. This study analyzed data collected for the period 1992-2011 using OLS technique and the regression results confirmed that there was a positive impact on manufacturing output preceded by a percentage change in credit by banks that are commercial to the sector. Bitew (2015) analyzed impact of credit financing by bank to manufacture sector and the sector's performance in Ethiopia using annual data covering the period 1974/75-2013/14. ECM was utilized to analyze data statistically and findings showed a significant positive and insignificant negative impact of trade credit financing to manufacturing in the long and short run respectively. These studies did not consider other sectorial levels that are production such as agricultural, commerce and service. The analysis of the impact was also limited to manufacturing sector's output and not the economic RGDP.

Udoka, Mbat and Duke (2016) investigated impact of credit by banks that are commercial on production in agricultural industry in Nigeria. This study employed OLS technique in analyzing data collected for the period 1970-2014 and the results disclosed an association that is positive and significant between credit by banks that are commercial to the agriculture sector and agricultural output implying that a rise in bank lending to agriculture sector increased the sector's output in Nigeria thus boosting the overall economic growth by inference. In a similar study, Obilor (2013) analyzed the influence of credit by banks that are commercial to agriculture on Nigerian agricultural development by employing data for the period 1978-2007. The data was analyzed using Autoregressive and/or moving average (ARMA) estimation method and the results indicated that commercial banks' credit reveals a positive but insignificant impact on agriculture in Nigeria. Ayeonmi and Aladejana (2016) employed time series data collected for the time between 1986-2014 to establish correlation between agricultural advances and loans and Nigerian growth of the economy. The findings obtained through approach of ARDL approach showed there exists an association in the Short and Long run between credit to agriculture and economic expansion. Advances to the agricultural sector revealed an impact that is positive and economic expansion.

While examining the influence of loans by bank to output by agricultural activities in South Africa, Chisasa (2014) employed data that is time series for time ranging between 1970-2011 which was analyzed using ECM. The study established that advances by bank and output in agriculture revealed cointegration. In the short run, credit by bank was found to impede agricultural output therefore by extension economic growth. This result reflected uncertainties in the institutional credit in South Africa. Tests of granger causation indicated a causality that is unidirectional that flowed from advances by bank to output production by agriculture. The studies' scope of analysis was limited to the sector classified as agricultural only and influence of credit on economic growth was assessed using sectoral output but not economic RGDP.

Imoughele, Ehikioya, Ismaila and Mohammed (2013) evaluated the influence of credit availability by banks that are commercial on Nigerian performance of sectoral output using data for the time ranging from 1986-2012. The study employed OLS technique to estimate the parsimonious models for developed for sectors namely manufacturing, agriculture, and service. This inquiry results revealed the presence of a long run relationship between bank credit supplies with output performance of various sectors namely manufacturing, agriculture, and service. The results also revealed a direct though insignificant impact of commercial bank credit on sectoral output performance but aggregated supply of advances and need in the prior period was found to have an outright and impact that was significant on expansion of sectors namely manufacturing, agriculture, and service output.

Were et al. (2012) investigated the impact of accessibility to loans from bank on the output of pertinent sectors of the economy applying Kenyan economic data that is panel and sectoral collected for the period 1998-2010. The study used three models; credit accessed was used as the only variable that was explanatory in model one, the authors controlled for labour (employment levels) in the various sectors in model 2 and interest rate was added in model 3. For results validity, the study estimated a generalized least squares specification addressing cross heteroskedasticity that is sectional and correlation existing amidst variables. Study results indicated that availability of credit has an impact that is positive as well seen significant on GDP that is sectoral. The studies assessed the impact of advances by bank on sectoral output but not economic RGDP growth.

2.3.2 Summary of Literature Review

There is a general consensus in the theoretical models that capital inflow is crucial for the growth of an economy amid the varying explanations on how expansion is attainable. Financial sector's provision of debt to facilitate the capital accumulation is therefore of significance relevance especially to a country like Kenya where its vision is pegged on performance of the industry and its expected positive impact on expansion of the economy.

From the empirical literature reviewed, the absence of a common agreed stance on the impact of bank credit allocation to the various economic sectors is evident. The reviewed empirical studies have applied different methodologies for analysis and the conclusions vary. Secondly most studies have aggregated the private sectors into production, commerce and service sectors rather than examining the impact of credit on individual sectors. Thirdly, researchers have limited the scope of their studies to cover only the production sectors or included only two or one sector in their analysis. Further, bulk of the studies has been observed to evaluate the impact of credit on economic growth by using sectoral output as the dependent variable rather than the economic RGDP. There is a glaring paucity of studies examining this relationship in Kenya as only one study has been reviewed. These are the knowledge gaps this study intended to fill by including disintegrated sectors that cut across production, commerce and service and examine the relationship on bank credit to the sectors on economic RGDP. The study also sought to add to the single study reviewed on Kenya and extend the cover period to provide a long term relationship and also apply an alternative technique of analysis.

CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction

This section comprises of the conceptual theoretical model, empirical model specification, definition of variables and their measurement and the data source and type.

3.2 Theoretical Framework

The current study adopted the model of growth that is endogenous as postulated by Pagano (1993) following the steps of Waiyaki (2013) and Bakang (2015) since the proponents of endogenous theory posit that capital accumulation can increase the long run trend of economic growth and this accumulation is reliant on increasing the savings rate. Effective financial systems engender economic growth by spurring investments and technological innovations through savings (Bakang, 2015). The endogenous theory provides a framework where outcome equals the product of labour and capital and growth is argued to originate from endogenous factors within the economy.

The AK model will be used to illustrate the potential efficacy of sectoral allocation of advances by bank on growth experienced in the economy and as indicated output that is aggregated is a function of capital that is aggregated in a function that is linear.

$$Y_t = AK_t \dots \dots \dots (3.1)$$

Where Y_t is the output in total measured at time (t), A is the production factor and K_t is the capitalization in total measured at time (t).

There is an assumption that population is stationary, there is single product in the economy and it can only be utilized for investing or consuming. If used for investing, we consider the rate of impairment δ in illustrating investments in gross terms;

$$I_t = K_{t+1} - (1 - \delta)K_t \dots \dots \dots (3.2)$$

Where I_t is the period t investment, K_{t+1} and K_t is the capitalisation in period $t+1$ as well as t in their respective manner and δ is impairment rate.

Where we have zero interventions by government and an economy that is closed and two sector, market intersections requires that savings equal investments. Pagano (1993) assumes that a proportion of the resources $1-\theta$ are absorbed during the financial intermediation process and thus the proportion θ of total savings is accorded to investments. The savings- investments relationship can therefore be illustrated as;

$$\theta S_t = I_t \dots\dots\dots (3.3)$$

We can now use equation (3.1) to introduce rate at which economy grows at period t+1 which is

$$g_{t+1} = Y_{t+1}/Y_{t-1} = K_{t+1}/K_{t-1} \dots\dots\dots (3.4)$$

Making use of equation number (3.2) and expunging the index of periods, the rate of growth in a state that is steady growth rate of output can now be illustrated as;

$$g_y = A I/Y - \delta = A \theta S - \delta \dots\dots\dots (3.5)$$

From equation (3.5) economic growth is dependent on productivity factor in total A, intermediation of financial systems efficiency index θ and the savings rate S. According to Liu (2011), financial institutions (in this case commercial banks) can enhance expansion of economy by raising the weight in savings converting to investments. Improving the efficiency of the financial system lowers $1-\theta$ and enhances g. Following Bakang, (2015) in assuming that depreciation is constant and substituting variables; economic growth is dependent on Private sector credit and Y_t can be expressed as;

$$Y_t = \beta_0 + \beta_1 S_t/Y_{it} + \varepsilon \dots\dots\dots (3.6)$$

Where Y_t is natural log of Kenyan GDP in real measure and S_t/Y_{it} natural log of savings to nominal GDP that proxies private sector credit (S_t/Y_{it} = PSC), β_0 is the intercept, β_1 is the coefficient that gives the impacts of PSC on economic growth, while ε is term of error that is constant. The generic model is equated as below;

$$\log g_t = \beta_0 + \beta_1 \log PSC_t + \beta_2 \log C_t + \varepsilon_t \dots\dots\dots (3.7)$$

Where C_t are the model's control variables.

In the above equation (7) PSC will be estimated using sectoral allocations of PSC advanced to various sectors; agriculture, manufacturing, trade, building & construction and transport, storage and communication sector.

3.3 Model Specification

The assessment embraced the model alluded by Onuorah and Anayochukwu, (2013) together with Auranzeb (2012) with substitution of variables to determine the relationship;

$$RGDP = f(PCA, PCM, PCT, PCB, PCS, L, T, I)$$

Upon linearization and parameterization which involves logging the variables the model was specified as;

$$\ln RGDP = \beta_0 + \beta_1 \ln PCA_t + \beta_2 \ln PCM_t + \beta_3 \ln PCT_t + \beta_4 \ln PCB_t + \beta_5 \ln PCS_t + \beta_6 \ln L_t + \beta_7 \ln T_t + \beta_8 \ln I_t + \epsilon_t$$

Where:

RGDP= Economic growth rate

PCA= sectoral lending to Agriculture sector

PCM= Sectoral lending to Manufacturing sector

PCT= Sectoral lending to Trade sector

PCB= Sectoral lending to Building Construction sector

PCS= Sectoral lending to Transport, Storage and Communications sector

L= Skilled labor

T= Trade Openness (Imports plus Exports to GDP)

I= Inflation

β_0 - co-efficient of the constant variable and $\beta_1 - \beta_8$ coefficients of regression

t= time 1970-2017

ϵ_t = Error term

f = functional relationship

ARDL developed Pesaran et al. (2001) approach of testing of bounds was used in this study.

Choosing of the technique was informed by advantages over other methods of cointegration.

Approach of ARDL is utilized irrespective of the characteristics of stationarity pertaining variables that are series whether purely I(0) Or I(1) hence testing unit root are only conducted to check variables stationary beyond I(1). This means that the problem of non-stationarity is addressed which is associated in time series data. Modeling the approach with the recommended lags number also addresses challenges of autocorrelation and endogeneity. These advantages have led to its wide application in numerous studies recently (Kiprop, Kalio, Kibet & Kiprop, S., 2015). Application of the ARDL method techniques derives estimates that are not biased of the model in the long period (Belloumi, 2014). The method is also simple to apply and also allows the associations of cointegration to be regressed by OLS upon identification of the order of lagging the model. Cointegration also considers both long run and short run effects.

3.4 Variables Operationalization and Definition

In the study, the following measures of the model were defined, measured and their respective expected signs predicted as highlighted in the below table;

Table 3.1: Variables Operationalization and Definition

Variables	Measurement	Expected Sign	Literature Source
Dependent			
Economic Growth	Annual percentage Growth rate of RGDP		Were et al. (2012), Balago (2014), Ananzeh (2016), Ihemeje and Chinedu (2016)
Independents			
PCA	Percentage of total Private sector credit advanced to the agriculture sector	+	Were et al. (2012), Balago (2014), Ananzeh (2016), Ihemeje and Chinedu (2016)
PCM	Percentage of total Private sector credit advanced to the Manufacturing sector	+	Were et al. (2012), Balago (2014), Ananzeh (2016), Ihemeje and Chinedu (2016), Bitew (2015)
PCT	Percentage of total Private sector credit advanced to the Trade sector	+	Were et al. (2012)
PCB	Percentage of total Private sector credit advanced to the Building and Construction sector	+	Were et al. (2012), Makinde (2016), Ebi et al. (2014), Ananzeh (2016)
PCS	Percentage of total Private sector credit advanced to the Transport, Storage & Communication sector	+	Were et al. (2012)
L	Percentage of skilled labor- Percentage of secondary and post-secondary enrollment to total population	+	Were et al. (2012), Bongini, Drozdowka, Smaga and Witkowski, (2016), Abdulahi and Manini, (2017)
T	Exports + imports to GDP	+	Bongini et al. (2016), Waiyaki (2013)
I	Inflation Rate (Annual percentage rate)	-	Mushendami (2007), Mutinda (2014)

3.5 Data Sources and Type

The study period was 1970 to 2017 which offered a study sample of 47 years. Time series data was collected for the dependent variable, GDP in real terms, and the explanatory variables; private sectoral credit to the communication and storage, construction and building, agriculture, trade, manufacturing and also the control variables; Trade Openness, skilled labor and inflation. The type of data collected was secondary data as published in the Kenya National Bureau of Statistics, (1975,1980,1985,1990,1995,2000,2005,2010,2015,2018) and World Bank, (2018). Secondary data was readily available for the study period covered and the sources are reliable.

3.6 Diagnostic Tests

In this section, the study considers the statistical tools applied on analyzing the data collected and the applied quantitative techniques. All the estimators were assessed to evaluate if they met the assumptions Classical Linear Regression Model (CLRM) and termed as blue; best linear unbiased estimators. The study data was assessed to determine whether the Gaus- Markov assumptions were not violated which are; linearity of parameters, the error term mean is zero, no perfect collinearity, Homoscedacisty (error term variance being constant across all observations), nonexistence of serial correlation (covariance between error terms is nil) and Exogeneity (error term and explanatory variables are not correlated).

3.6.1 Unit Root Test

To proceed with regression, the variables of bank credit to the selected sectors and economic growth have to be stationary at level indicating long run equilibrium. Stationarity denotes that the mean, variance and covariance of the variables are time invariant. A variable is termed as stationary if it lacks a unit root or is zero order integration $I(0)$ (Bakang, 2015). The PP test was deployed for testing stationarity which is a unit root test for robustness of results obtained. The choice of the method was guided by its successful wide application across many studies. Non-stationary variables were differenced in order to attain stationarity and the model estimated using the differenced variables. The major concern with regression on non-stationary data is that it will result to spurious relationships. The Philips-Perron test provides more powerful results than the ADF test when applied to residual based cointegration determination (Obamuyi, Edun & Kayode, 2011).

3.6.2 Cointegration Test

Cointegration assessment was conducted to test the proof of long run association among part or all regressors which can be assessed. Application of approach Bound Test to cointegration as popularized by Pesaran et al. (2001) was adopted in this study to ascertain the presence of a linkage that is long run amongst regressors. The test involved comparison of the F-statistic and the upper critical value to determine the rejection of the null hypothesis of no cointegration or hypothesis of cointegration. Existence of cointegration submits that the long-run and short-run coefficients of the model can then be estimated.

3.6.3 Optimal Lag Order Selection

Prior to estimating the study model, it is critical to establish lag length that is appropriate. The lag length choice methods include; Hannan-Quinn Information Criterion (HQIC), Schwarz' Bayesian Information Criterion (SBIC), Akaike Information Criterion (AIC) and the Final Prediction Error (FPE). The study relied on the Hannan-Quinn Information Criteria (HQIC) and Schwarz' Bayesian Information Criteria (SBIC) selection criteria as they are argued to be powerful and consistent (Paavo, 2017).

3.6.4 Jarque-Bera (JB) Normality Test

Normality check was done on the variables to examine whether the data satisfies the regression model characteristics. Jarque-Bera (JB) Normality test was utilized in assessing the characteristics of normality of data. The test is deemed standard and can be undertaken post or pre-estimation of the model. The method is also more conclusive than the approach of graphical inspection (Koori, 2015). The null hypothesis H_0 (the residuals are not significantly different from a normal distribution) is rejected in favor for the alternate H_1 that the residual of the distribution of the model is not normally distributed when probability of the statistic by JB is found less than value that is critical of 0.05 significance level. For a variable to be normally distributed, the JB statistic should be equal to zero (Ongore & Kusa, 2013).

3.6.5 Multicollinearity

Multicollinearity stems from high correlations between two or more predictor variables. Where perfect multicollinearity is not accounted for, it may lead to less accurate estimation results in the

analysis. The regressed coefficients may obtain very high standard errors, incorrect signs or improbable large values. In addition, it results to indeterminate regression coefficients and inestimable errors that are standard affecting the accuracy and being precise in declining or hesitation in declining hypothesis that is null. Main issue is not the absence of multicollinearity rather its magnitude (Koori, 2015). The study applied the variance inflation factor (VIF) on the respective independent variables to test for multicollinearity. Multicollinearity presence is detected if the VIF values are greater than 10 or the critical value $1/VIF$ is below 0.1 implying that more than 90% of variances in regressors are explained by other variables (Awole, 2016). Such variables should be excluded from the analyses.

3.6.6 Autocorrelation

The OLS method assumes the absence of autocorrelation meaning that the errors in subsequent periods are not correlated. The problem of serial correlation however may arise in this study as it utilizes time series data. Failure to account for serial correlation would lead to standard errors that are biased and parameter estimates that are inefficient (Koori, 2015). The study employed LM test of serial correlation by Breusch-Godfrey in assessment of presence or absence of correlation. Null hypothesis implies absence of autocorrelation and hypothesis that is alternative infers among the terms of error that there is incidence of autocorrelation (Paavo, 2017). Presence of auto correlation will necessitate the use of generalized least squares estimation.

3.6.7 Heteroscedasticity

The OLS method assumes non-existence of heteroscedasticity implying variances of the unobservable term of error has zero mean across each and every observation. Heteroscedasticity invalidates the standard errors, t statistics and F statistics thus impacting on the statistical significance concluded from the OLS analysis (Auranzeb, 2012). Heteroscedasticity is inherent in time series data which the study applied therefore there was great need to test for its presence. There are various causes of heteroscedasticity including presence of outliers, data collection methods and averaging of data. The test of Breusch- Pagan/ Cook-Weisberg test was deployed to infer hypothesis that is null, variance of error seems homoscedastic. The choice for this procedure is informed by its wide application in the existing plethora of empirical studies. Presence of Heteroscedasticity will necessitate running FGLS model (Koori, 2015).

3.6.8 Ramsey RESET Test

The test of RESET by Ramsey was deployed to test for goodness of fit of the model so as to ascertain its authenticity affirming that it is not misleading and yielding inconsistent estimates as well as spurious results (Okpara, Onoh, Ogbonna, Iheanacho & Kelechi, 2018). The RESET (Regression Specification Error Test) is applied to assess specification errors including omitted variables, improper functional form and correlation between independent variables and error terms. Presence of the errors renders the estimates obtained through regression as biased and inconsistent (Mbote, 2013). The test was based on the null hypothesis of existence of variables that are omitted against alternate hypothesis of no variables were left out in regression equation (Mbugua, 2015). The Hypothesis that is null is declined if probability of F-test is minimal as compared to level of significance chosen. On other hand, Hypothesis that is null is not declined if probability is higher (Mbote, 2013).

3.7 Post Estimation Diagnostics

Classical assumption dictates that a model should have a normal distribution, constant variation and a mean of zero for the estimates to be considered as best, linear and unbiased (Paavo, 2017). The robustness of the specified model along with the long run and short run coefficient estimates was assessed using the cumulative sum (CUSUM) stability method and will be confirmed when the test lines fall within the 5% level critical boundaries.

CHAPTER FOUR: RESULTS AND DISCUSSION

4.1 Introduction

This chapter outlines the empirical findings, interpretation of the results and the discussion of the results. The objective of the study was to assess the impact of commercial banks' lending to the agriculture, manufacturing, trade, building and construction and transport, storage and communication sectors, on economic growth in Kenya. The chapter also discusses the operationalization of the study variables; descriptive statistics of the data collected for the respective variables, correlation and regression findings and concludes with elucidation of the results.

4.2 Descriptive Statistics

The variables in entirety are positively skewed except private sector credit to agriculture, credit to manufacturing and credit to trade which are negatively skewed. The coefficients also range from -2 to +2 indicating that indeed the variables are within the normal distribution range except for labor which has a coefficient of skewness greater than +2. The average GDP growth rate for Kenya between 1970 and 2017 was 4.553% with a standard deviation of 4.191%. Manufacturing sector had the highest mean credit advancement compared to the other sectors. On the average, private sector credit to manufacturing stood at 22.12% with a standard deviation of 3.862%. The mean percentage of total Private sector credit advanced to the Transport, Storage and Communication sector was 6.089% with a standard deviation of 2.618%. Private sector credit to agriculture had a mean of 12.58%, private sector advancement towards trade stood at 17.10% while private sector credit towards building and construction was reported at 6.425%. Funding has been the least towards the services and building and construction sectors. The agriculture sector which is considered the mainstay of the Kenyan economy has not been prioritized in allocation of commercial bank credit. Trade Openness has the highest mean among the control variables at 57.1% while labor has the lowest at 3.918%.

Table 4.1: Descriptive Statistics

Variable	N	Mean	Minimum	Maximum	Std. Dev.	Skewness	Kurtosis
RGDP	48	4.553	-4.655	22.17	4.191	1.818	9.308
PCA	48	12.58	4.450	20.54	4.753	-0.240	1.905
PCM	48	22.12	14.51	26.86	3.862	-0.698	2.112
PCT	48	17.10	10.90	22.18	3.249	-0.446	2.132
PCB	48	6.425	4.490	8.950	1.071	0.503	2.510
PCS	48	6.089	2.801	12.29	2.618	0.938	2.607
INF	48	11.91	1.560	45.98	8.094	1.887	8.103
TOP	48	57.10	36.76	74.58	7.862	0.0158	3.424
Labor	48	3.918	1.240	30.30	4.219	5.270	33.28

Source: Author, (2019)

4.3 Diagnostic Test Results

The data was analysed via Stata 14 to derive the empirical results.

4.3.1 Unit Root Test

Pretesting of the integration order of the variables included in the model for unit root is not critical for the ARDL Bounds technique but the test is necessary so as to ascertain the absence of order of integration greater than $I(1)$. According to Kagochi (2013) this would invalidate the critical bounds provided by Pesaran et al. (2001). From tables 4.2 and 4.2.1, it can be shown that some variables included in the study have unit root while others do not have unit root. In particular, PCA, PCM, PCT, TOP and PCS are non-stationary and integrated of order one while RGDP, INF, PCB, and Labour are all stationary and integrated of order zero. The unique order of integration suggests that the co-integration tests can be explored and confirms that application of the ARDL bound test is most suited compared to other methods of cointegration such as ECM, VECM and VAR.

Table 4.2: Unit root test result - Level

Variable	PPF Test	1% Level	5% Level	10% Level	P-values	Conclusion
RGDP	-5.698	-3.6	-2.938	-2.604	0.0000	Stationary
Sectoral lending to Agriculture sector- PCA	-0.476	-3.6	-2.938	-2.604	0.8965	Non stationary
Sectoral lending to Manufacturing sector -PCM	-1.379	-3.6	-2.938	-2.604	0.5923	Non stationary
Sectoral lending to Trade sector- PCT	-1.592	-3.6	-2.938	-2.604	0.4874	Non stationary
Sectoral lending to Build & Const sector -PCB	-3.89	-3.6	-2.938	-2.604	0.0021	Stationary
Sectoral lending to Trans, Storage & Comm -PCS	-1.136	-3.6	-2.938	-2.604	0.7004	Non stationary
Inflation	-3.972	-3.6	-2.938	-2.604	0.0016	Stationary
Trade Openness	-2.667	-3.6	-2.938	-2.604	0.0800	Non Stationary
Labor Skill	-5.883	-3.6	-2.938	-2.604	0.0000	Stationary

Table 4.2.1: Unit root test result – first differencing

All the non-stationary variables at level in Table 4.2 became stationary after first differencing as indicated in the Table 4.2.1.

Variable	PPF Test	1% Level	5% Level	10% Level	P-values	Conclusion
Sectoral lending to Agriculture sector	-8.8480	-3.6070	-2.9410	-2.6050	0.0000	Stationary
Sectoral lending to Trade sector	-6.2410	-3.6070	-2.9410	-2.6050	0.0000	Stationary
Sectoral lending to Manufacturing sector	-10.1580	-3.6070	-2.9410	-2.6050	0.0000	Stationary
Sectoral lending to Trans, Storage & Comm	-6.5520	-3.6070	-2.9410	-2.6050	0.0000	Stationary
Trade Openness	-8.1600	-3.6070	-2.9410	-2.6050	0.0000	Stationary

4.3.2 Optimal Lag Length Selection

Selection of the optimal lag length was conducted based on the Quinn Information Criteria (HQIC) and Schwarz' Bayesian Information Criteria (SBIC) selection criteria in this study as they are argued to be powerful and consistent (Paavo, 2017). The results for the selection order criteria in the table 4.3 shows an optimal lag length of 1 as evidenced by the significance under the Hannan-Quinn Information Criteria (HQIC) and Schwarz' Bayesian Information Criteria (SBIC) selection criteria.

Table 4.3: Lag Order Selection Criteria

lag	LL	LR	df	p	FPE	AIC	HQIC	SBIC
0	-987.409				380000000.0	45.2913	45.4267	45.6563
1	-817.02	340.78	81	0	7000000.0	41.2282	42.5816*	44.8777*
2	-731.769	170.5	81	0	9200000.0	41.035	43.6064	47.969
3	-609.162	245.22*	81	0	6500000.0	39.1437*	42.9332	49.3622
4	.	.	81	.	-5.5e-26*	.	.	.

*Indicates the lag order selected by each criterion based on the least value assigned

4.3.3 Bound Test to Cointegration

The existence of a long run association among the study variables has to be established prior to application of the ARDL approach by comparing the calculated F- statistic against the critical upper bound values. The long run relationship coefficients are estimated once there is proof of a long run relationship (Al-Qudah, A., & Jaradat, M. 2018). The ARDL Bounds technique as illustrated in table 4.4 below is employed to estimate the long run relationship among the variables.

Table 4.4: ARDL Bound Test Results

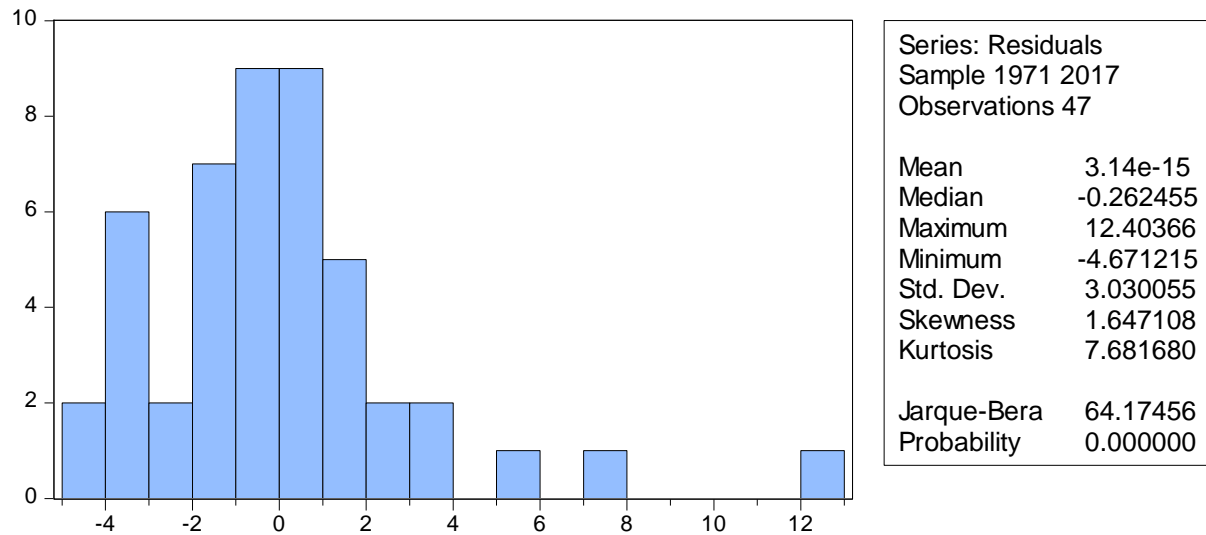
ARDL Bounds Test results Ho: No long-run relationships exist		
Test Statistic	Value	
F statistic	5.666	
t statistic	-6.097	
Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	2.03	3.13
5%	2.32	3.50
2.50%	2.60	3.84
1%	2.96	4.26
accept if $F < \text{critical value for } I(0)$ regressors		
reject if $F > \text{critical value for } I(1)$ regressors		

From table 4.4, the F-statistic of the ARDL bounds test is used to test for the presence of a co-integrating relationship under the null hypothesis of no cointegration. The value of the F-statistic is compared with the critical value bounds provided by Pesaran et al (2001) for the lower bound (dons that all variables are I(0) meaning no cointegration) and Upper bound (all variables are I(1) meaning there is cointegration). Where the F statistic value is higher than the upper bound value, the H_0 is rejected as it denotes existence of cointegration among the variables. The calculated F-statistic (5.666) exceeds the upper bounds at 10%, 5% and 1% level of significance. Thus the null hypothesis of no co-integration is rejected in favor of the alternative hypothesis of the existence of a co-integrating relationship.

4.3.4 Jarque-Bera normality test

The probability of the statistic by JB was found less than value that is critical of 0.05 calling for rejection of the null hypothesis and adopting the alternative hypothesis confirming that the data has no normal distribution.

Figure 4.1: Jarque-Bera Test Results



4.3.5 Breusch-Pagan/Cook-Weisberg Test for Heteroskedasticity

This was done grounded on the null hypothesis (homoscedasticity), against the alternative (heteroscedasticity) and the results are shown below (Table 4.5). The the p-value is greater than 0.05 calling for acceptance of the null hypothesis as there is significant evidence the absence of heteroskedasticity.

Table 4.5: Breusch-Pagan/Cook-Weisberg Test for Heteroskedasticity

Breusch-Pagan/Cook-Weisberg Test for Heteroskedasticity

Ho: Constant variance

Chi(1)	Prob>Chi2
0.27	0.6044

4.3.6 Breusch-Godfrey Test for Autocorrelation

A test for autocorrelation of residuals was performed using the Breusch-Godfrey LM Serial correlation test and the null hypothesis; no serial correlation was tested against the alternative hypothesis; serial correlation. Table 4.6 below outlines the results from the test. From the table, p value is greater than 0.05, the null hypothesis can be accepted. In other words, there is no serial correlation between the residuals in the model.

Table 4.6: Breusch-Godfrey Test for Autocorrelation Results

Breusch-Godfrey Test for Autocorrelation

lags (p)	chi2	df	Prob > chi2
1	0.38	1	0.5378

4.3.7 Multi-collinearity

This was conducted to ensure that there was no correlation between the variables. The results are as shown in Table 4.7. Using the variance inflation factor, VIF and 1/VIF, and a threshold of 10 and 0.1 respectively, the results prove that there is no problem of multicollinearity since the VIF values are below 10 and 1/VIF greater than 0.1.

Table 4.7: Test for Multi-collinearity Results

Variable	VIF	1/VIF
PCA	4.83	0.207189
PCM	3.21	0.311301
PCS	2.66	0.375970
PCT	2.65	0.377391
TOP	1.87	0.535305
INF	1.32	0.757457
L	1.25	0.798281
PCB	1.20	0.831067
Mean VIF	2.37	

4.3.8 Ramsey Reset Test

The Ramsey Reset test is built on the null hypothesis of model stability and the alternate hypothesis of model instability. The F-statistic probability should be higher than the 5% significance for the null hypothesis to hold. However, in the case where $F\text{-statistic} < 0.05$, then the null hypothesis is dropped. The results below indicate that there are no omitted variables in the model.

Table 4.8: Ramsey reset test

Ramsey RESET test using powers of the fitted values of RGDP

Ho: model has no omitted variables

F(3, 38)	0.79
Prob > F	0.5067

4.4 Regression Results

Following the confirmation of the presence of a long run connection among the variables, the study estimated both the long run and short run effect of allocation of credit by banks to the agricultural, manufacturing, transport, storage and communication, the building and construction and trade sectors on economic growth while controlling for inflation and trade openness with the estimated coefficients presented in the table 4.9.

The long run coefficients estimates suggest that bank lending to agricultural sector has positive and significant effect on economic growth in the long run at 5% significance level. The result implies that 1% increase in bank lending to agricultural sector will add to economic growth by 0.288%. The result is comparable with Udoka et al. (2016) and Makinde (2016) who found bank lending to agriculture sector increased the sector's output. The estimated coefficient has the expected positive sign in line with theoretical and hypothesized expectation. This however contradicts the findings by Nwaeze et al. (2014) who found commercial bank lending to the agriculture sector in Nigeria deterring economic growth.

The long run coefficient of banking lending to manufacturing sector is significant at 1% level though negative. The finding indicates that banking lending to manufacturing sector has a negative and significant effect on country's output in the long run though the effect is negative. In particular, 1% increase in banks' lending to manufacturing sector is associated with 0.357% decrease in economic performance. The finding is consistent with the finding of Nwaeze et al (2014) but contrasts Ihemeje and Chinedu (2016), Tokunbo (2017) and Ogar et al. (2014) who found a positive link between credit to the manufacturing sectors and real GDP.

The coefficients for Private sector lending to Trade and Building and Construction sectors were found to be not statistically significant. Therefore, commercial bank lending to both sectors did not have a momentous influence on economic growth in Kenya. This contradicts the findings by Oladapo and Adefemi (2015) who established a negative and significant link between lending to commerce sector and economic growth in Nigeria. Makinde (2016) established a similar result establishing that bank lending to the building and construction sector in Nigeria had no significant impression on economic growth in Nigeria.

Controlling for inflation, inflation was found to be detrimental towards economic growth in Kenya as the estimated coefficient is preceded by a negative sign which matches the theoretical expectations. The estimated coefficient indicates that increase in inflation by 1% led to a 0.36% drop in economic growth in Kenya in the long run. This finding contradicts that of Waiyaki (2016) who established an insignificant influence of inflation on economic growth.

The R^2 which is a goodness-of-fit measure indicates that 65.23% of the variations in Real GDP are collectively explained by the regressors, which is a relatively good fit since a significant proportion of the variation is explained by the model's explanatory variables.

Table 4.6 further illustrates short run dynamic coefficients of the estimates. It is shown that the lagged value of the adjustment (ECM_{t-1}) carries the correct (i.e., negative) sign of -0.850 and is statistically significant at 1 per cent level. This suggests that approximately 85.0% of the preceding year's disequilibrium in per capita gross domestic product is corrected in the succeeding period.

The short run coefficient estimates indicates that only bank finance to building and construction is statistically significant at 5% level. Bank lending to building and construction has a significant and positive effect on economic growth in the short run. This implies that 1% increase in bank lending to building and construction will lead to 1.098% increase in economic growth. The result is consistent with Balago (2014) who found similar result. The coefficients for PCA and PCT were found to be negative but statistically insignificant while lending to the manufacturing sector was found to be positive but also insignificant.

Table 4.9: Long and Short Run Regression Estimates

VARIABLES	(1) Adjustment	(2) Long Run Coefficients	(3) Short Run Coefficients
Sectoral Lending to Agriculture Sector		0.288** (0.1025)	
Sectoral Lending to Manufacturing Sector		-0.357*** (0.101)	
Sectoral Lending to Trade Sector		0.259 (0.398)	
Sectoral Lending to Building & Const. Sector		-1.410 (0.840)	
Inflation		-0.360*** (0.116)	
Trade Openness		0.170 (0.138)	
Skilled Labor		-0.154 (0.266)	
L.RGDP	-0.850*** (0.139)		
D. Sectoral Lending to Agriculture Sector			-0.218 (0.386)
D. Sectoral Lending to Manufacturing Sector			0.378 (0.363)
D. Sectoral Lending to Trade Sector			-0.377 (0.365)
D. Sectoral Lending to Building & Const. Sector			1.098** (0.471)
D. Inflation			0.114 (0.0953)
D. Trade Openness			-0.0220 (0.120)
D. Skilled Labor			0.0416 (0.144)
Constant			7.640 (10.29)
Observations	47	47	47
R-squared	0.652	0.652	0.652

ARDL(1,1,1,1,1,1,1,1) regression

Sample:	1971 - 2017	Number of obs	=	47
		R-squared	=	0.6523
		Adj R-squared	=	0.4840
Log likelihood = -116.91413		Root MSE	=	3.5847

Standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

4.5 Post Estimation Diagnostics

The robustness of the specified model and the estimated long run and short run coefficients was assessed using the cumulative sum of recursive residuals (CUSUM) method.

4.5.1 Stability Test

Since the plot of the tests is contained by the critical bounds at 5% level of significance, the long run model coefficients are structurally stable.

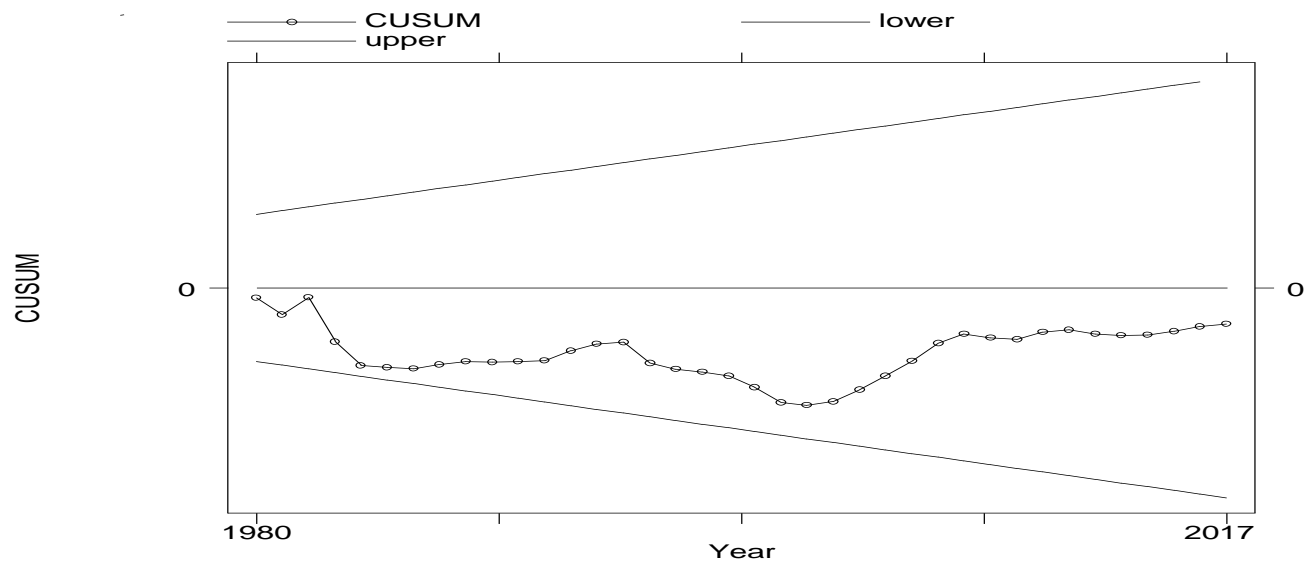


Figure 3: Stability test

CHAPTER FIVE: CONCLUSIONS AND POLICY IMPLICATIONS

5.1 Introduction

This chapter concludes the current study and posits policy recommendations founded on the findings.

5.2 Conclusion

The study' was to assess the impact of sectoral allocation of bank credit to the private sector on economic growth in Kenya. The study adopted endogenous growth model and ARDL estimation approach. The study applied secondary data sourced from CBK running from 1970 to 2017. Economic growth rate was adopted as proxy for the Kenyan economic growth and regressed against commercial banks' credit to agriculture, manufacturing, trade, building and construction sectors while controlling for inflation, trade openness and labor.

Descriptive statistics showed that the average GDP growth rate for Kenya between 1970 and 2017 was 4.553% with a standard deviation of 4.191%. Manufacturing sector had the highest mean credit advancement compared to the other sectors. On the average, private sector credit to manufacturing stood at 22.12% with a standard deviation of 3.862%. The mean percentage of total Private sector credit advanced to the Transport, Storage and Communication sector was 6.089% with a standard deviation of 2.618%. Private sector credit to agriculture had a mean of 12.58%, private sector advancement towards trade stood at 17.10% while private sector credit towards building and construction was reported at 6.425%. The data collected for all variables were normally distributed except for labor.

Bank lending to agricultural sector has positive and significant effect on economic growth in the long run. This was in concurrence with majority of the empirical studies analyzed; Tokunbo (2017); Makinde (2016); Ihemeje and Chinedu, (2016) who established a similar link between credits to the agriculture sector and economic growth. This entails that increase of credit to the agriculture sector contributes positively towards achievement of the Vision 2030's target for a double digit growth rate for the Kenyan economy. Credit facilities avail capital for commercial farming, investments in value additions, uptake of mechanized farming and enhance agricultural

yield in the overall for domestic consumption and exports. The findings called for the rejection of the null hypothesis that commercial banks' credit to the agriculture sector has no significant impact on economic growth. This empirical finding indicates that more credit should be allocated to the agriculture sector by the commercial banks.

The long run coefficient indicated that banking lending to manufacturing sector has significant and negative effect on economic growth. This therefore led to rejection of the null hypothesis of the study that lending to manufacturing sector has no significant impact on economic growth. This is in the backdrop that the sector is the highest recipient of commercial banks' credit in the country. The finding is also in reverse of the a priori expectation and empirical findings of studies reviewed as credit to the manufacturing sector was expected to steer economic growth. The result could be explained by the possible, mismanagement, diversion of loan funds and application of loans to payment of recurrent expenditures such as salaries rather than adding capital equipment and enhancing production capacity. Importation of substandard goods and the increased production of counterfeit goods could also have a negative impact on our local industries and the economy at large.

Bank lending to building and construction and trade sectors were found to have no statistical significance on economic growth in Kenya. This finding contradicts the expected positive impact and led to acceptance of the study hypotheses of bank lending to the two sectors having no significant impact on economic growth in the long run.

Inflation was found to impede economic growth which concurred with the theoretical expectations. Inflation erodes the purchasing power of citizens therefore limiting demand for goods and services. This in return slows down production of goods and services thus impeding economic growth.

Trade Openness was reported to have positive but not significant influence on economic growth. According to expectations, trade openness increases access to markets for goods and services, importation of capital goods to enhance production capacity as well as encourage investments. However, we note that Kenya mostly operates on trade deficit implying that the country's

imports supersede exports. Further, importation could be mostly for consumer goods which may not have a significant impact on economic growth. Skilled Labor was found to have an insignificant impact on economic growth. This could be attributed to the fact that agriculture and manufacturing sectors are the highest employment sectors and rely mostly on unskilled workforce in their operations.

The short run findings direct that only credit to building and construction sector has a significant impact on economic growth. This is in agreement with Ananzeh (2016) who established that credit to the building and construction sector had a significant and positive influence on economic growth in Jordan in the short run.

5.3 Policy Recommendations

The study aimed at examining the role of sectoral allocation of bank credits to the private sector on economic growth focusing on the agriculture, manufacturing, trade, building and construction, transport, storage and communication sectors. Based on the findings policies aimed at regulating interest rates to a level that are affordable to private sectors so as to enhance access to credit should be implemented. The Central bank of Kenya should promote monetary policies that complement fiscal policies to curb high inflation rates given the detrimental impact of inflation on economic growth. The government of Kenya should implement policies to eliminate illicit markets and inflow of counterfeit goods which impact negatively on conversion of funding to increased production. The government should implement policies that enhance infrastructure to the agricultural sector and promote value addition through innovation and research. The government should promote policies to increase exports of local products and minimize imports so as to enhance trade openness and maintain a favourable balance of payments. Policies to promote local trade should also be implemented.

5.4 Areas for Further Research

This study was conducted sighting the study gap of previous studies analysing the relationship between private sector credit and economic growth at an aggregate level rather than at sectoral level and very few studies have been done in Kenya at sectoral level analysis. Therefore, the sectoral analysis scope is yet to be researched adequately and in application of other

methodologies such as VECM and VAR. The current study did not also assess the impact of private sector credit on poverty eradication in Kenya. This is an area that can be researched on in future empirical studies. The current study has also excluded some of the key sectors in its analysis such as tourism which can be included in future studies. The economic sectors in Kenya also obtain financing from Micro Finance Institutions (MFIs) which has been on an increasing trend. Assessment of the impact of MFI funding is also imperative on the growth of the economy.

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APPENDIX

Table A.1: Sectoral Contribution of Private Sector Credit to GDP Growth

Year	Agriculture	Manufacturing	Trade	Building & Const	Trans/Storage/Comm
1970	15.22	10.79	10.00	2.48	8.46
1975	32.80	12.50	8.80	4.10	5.40
1980	32.80	13.40	10.80	4.00	5.90
1985	29.50	13.20	10.90	3.20	6.40
1990	28.20	13.30	11.00	3.20	5.90
1995	25.00	13.50	11.80	2.50	6.10
2000	24.10	13.10	12.60	2.40	6.10
2005	23.70	7.90	8.60	3.80	15.30
2010	22.80	11.30	7.70	4.50	9.00
2017	29.50	8.40	7.60	5.80	9.10

Table A.2: Sectoral Allocation of Private Sector Credit and GDP Growth

PERIOD	Agriculture	Manufacturing	Trade	Building % Constr.	Trans, Storage & Comm	RGDP
1970	12.50	20.98	45.49	4.54	3.98	-4.66
1975	20.54	23.37	30.30	6.06	3.99	0.88
1980	18.36	23.01	21.40	6.50	5.06	5.59
1985	16.88	25.04	26.30	6.68	4.13	4.30
1990	16.75	25.12	19.81	6.78	6.08	4.19
1995	12.09	17.84	18.21	5.09	5.51	4.41
2000	10.85	26.43	18.44	7.49	4.27	0.60
2005	11.18	21.26	17.38	7.26	9.18	5.91
2015	4.78	16.13	21.02	5.91	9.54	5.71
2016	4.86	9.51	20.47	5.65	11.03	5.85