The Relationship between Inflation, Bank Credit, and Economic Growth: The Case of Uganda

Aidah Nanyonjo

Submitted to the
Institute of Graduate Studies and Research
in partial fulfillment of the requirements for the degree of

Master of Science
in
Banking and Finance

Eastern Mediterranean University
January 2018
Gazimağusa, North Cyprus

Approval of the Institute of Graduate Studies and Research

_____
Assoc. Prof. Dr. Ali Hakan Ulusoy
Acting Director

I certify that this thesis satisfies the requirements as a thesis for the degree of Master of Science in Banking and Finance.

_____
Assoc. Prof. Dr. Nesrin Özataç
Chair, Department of Banking and Finance

We certify that we have read this thesis and that in our opinion it is fully adequate in scope and quality as a thesis for the degree of Master of Science in Banking and Finance.

_____
Asst. Prof. Dr. Nigar Taşpınar
Supervisor

Examining Committee
_____

1. Assoc. Prof. Dr. Korhan Gökmenoğlu   _____

2. Asst. Prof. Dr. Ikechukwu D. Nwaka   _____

3. Asst. Prof. Dr. Nigar Taşpınar   _____

ABSTRACT

This thesis explores the relationship among inflation, bank credit, and economic growth in the case of Uganda using data obtained from the World development indicators from 1983- 2015. The variables used are Gross Domestic Product for economic development, consumer prices as the annual percentage of the GDP for inflation rates and domestic credit to the private sector by banks for bank credit. The thesis applies the unit root tests (Augmented Dickey-Fuller, Phillips – Perron and the Kwiatkowski–Phillips–Schmidt–Shin test) to test the stationarity of the variables, cointegration test to investigate the long run relationship between the variables, Vector Error Correction Model (VECM) to determine the short run and long-run relationship and lastly the Granger causality to determine the direction of Inflation, Bank credit and Economic growth.

VECM results indicate a negative long-run relationship between inflation and economic growth and also a long run negative relationship between bank credit and economic growth in Uganda. This adds to the available literature on the study of inflation, bank credit and economic growth in the world and its uniqueness in the results of the negative relationship between bank credit and economic growth which is a rare case. Also, the results would enable the policymakers in Uganda to make the right decisions to enable the development of the country as well as ensure that the negative relationship between bank credit and economic growth does not adversely affect the country's economy.

Keywords: Inflation; bank credit; economic development; Uganda

ÖZ

Bu tez Uganda'da 1983-2015 yılları arasında enflasyon, banka kredileri ve ekonomik kalkınma arasındaki uzun dönemli denge ilişkisini incelemektedir. Bu tezde kullanılan değişkenler sırasıyla gayri safi yurtiçi hasıla, enflasyon oranları ve özel sektöre sağlanan banka kredileridir.

Hata düzeltme modeli sonuçlarına göre enflasyon, banka kredileri ve ekonomik büyüme arasında uzun vadede negatif ilişki bulunmuştur. Bu tezden elde edilen sonuçlara göre Uganda'nın ekonomik kalkınması için öneriler tartışılmıştır.

Anahtar kelimeler: Enflasyon; banka kredileri; ekonomik kalkınma; Uganda

DEDICATIONS

To Ms Betty Kiguli

ACKNOWLEDGEMENT

I would want to thank my thesis supervisor Asst. Prof. Dr. Nigar Taşpınar whose door was always open for any questions and her never-ending assistance, patience, and guidance during the writing of this thesis.

My sincere gratitude goes to Ms. Betty Kiguli for the unlimited love, support, and encouragement throughout my life and belief in me throughout my entire education. Also, I would like to thank my brothers, sisters and the entire Kiguli family for the emotional and spiritual support. This accomplishment would have been impossible without you. Thank you.

TABLE OF CONTENT

LIST OF TABLES

ix

LIST OF FIGURES

x

LIST OF ABREVIATIONS

ADF	Augmented Dickey- Fuller Test
AIC	Akaike Information Criteria
DC	Domestic Credit to the Private Sector
ECT	Error Correction Term
FPE	Final Prediction Error
GDP	Gross Domestic Product
HQ	Hannan Quinn Information Criteria
INFL	Inflation
KPSS	Kwiatkowski – Phillips – Schmidt - Shin
PP	Phillips Perron Test
SC	Schwarz Information Criterion
UBOS	Uganda Bureau of Statistics
VECM	Vector Error Correction Model

Chapter 1

INTRODUCTION

In economics literature, inflation refers to the rapid rise in the prices of goods and services in a country. Various reasons have been discussed for the increase in inflation: according to the Keynesian School of Economics, inflation is due to an increase in the demand for goods and services which result in increased prices; they refer to this as demand-pull inflation, where, due to the increase in the costs of production, companies increase the prices of products to meet the profit margins. Also, the monetarist school of economics regard inflation as too much money in the economy (Blinder, 2008). The monetarists, for instance Milton Friedman (1994) emphasize the importance of controlling the money supply in the economy to keep inflation low and fiscal policy can be used to enable economic growth. Structural economists believe that inflation in the economy occurs due to the unbalanced economic systems. They suggest that to ensure economic growth, inflation can be curbed by using both fiscal and monetary policies (Henderson, 2007). Economic growth can be seen as the escalation in the quantity and quality of a particular nation's goods and services.

An increase in inflation indicates that the amounts of goods and services in a given country will increase meaning that people will not be able to purchase commodities; this will reduce consumption of produced goods, makes exports expensive which in

turn affects the balance of payments and reduces investment thus decline in economic growth of a country (White, 2008).

The available literature categorizes the association between inflation and economic growth as follows: inflation does not influence economic growth; inflation affects economic growth; no link between inflation and economic growth. Take for instance Wai (1959) and Paul, Kearney and Chowdhury (1997), they showed that there is no impact of inflation on economic growth indicating that there are other economic factors that affect the economic growth of the country. Also, Irfan, Attari, and Javed (2013) discussed the link between inflation and economic growth affirming no association in the short run.

High inflation negatively affects economic growth in the following ways, requiring an effort to control the spectacle in an economy: inflation may make the country's currency lose value and this may lead to unaffordable goods to the people especially those that are exported. It may also deteriorate the living standards of the people thus precipitating decline in the economic growth of the country. This link between inflation and economic growth has been highlighted by many researchers and economic and financial theorists some of whom are Fischer (1983), Gregorio (1993), Barro (1995), Saeed (2007), Kasidi and Mwakanemela (2013) Mohrnoosh and Feizolah (2016) and Akinsola and Odhiambo (2017). In their research, they have established a negative link between inflation and economic growth.

Furthermore, inflation has an impact on growth within a specific threshold and therefore the governments should ensure that the thresholds are controlled so that inflation does not affect growth negatively. This is supported by Aydin, Esen and

Bayrat (2016); they show in their study that a threshold below 7.97% will positively affect growth and above it will negatively affect growth. Ahmed and Zaid (2016) in their examination established that inflation affects economic growth with a threshold between 0% and 1.5%; growth is negative above this threshold and the impact is uncertain below it.

Bank credit is yet another important element in the development of an economy and can be defined as the amount of credit that is given to individuals and firms by financial institutions. An increase in bank credit will increase the capacity to invest which will yield an increase in the GDP of the economy. Several literatures like the study by Gurley and Shaw (1967), Shaw (1973) suggest that financial development can improve on the innovations in an economy which may successively lead to growth of the economy. This is also the position of King and Levine (1993) in their study using the endogenous growth model to determine the link between financial development and economic growth. Khoutem, Thouraya, and Kemel (2014) similarly indicate that development of the financial sector improves economic growth. In addition, bank credit has an important significance on economic growth which can be either direct or indirect on other elements which can improve growth as discussed by Abubakar, Kasim, and Yusoff, 2015) in their research on financial development, capital accumulation, and economic growth. Belinga, Zhou, Doumbe, Gahe, & Yao (2016) in their study using domestic credit to the private sector by banks and bank deposits as proxies suggest that a boost in banking credit will improve economic growth.

 Although it is perceived that there is always a positive link between bank credit and economic growth, some studies, however, show the possibility of a negative link

between inflation and economic growth depending on the proxies used. That is to say, increase in bank credit may not necessarily lead to economic growth because there may be other factors that may affect the economy and its growth. Among these studies are: Zang and Kim (2007), Odhiambo (2008a) and Nyasha and Odhiambo (2017). These (studies) argue that although it has been taken that development of the financial sector is followed by the growth of the economy, it is not really right. Financial development leading to the growth of an economy depends on the factors that have been used as proxies, the method of data analysis and the empirical model used and also the specific countries that are under consideration. Therefore, using domestic credit to the private sector by banks, they established a negative link between bank credit and economic growth.

Inflation and bank credit are essential factors in the economy of Uganda. Therefore should be understood well by policy and decision makers to ensure that there is a balance between them in order to enable the development of the economy. Almalki and Batayneh (2015) and Seow, Siong and Mansor (2017) found a negative association between the two variables and therefore emphasized the need for a stable monetary policy. On the links amongst inflation, bank credit and economic growth Rousseau and Yilmazkuda (2009) and Zermeno, Martinez and Preciado (2014) found that high inflation and low financial development eventually lead to decline in the growth of the economy.

Although a lot of research has been carried out on this subject very few have been carried out on the combination of inflation, bank credit and economic growth on Uganda and also to find out the particular relationship experienced among these. Uganda has experienced the highest rate of inflation compared to its neighboring

countries in the East African region. Inflation has led to the slow growth of the Economy of Uganda. Bank credit in Uganda especially domestic credit to the private sector by banks has been increasing throughout the period from 1983- 2015. Therefore, this thesis will investigate the relationship among bank credit, inflation, and economic growth.

To achieve this aim, data from World Bank development indicators from 1983-2015 has been used. To examine the stationarity of variables, Augmented Dickey-Fuller (ADF) (1979), Phillips–Perron (PP) (1988) and the Kwiatkowski–Phillips–Schmidt–Shin (KPSS) (1992) were used employing Andrews-Bartlett kernel lags. Johansen cointegration test is used to establish the long run link among inflation, bank credit, and economic growth. In addition, the Vector Error correction model (VECM) is used in estimating long term and short term coefficients of the variables. VECM has also been used to determine the speed of adjustment in the short run to converge to equilibrium. Lastly, Granger causality block exogeneity method has been used to establish the directions of the relationships between variables.

This thesis is organized as follows: chapter 2 gives some background information about the economy of Uganda; chapter 3 covers review of the broad literature on the subject; the data and methodology used are discussed in chapter 4 while chapter 5 explains empirical results obtained using econometric tools. Lastly, chapter 6 concludes the thesis and recommends some policy implications.

Chapter 2

LITERATURE REVIEW

This chapter reviews the related literature on the relationship among inflation, bank credit and economic growth that have been carried out by different researchers such as Schumpeter (1911); Barro (1995); Odhiambo (2008b); Bittencourt (2012), Akosah (2013); Hasanov and Huseynov (2013); Blinov (2017); Baoko (2017). These studies show different relationships among the variables.

2.1 The Relationship between Bank credit and Economic growth

Bank credit has been discussed by various researchers as one of the factors that affect economic growth. First amongst them is Schumpeter (1911) on the role of the financial sector in economic growth. He suggested that the services provided by financial institutions could improve economic growth by funding productive investments. Also, Shaw (1973) suggests that bank credit is an important aspect of economic growth. Higher volume of domestic credits can improve private and public saving, reduce unemployment in a given economy, enable resourceful allocation of savings and ensures better income distribution which will eventually lead to the growth of an economy. Gurley & Shaw (1967) in their study of the financial structure using bank credit to the private sector by banks as a proxy and economic development show that reduction of risk and transaction costs impacts positively the growth of the economy, ensure reduction in premature liquidation of the firm capital and the growth of the financial structure due to the fact that they enable efficient allocation of resources and productivity. Furthermore, as established by King and

Levine (1993), good and innovative financial systems lead to the growth of the economy while distortions in the financial sector deteriorate economic growth. There appears to be a consensus among all of them that bank credit does engender the growth of the economy.

In addition, financial literature regarding development of the financial sector and economic growth in current years supplements earlier research that bank credit affects the economy positively. For instance, Khoutem et al. (2014) employed the Autoregressive Distributional Lag (ARDL) method and established that domestic credit to the private sector as a proxy for bank credit has a positive association with growth of the economy in the long run and it takes a specific time period (2 years) in the short run to have an impact. However, using Wald test, Belinga et al. (2016) showed that in the long run there is a positive link between bank credit and economic growth but no causality in the short run. Thus bank credit is a crucial factor in the long run for economic development in Tunisia.

Bank credits in the long run and short run have a positive relationship with economic growth because the deviations in the short run that may occur are corrected in the long run leading to growth according to Hasanov and Huseynov (2013) in their study examining bank credit and non-oil economic growth evidence from Azerbaijan. Bank private credit and domestic credit have incredible contributions both directly and indirectly to economic growth; therefore, accessible credit to individuals and enterprises are crucial for development. Development of credit facilities for the private sector will reduce credit constraints growth (Abdulsalam, 2015). Raluca and Pop (2015) show that credit activity has a significant influence on the growth of an economy. A strong legal framework aimed at product innovation

and profitability in investment, a knowledgeable population about the credit activity regarding risks and benefits which lead to economic growth.

Ghirmay (2004) suggests a need for the expansion and improvement of the bank credit as a proxy of financial development in the economy to ensure its development because in the long run, it yields to economic growth. In his study, he established a long-run effect of bank credit and economic growth in 8 out of 13 countries. Ohlan (2017) found that tourism, financial development and economic growth are cointegrated using the newly-developed Bayer and Hanck combined test; therefore, a positive relationship. According to the study, 10% improvement in the technology leads to a 2.7% growth of the economy in the long run. Ruiz (2017) found that domestic credit to the private sector has a negative and significant impact on economic development if it is below the thresholds of 26.76%, 10.96% and 20.42% of the GDP respectively. Domestic credit below the threshold negatively affects the economy and positively impacts the economy above these thresholds.

To sum it all, early (initial) and recent literature agree on a positive relationship between bank credit and economic development and thus suggest different ways in which to improve the financial sector which would, in turn, lead to the growth of different economies.

On the contrary, other studies show that increase in bank credit to the private sector does not necessarily lead to economic development. In these papers, similar to the aforementioned studies, domestic credit to the private sector by banks has been used as a proxy for financial development. Demetriades and Hassein (1996) identify that the direction of the relationship between the variables is specific to countries as some

countries have a positive and others a negative relationship. Among the countries studied are Greece, Pakistan, South Africa and Turkey; the findings show that bank credit does not necessarily cause economic development. This shows that development of economies is country specific depending on the utilization of the resources and the policies.

Zang & Kim (2007) in his study applying the sims-Geweke causality technique he finds no indication of a positive association between financial development and growth of the economy but a negative one. In his study on Kenya, Odhiambo (2008a) demonstrates that the direction of causality between financial development and economic development depends on the proxies used. He used three different proxies: the ratio of broad money, the ratio of currency to narrow definition of money and the ratio of bank claim on the private sector. He establishes that there is a positive link between financial development and growth of the economy using the ratio of broad money and ratio of narrow money but a negative relationship with bank claim on the private sector. The negative relationship with bank credit is due to the fact that in Kenya growth in the real sector leads to active participation by the firms and individuals in the financial markets using the credit obtained.

Odhiambo (2008b) in his research shows a unilateral causality from economic growth and bank credit. He shows that inclusion of another factor which affects both bank credit and economic growth like savings may change the direction of the relationship. This shows that financial depth does not automatically lead to economic growth as it has been assumed by researchers but other factors can cause economic growth like savings because of the bi-lateral relationship with economic growth.

A re-examination of the association between financial development which used bank credit to the private sector as a proxy and economic growth in Nigeria: Evidence from threshold modeling by Adeniyi, Oyinlola, Omisakin, and Egwaikhide (2015) shows a negative link of financial development on the growth of the economy initially but with threshold the relationship changes to positive depending on the increase on the bank credit. Therefore direction of causation may be different due to the methods used.

Deploying a revisionist approach to finance and development, Nyasha and Odhiambo (2017) looked at bank credit to the private sector used for financial development as a proxy. They found that the association between bank credit and economic development is in the form of finance-led growth, growth-led finance feedback hypothesis where both financial development and development lead to each other and a neutral hypothesis which indicates no relationship between the variables. They discuss that the relationship is difficult to predict because it differs based on the proxies used, specifics of countries, model employed and method of data analysis used. Therefore, these researchers argue that the relationship may be positive or negative based on the proxies used, and the specific country; thus the direction of the relationship between financial developments may not necessarily be positive.

2.2 The Relationship between Inflation and Economic Growth

Inflation is yet another economic variable that is important for the economic growth of a given country and many studies have been carried out regarding this; for example, Fisher (1983), Saeed (2007), Bittencourt (2012), Kremar (2013), Kremer, Brick and Nautz (2013) and Akinsola & Odhiambo (2017) among others. According to the findings of earlier research, the association between inflation and economic

growth has been categorized into four: first, inflation does not impact economic growth this is supported by Wai (1959) and Dorrance (1966) in their respective articles. These could not find a meaningful link between the variables. Also, Paul, Kearney & Chowdhury (1997) in the study of 70 countries establish no association between inflation and economic development for 40% of the countries in the study. Secondly, inflation has a positive effect on economic development as shown by Tobin (1965) where he argues that inflation rates will increase interest rates which will improve investment and thus economic growth. Others in this category include Malik and Chowdhury (2001), Rapach and David (2003) - in the study of inflation and economic growth. Thirdly, inflation has a negative effect on growth as demonstrated by Fischer (1983), Barro (1995), Gregorio (1993) and Saeed (2007) in their different studies on inflation and economic growth. They agree that high rates of inflation reduce productivity and investment and consequently a decline in economic growth. Lastly, inflation influences economic growth within a certain specific threshold; this is demonstrated by Sarel (1996), Ghosh and Phillips (1998) and Khan and Senhadji (2001) in their respective articles. They agree that inflation improves economic growth when it is below and negatively when it is above the thresholds 8%, 2.5%, and 40% respectively.

As the literature suggests, recent research findings also fall into the four categories adumbrated above as follows: firstly, Kremer (2013) in the study of 124 industrialized and non-industrialized economies established that a threshold above 2% and 17 % for industrial and nonindustrial economies would affect the economy negatively. A nonlinear association between the variables in the long run and inflation below and above 7.97% will positively and negatively affect economic

growth respectively was found by Aydin et al. (2016) in the study on the Turkish Republic in the Transition process. Likewise, Ahmed & Zaid (2016) while examining the threshold levels of inflation established that the threshold levels are between 0% and 1.5% above which inflation has a negative impact on economic growth and below which the impact is uncertain.

Secondly, Bittencourt (2012), using Panel analysis from 1970-2007 to discuss inflation and economic growth and examine, in particular, poor macroeconomic performance at high inflation rates in Latin America (Argentina, Bolivia, Brazil, Peru), obtained a negative relationship; Kasidi & Mwakanemela (2013) also obtained a negative link between the variables and no cointegration among them in the long run for Tanzania; a negative association between inflation and development was derived by Mohsens and Jouzaryan (2016) in their investigations. They emphasized that the impact should be watched carefully because it can adversely affect the economy; similarly, Akinsola & Odhiambo (2017) on examination of the international literature review on inflation found a negative relationship in developed economies. They show that the different results obtained in different studies are due to the specific country of study, data used and methodology.

 Thirdly, no link between inflation and economic development was obtained in the short run by Irfan et al. (2013) on data from Pakistan. They established a unidirectional causality between the variables. And Kremer, Bick & Nautz (2013) found that inflation rates below 2% and 17% for industrial and nonindustrial economies have no impact on economic growth.

Lastly, a positive relationship established by Blinov (2017) discusses that during periods of high inflation economic growth is possible in case the growth rates of nominal money supply are greater than inflation. Like in Brazil even when inflation was so high economic growth between 1985-1986 exceeded 8%; also in Vietnam in 1989 the inflation rate was 213% in nominal terms, and economic growth was 7.4%. Sumon and Miyan (2017) using Engle-Granger and Johannsen co-integration test obtained a positive and significant link between the variables. Also using the error correction model they established that inflation adjusts at the speed of 79%.

2.3 The Relationship between Inflation and Financial Development

Moore (1986) demonstrates that inflation will negatively affect capital deepening in the economy which will consequently affect economic growth negatively. Bittencourt (2011) establishes that inflation is harmful to financial development; therefore, it is essential for a country to stabilize the inflation which will ensure financial development thus economic growth. Financial deepening enables provision of credit to finance real assets which lead to development.

Abbey (2012) recommended financial sector development because he established from his research that financial development does not Granger-cause inflation in the case of Ghana. In the short run financial development and inflation have a positive relationship and no identified association in the long run. With private sector credit as a proxy, a unidirectional causality running from inflation and economic growth was established. Akosah (2013) finds that high rate of inflation adversely affects financial development both in the short run and the long run. He recommends that policies be put in place to improve the financial sector access to the not bankable informal sector while ensuring low inflation by reducing cash in the economy.

Khan (2015) while using bank credit to the private sector found an insignificant and negative association between inflation and financial development. Inflation deteriorates financial sector in the long run and short run. As a result, social spending in the long run could be encouraged to improve financial sector development and monetary policy to curb inflation in the economy. Almalki & Batayneh (2015) indicate that there is a negative link between inflation and financial development both in the short run and long run. Therefore fiscal and monetary policies should be put in place to reduce the inflation in an economy. Credit expansion and financial stability in Malaysia by Seow et al. (2017) shows credit expansion in Malaysia can lead to financial instability; as such, policymakers in a given economy should moderate provision of credit.

2.4 The Relationship among Inflation, Financial Development, and Economic Growth

The relationship among inflation, financial development, and economic development has also been deliberated on in the literature. As demonstrated by Hung (2003), inflation is a crucial factor in determining the effect of financial development on the growth of the economy. With high inflation rates, financial development will rise which will lead to the reduction in economic growth and low inflation rates will lead to a decline in financial development which will improve economic growth. Employing econometric and graphical methods, Rousseau & Yilmazkuda (2009) examined inflation, financial development, and growth - a trilateral analysis - and established that high levels of financial development and low inflation lead to economic growth of the economy. Zermeno et al. (2014) in their examination found that bank credit has a positive relationship with economic growth; inflation has a negative relationship with bank credit which would lead the economy to deteriorate

if not stabilized. Financial deepening, financial liberalization and control of the inflation rates to 4-5% annually should be enhanced to ensure development. Studying 10 European countries, Suna (2015) revealed that domestic credit did not affect inflation but affected economic growth for these countries. Transfer of credit to the real sectors will lead to development depending on the ratios. High transfers will lead to high development and vice versa. Furthermore, Baoko (2017) in his research affirms that inflation and real gross domestic product have no significant effect on bank credit to the private sector in the long run and in the short run. Inflation has a significant impact on the bank credit to the private sector. To enable development, he recommended the revision of the government policy to ensure that there is enough credit to the financial institutions to accelerate economic growth.

Although different research has been carried out on the effect of bank credit on economic growth and inflation on economic growth very few have been done on the combined effects of bank credit and Inflation on economic growth especially on Uganda. Therefore, this thesis seeks to add to the available literature in that aspect. It further aims to find out the particular impact bank Credit and Inflation have on the economic growth of the economy of Uganda - a developing country - since various studies have shown different relationships in different countries as discussed above.

Chapter 3

INFLATION, BANK CREDIT AND ECONOMY OF

UGANDA

This chapter describes the trend of the economy of Uganda in regards to inflation and bank credit and some of the factors that have influenced it between 1983 and 2015. The economy has been growing albeit at a slow pace[1] and the inflation rates were very high in some years although they stabilized with time. The bank credit in the country has also been increasing in the stipulated period.

3.1 Economy of Uganda

The Economy of Uganda has been growing at a slower pace between 1983 and 2015 compared to other East African countries like Kenya, Tanzania, and Rwanda. The average annual growth was 4.5% between 2010 -2015 compared to the 7% achieved during the 1990s and early 2000s (The World Bank in Uganda, 2017).

Uganda is endowed with natural wealth like oil which has been discovered recently in the western part of the country and arable land for agriculture - an important sector which is the backbone of this economy and which employs approximately 69% of the population and contributed 26% of the GDP in 2015 (Deloitte, 2016). The GDP composition by sector is 24.4% in the agricultural sector, 21% in industry and 54.4 % on services.

---

[1] This is due to the civil unrest that has characterized most of the last decades.

However, Uganda's Economic growth faced the following problems during the stipulated period which have affected its growth: adverse weather conditions which affected the agricultural sector (the largest percentage contributor to the economic development of the country), civil unrest in the 1980s by the National Resistance Amy (NRM), unrest by the Lords Resistance Amy in the 1990s , the unrest in South Sudan, global economic uncertainties in 2007, the continuous depreciation of the shilling (Uganda's currency) and other internal and external factors which slowed down the development of the Economy.

Figure 3.1 shows that the Gross Domestic Product is increasing steadily within the stipulated time according to the data got from the World development indicators database.
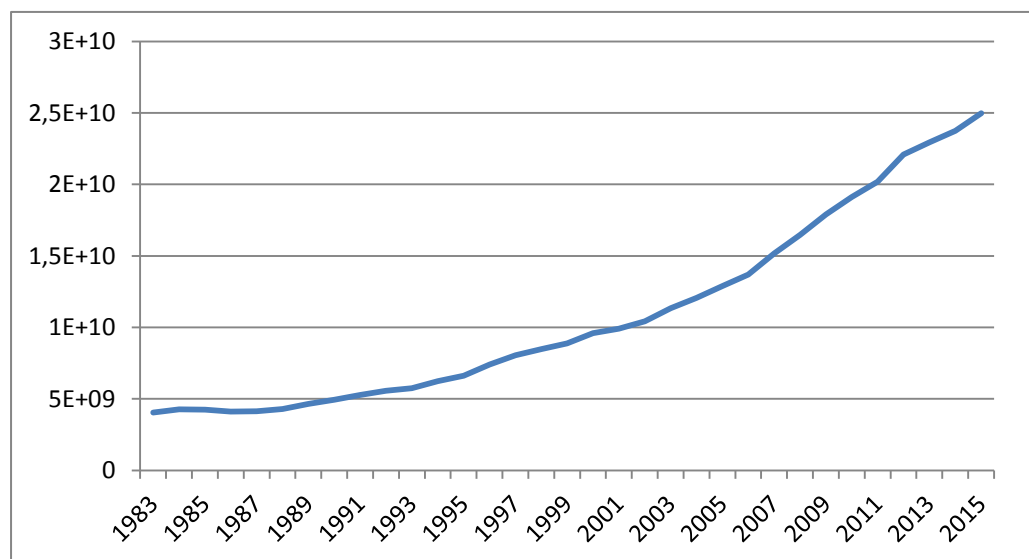

Figure 3.1: GDP constant (1983-2015)
Source: World Development Indicators.

3.2 Inflation in Uganda

Uganda is a developing country which has experienced a high rate of inflation compared to its neighboring countries and this has led to the low development of the economy. The Uganda Bureau of Statistics (UBOS), a body responsible for determining the inflation rates in Uganda uses the Laspeyres formula to measure inflation which is taken as the percentage deviation in the prices of different goods and services that a consumer will need.

The major cause of high inflation in Uganda is the rise of food and fuel prices although there are other factors, internal and external. For example, increased world food prices, since most of the food in the country is imported from other countries; drought, famine and instability in the 1980s in some parts of the country which made inflation to go as high as 200% in 1987 and also the rise in the money supply in the country. UBOS attributes the high inflation to high prices of staple foods, fruits, vegetables and fuel (particularly petroleum) and the transport charges. Also, the prices of cereals are high (Bank of Uganda, 2013).

This (that is, the high inflation rates) have reduced investment in the country, thereby affecting economic growth. The increased domestic credit by banks to the private sector may have also increased the inflation rates in the country which adversely affected the economy (Bank of Uganda, 2015).
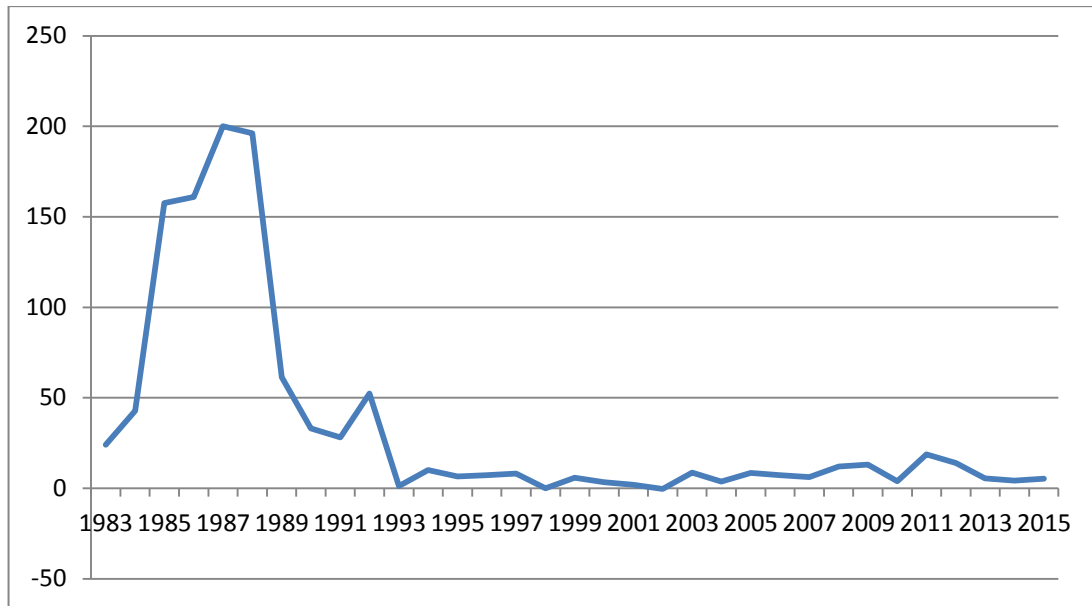
Figure 3.2: Inflation, consumer price (Annual %).
Source: World Development Indicators

Figure 3.2 shows that the inflation rates were very high in the first 10 years and declined with time. This can be credited to the improvement in the political stability of the country and control of the money supply among other factors that lead to the hike in the inflation rates in the country

3.3 Bank Credit in Uganda

Domestic credit to the private sector by banks is important for the growth of an economy. It has been defined as the financial resources provided to the private sector by financial institutions and micro financial institutions which must be repaid after an agreed period of time. The percentage of the credit to the private sector like loans in the country has been increasing with the lowest at 2.78% in 1988 and the highest at 15.17% in 2011 (World Development Indicators, 2017).

The private sector credit in Uganda is subdivided into the following sectors as shown in figure 3.3: Agriculture, Mining and Quarrying, Manufacturing, Trade, Transport and communication, Electricity and Water, Building, Mortgage, construction and

19

Real Estate, Business services, Community, social & other services, Personal loans and household loans and other services. According to the State of the Economy Report of December 2015, building construction and real estate, trade and commerce, manufacturing and personal and household loans constitute 73.2 percent of the total credit.
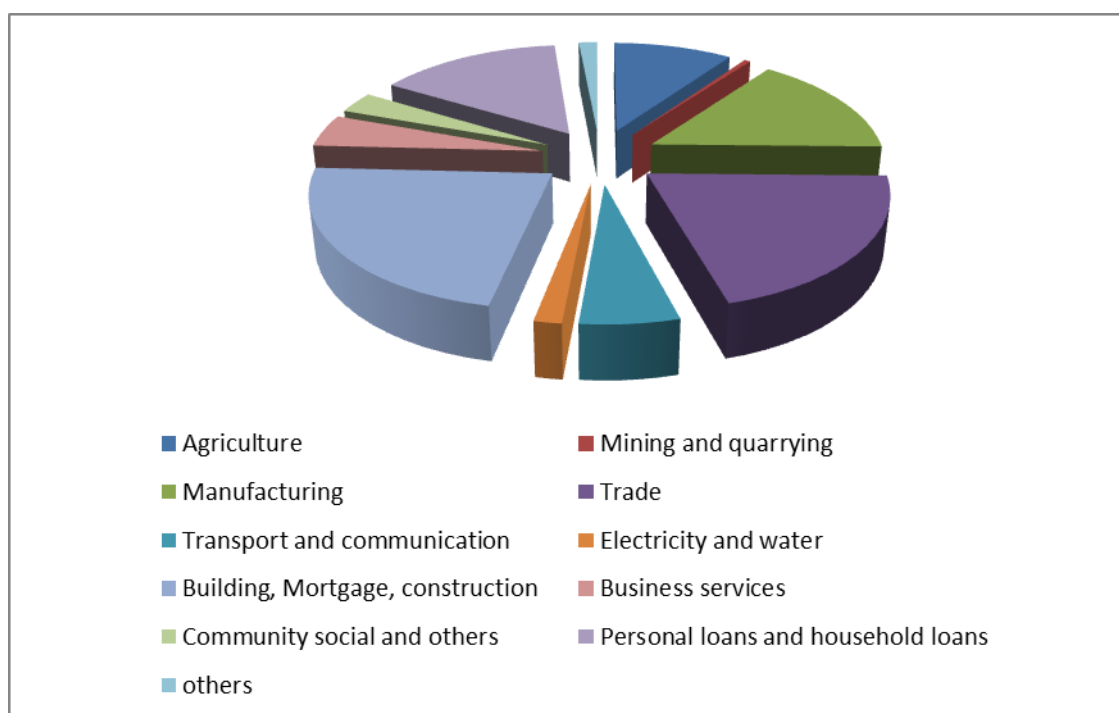
Figure 3.3: Sectorial distribution of bank credit to the private sector as at October 2015.
Source: Bank of Uganda.

The country has 25 licensed commercial banks operating with a total number of 455 commercial bank branches throughout the country as at 2012 that provide domestic credit to the public (Bank of Uganda).The financial services continue to increase each year from 564 bank branches in 2014 to 573 in 2015 and also the number of Automatic Teller Machines (ATM) by commercial banks increased from 830 to 842 in the same year (Bank of Uganda, December 2015). The increased number of bank branches is due to the increasing population in the country and the demand for the

services by the people; for example, provision of credit. By the end of 2015, the total banking assets were 21.7 trillion in the country (Bank of Uganda, December 2015).
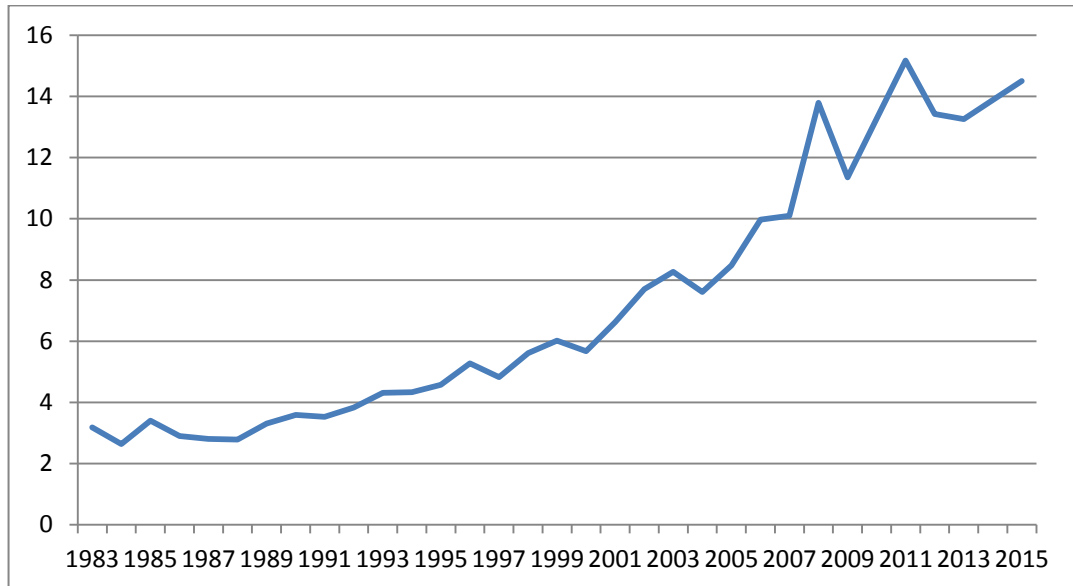

Figure 3.4: Domestic Credit to the Private Sector by Banks.
Source: World Development Indicators.

Figure 3.4 shows that the domestic credit by banks to the private sector has been increasing between the periods 1983 and 2015 in the country. In comparison to the GDP, we can see that as the domestic credit provided increased, the GDP also increased.

Chapter 4

DATA AND METHODOLOGY

4.1 Data

This thesis covers data taken from the World Development Indicators from the period of 1983-2015 of Uganda. The variables used are constant Gross Domestic Product for economic growth; Inflation rates (consumer prices as the annual percentage of the GDP) for inflation in the economy in the stipulated period and domestic credit to the private sector by banks to find the impact of bank credit on economic development.

4.2 Methodology

The main reason for this thesis is to establish the relationship amongst inflation, bank credit, and economic growth. This is shown in the model below:

$$GDP = f(INFL, DC) \tag{1}$$

Where economic growth (GDP) is the function of inflation (INFL) and domestic credit by banks to the private sector (DC).

Model 1 has been expressed in the logarithmic form below:

$$lnGDP_t = \beta_0 + \beta_2 lnINFL_t + \beta_3 lnDC_t + \varepsilon_t \tag{2}$$

Where $ln\text{GDP}_t$ represents the natural logarithm of Gross Domestic Product, $ln\text{INFL}_t$ shows the natural logarithm of inflation rates (consumer prices, annual %), $ln\text{DC}_t$ shows natural log of Domestic Credit to the private sector by Banks and ε_t is the disturbance term.

As a first step, the unit root tests is used; that is, Augmented Dickey-Fuller (ADF), Phillips-Peron (PP) and Kwiatkowski Phillips Schmidt & Shin (KPSS) to determine the stationarity of the inflation, bank credit, and economic development. After establishing stationarity of the variables, the analysis proceeded to cointegration to find the long run relationship between the variables using the Johansen Cointegration Test. Finally, in order to establish the direction of the relationships, Granger Causality Test was used.

4.3 Unit Root Tests

The ADF (1979) and PP test (1988) were used to establish the stationarity of the variables. They have the following null hypothesis, that "there is a unit root in the series" and the alternative is that "there is no unit root in the series". In case the series is stationary at level zero, the series is called integrated of order zero I(0) and when it becomes stationary at the first difference, it becomes integrated of order one I(I). ADF and PP tests of unit root employ three models that are with trend and intercept, intercept and without intercept and trend are employed. The ADF test uses lagged values of the dependent variable to make the error term serially uncorrelated and the PP test uses the nonparametric statistical methods to take care of the serial correlation in the error term without adding lagged differences (Gujarati and Porter, 2009).

The model used in both the ADF and PP tests is shown below and α represents the constant and βt is the time trend in the model:

$$\Delta y_t = \alpha + \beta t + Y y_{t-1} + \partial_1 \Delta y_{t-1} + U_t \tag{3}$$

KPSS test (1992) is used as a confirmatory test for the stationarity of the variable. The null hypothesis is 'stationarity in the series' and the alternative "there is unit root

in the series". Here the LM test and the critical value were used. In case the LM test is greater than the critical value then the null hypothesis representing stationarity of the data is rejected.

4.4 Cointegration Test

When the variables are in the same integrating order, cointegration is used to determine the long run association between them. The Johansen Cointegration test (1988) was used in this case because it is a systematic approach that gives robust results. The null hypothesis for this is, that "there is no cointegration in the series" and the alternative is that "there is cointegration in the series". Therefore, if the null hypothesis is rejected, it indicates the existence of cointegration in the series and thus a long run association among the variables. In this test, the null hypothesis can also be rejected based on the trace statistic and critical values. When the trace statistic is greater than the critical, the null hypothesis is rejected; that means, there is co-integration in the variables. Johansen (1988) and Johansen and Juselius (1990) help to show the cointegrating vectors among the variable and this eliminates the problems that are associated with the Engel and Granger (1987). The Johansen co-integrating equation is expressed below:

$$X_t = \Pi_1 X_{t-1} + \dots + \Pi_k K_{t-k} + \mu + e_t. \tag{4}$$

In this equation, X_t, X_{t-1} are the vectors of level form and lagged in first difference form, Π_1, Π_k are coefficient matrices, μ is a dummy and e_t represents the stochastic error term (Katircioglu, Kahyalar and Benar, 2007). Trace statistic can also be used to determine the co-integration between variables and can be expressed follows:

$\lambda_{\text{trace} = T(1-\lambda i),\, i} = r +1 \ldots\ldots$ n-1 and the null hypothesis are $\qquad$ (5)

H_0: V$\leq$0 $\qquad$ H_1: V$\geq$ 1

H_0: V $\leq$1 $\qquad$ H1:V$\geq$ 2

H_0: V$\leq$2 $\qquad$ H1: V $\geq$ 3

4.5 Vector Error Correction Model

After establishing the existence of the long run link between the variables, VECM was used to determine the short run and the long run coefficients of the variables using the lags obtained using the Akaike and Hannan-Quinn criterion which is considered the superior criterion. The long-run relationship is obtained using the co-integrating coefficients labeled Y in the error correction term in equation 7. The error correction term or speed of adjustment towards equilibrium should be negative and statistically significant, therefore indicating a long-run link between variables. The equations below are the co-integrating equation and vector error correction equation respectively:

$$\Delta \ln\text{GDP}_t = \beta_0 + \sum_{i=0}^{n} \beta_i \Delta ln\text{GDP}_{t\text{-}1} + \sum_{i=0}^{n} \beta_2 \Delta ln\text{INFL}_{t\text{-}1} + \sum_{i=0}^{n} \beta_3 \Delta ln\text{DC}_{t\text{-}1} + \beta_4\, \varepsilon_{t\text{-}1\,+} u_t$$

(6)

Where Δ in the model shows the change in the GDP, INFL and DC variables, u_t is the error term.

$$\Delta y_t = \beta_1 \Delta x_t + \beta_2(y_{t\text{-}1} - yx_{t\text{-}1}) + u_t \qquad (7)$$

Also in equation 7, β_1 indicates the short run relationship, β_2 represents the speed of adjustment back to the equilibrium and $(y_{t\text{-}1} - yx_{t\text{-}1})$ shows the error correction term.

4.6 Granger Causality Test

After establishing the long run association between the variables, the Granger Causality Test (1988) was carried out to determine the direction of the variables. It is useful in determining whether a variable is important in forecasting another. The

relationship between variables can be unilateral, where there is one-sided relationship between the variables, bilateral causality, where there is two-sided causality and independent, where there is no causality among the variables.

The following are the equations for the Granger causality employing the Vector Error Correction Model:

$$\Delta \ln Y_t = \alpha_{0+} \sum_{i=0}^{n} \beta_i \Delta ln Y_{t-1} + \sum_{i=0}^{n} \beta_2 \Delta ln X_{t-1} + \theta_i ECT_{t-1} + \varepsilon_t \tag{8}$$

$$\Delta \ln X_t = \alpha_{0+} \sum_{i=0}^{n} \beta_3 \Delta ln X_{t-1} + \sum_{i=0}^{n} \beta_4 \Delta ln Y_{t-1} + \theta_i ECT_{t-1} + \varepsilon_t \tag{9}$$

In Equations 8 and 9, Y and X are the series, θ_i is the coefficients of ECT_{t-1} that shows the disturbance term in the models and Δ shows the first difference of the variables. In equation 8, it shows that variable X Granger causes Y if the coefficient of error correction term is statistically significant. Also, equation 9 shows that variable Y Granger causes X indicated by the statistical significance of the coefficient of the vector error term. The t-test is used to test the significance of the error correction coefficient and the F-test is used to test the null hypothesis of β_2 and β_4

Chapter 5

EMPIRICAL RESULTS

This chapter shows the empirical results of the different analysis tools used in this thesis. The Unit root test (ADF, PP and KPSS) were used to test for stationarity, Johanen Cointergration test to establish the long run relationship between bank credit, inflation and economic development, Vector Error Correction model (VECM) to determine the long run and short run relationship between the coefficients and lastly the Granger Causality test to show the direction of the variables.

5.1 Unit root test

With the time series data from 1983-2015 of Uganda, the stationarity of the variables was investigated using Augmented Dickey-Fuller (ADF) with the help of Schwarz information criterion and Phillips-Peron (PP) where Andrews Bartlett kernel has been employed. The variables are tested at level and first differences. The results are discussed in the table below:

Table 5.1: ADF and PP Tests of Unit Root Results

Level	ln GDP	Lags	ln Infl	Lags	ln DC	Lags
Intercept (ADF)	-1.135	(0)	-1.544	(4)	-0.223	(0)
T &I (ADF)	-2.016	(0)	-0.921	(5)	-4.574	(0)
None (ADF)	2.752	(0)	-1.241	(2)	-1.995	(0)
Intercept (PP)	-1.265	(2.57)	-2.573	(2.02)	0.176	(3.77)
T & I (PP)	-2.441	(2.99)	-3.209	(1.33)	-4.574*	(0.895)
None (PP)	2.254	(2.27)	-1.467	(3.51)	3.171	(3.76)
First difference	ln GDP	Lags	ln Infl	Lags	ln DC	Lags
Intercept (ADF)	-4.625*	(0)	-6.146*	(4)	-9.334*	(0)
T& I (ADF)	-4.536*	(0)	-4.011**	(5)	-9.148*	(0)
None (ADF)	-4.216*	(0)	-9.068*	(2)	-7.158*	(0)
Intercept (PP)	-4.625*	(0.512)	-9.637*	(1.82)	-9.334*	(0.811)
T & I (PP)	-4.536*	(0.389)	-9.442*	(1.83)	-	-
None (PP)	-4.216*	(0.491)	-9.671*	(1.73)	-7.067*	(1.24)

Note:
GDP represents Gross Domestic Product, INFL represents inflation (consumer prices) and DC represents domestic credit by banks to the private sector and T&I represent Trend and Intercept. The variables are in their logarithmic forms. The * and ** represent the rejection of the null hypothesis at 1% and 5% respectively which shows that we accept the alternative that there is no unit root in the series.

The series become stationary at the first difference. According to ADF test, the series are not stationary at level form but become stationary when the first difference is taken. For the PP test, GDP and INFL are not stationary at level form but become stationary at first difference but DC is stationary at the level form.

In addition, KPSS test has been used as a confirmatory test for the stationarity of the variables in the first difference.

Table 5. 2: KPSS Test Results

ln GDP		Level (0)		First difference	
		KPSS value	Critical	KPSS value	Critical
intercept		0.707331***	0.347000	0.101281	0.347000
Trend	**and**	0.109001***	0.119000	0.103612	0.119000
intercept					
ln INFL					
Intercept		0.377705***	0.347000	0.085004	0.347000
Trend	**and**	0.145748***	0.119000	0.086546	0.119000
intercept					
ln DC					
Intercept		0.641538***	0.34000	0.071389	0.34700
Trend	**and**	0.125034***	0.119000	0.050361	0.119000
intercept					

Note:
GDP represents Gross Domestic Product, INFL stands for Inflation (consumer prices), and DC is for Domestic credit to the private sector. The variables are all in logarithmic form. *, **and *** represents the rejection of the null hypothesis at 1%, 5% and 10% respectively.

The series are stationary and therefore accepting the alternative that there is unit root at level form and thus no unit root at first difference. This is obtained using the LM test and the critical value. The critical values for the series are all more than the LM test at first difference. The method of Newly West using Bartlett Kernel has been employed in this test. This is used as a confirmatory test for the stationarity of the series and it shows that all the variables are integrated of order one.

5.2 Johansen Cointegration Test

After confirming that all variables are stationary at their first differences using ADF, PP and KPSS unit root tests, the analysis proceeds to carry out the Johansen Cointegration test to establish the long run association among the variables since it has a prerequisite of stationarity of all the variables at the same level. This helps also to show the robustness of the model, hence a pre-test for spurious regressions. The null hypothesis for the cointegration is that 'there is no cointegration in the model'

and the null hypothesis which is shown in table 5.3 below using lag 4 is rejected - the trace statistics and critical values were utilized. The trace statistic 76.01410 is greater than the critical values of 34.91 and 41.07 at 5% and 1% showing that the null hypothesis that there is no cointegration in the model is rejected. Also, test statistics 28.77126 is greater than the critical value of 19.96 and 24.60 at 5% and 1% indicating that there are co-integrating vectors in the model. Therefore the results indicate that there are 2 cointegrating vectors in the model at both 1% and 5% meaning that there is a long run link between gross domestic product, inflation and domestic credit by banks in the case of Uganda between the years of 1983-2015.

Table 5.3: Johansen Cointegration Test

Hypothesized	Eigen value	Trace statistic	Critical value (5%)	Critical value (1%)
None**	0.883213	76.01410	34.91	41.07
At most 1**	0.724376	28.77126	19.96	24.60
At most 2	0.018886	0.419462	9.24	12.97

*Note: ** indicates rejection of the null hypothesis at 1% and 5%*

5.3 Vector Error Correction Model

After confirming a long run association between variables Vector Error Correction was carried out. This determines the speed with which model returns to equilibrium after the exogenous shock. It should be negative and significant to show a movement back to the equilibrium and a positive one shows movement away from equilibrium. To carry out the Vector Error correction model, lag 1 was used according to Akaike information Criterion (AIC), Schwarz Information Criterion (SC), Hannan Quinn Information Criteria (HQ) as shown in the table below.

Table 5.4: Lags Length Selection

Lag	LogL	LA	FPE	AIC	SC	HQ
0	-69.37695	NA	0.083570	6.031413	6.178669	6.070480
1	-9.570866	99.67681*	0.001223*	1.797572*	2.386599*	1.953841*
2	-0.934032	12.23551	0.001316	1.827836	2.858633	2.101307
3	7.261974	9.562007	0.001570	1.894835	3.367403	2.285508
4	12.58132	4.876096	0.002677	2.201556	4.115894	2.709431

*Note: *indicates the chosen lag by the criterion.*

In table 5.5, the error correction term is 0.771406 which is negative and significant indicating that the short run values of GDP converge to equilibrium at 77% speed of adjustment with the help of short-run values of bank credit to the private sector and inflation.

Table 5.5: Vector Error Correction Estimates.

	Speed of Adjustment	Standard Error	t-statistic
LNDC(-1)	-1.238906	0.04898	-25.2924*
LNINFL(-1)	-0.120378	0.02319	-5.19143*
Cointeq1	-0.771406	0.13744	-5.61256*
D(lnGDP(-1))	0.692312	0.12885	5.37299*
D(lnGDP(-2))	0.179731	0.13579	1.32358
D(lnGDP(-3))	0.513396	0.12922	3.97296*
D(lnGDP(-4))	-0.224983	0.09260	-2.42960*
D(lnDC(-1))	-1.097953	0.23903	-4.59329*
D(lnDC(-2))	-1.606032	0.24389	-6.58500*
D(lnDC(-3))	-1.144619	0.27503	-4.16182*
D(lnDC(-4))	-0.488523	0.21265	-3.07392*
D(lnINFL(-1))	-0.076487	0.02488	-3.07392*
D(lnINFL(-2))	-0.072769	0.02960	-2.52328*
D(lnINFL(-3))	-0.072769	0.03055	-2.38211*
D(lnINFL(-4))	-0.066308	0.02122	-3.12526*

R squared: 0.945
Adjusted R squared: 0.857
F statistic: 10.662
Akaike Information criterion: 0.340
Schwarz criterion: 2.571
S.D dependent: 0.180

Note:
GDP represents Gross Domestic Credit, INFL represents Inflation (Consumer prices), DC represents domestic credit to the private sector by banks and they are all in logarithmic form,* represents the statistical significance at 1%.

The long run relationship is showed in table 5.5 by a coefficient of both domestic credit and inflation which is negative and statistically significant that is -1.235906 and -0.1203% respectively. This shows that there is a long run association among GDP and DC that when DC increases by 1% GDP decreases by 1.2389% in the long run and when inflation increases by 1% GDP decreases by 0.1203%. In addition, four lags have been used and both DC and INFL have a short run relationship between the variables based on the t-statistics which are all statistically significant.

5.4 Granger Causality Test

In order to find out the direction of the causality between Gross Domestic Product (GDP), inflation and domestic credit by banks to the private sector the Granger causality test under the block exogeneity approach was employed. The null hypothesis for the causality test of no causality between the variable therefore if the null hypothesis is rejected it means that there is Granger causality between the variables that is, the dependent variable Granger causes the independent variable. Table 5.6 shows that GDP Granger causes INFL at 1% and INFL Granger causes GDP at 1% thus a bilateral causality between the variables. Also it shows that GDP Granger causes DC but DC does not Granger cause GDP, hence a unilateral causality. This shows that both inflation and domestic credit to the private sector by banks are very important factors for the economic growth of Uganda.

Table 5.6: Granger Causality Test under the Block Exogeneity Approach

Null hypothesis	Chi-sq	df	Prob
LNGDP---LNDC	44.03711	4	0.0000*
LNGDP--LNINFL	13.99022	4	0.0073*
ALL	59.92830	8	0.0000
LNDC--- LNGDP	1.663104	4	0.7974
LNDC---LNINFL	0.769644	4	0.9425
ALL	2.927054	8	0.9389
LNINFL--LNGDP	14.06243	4	0.0071*
LNINFL---LNDC	7.693670	4	0.1035
ALL	16.06926	8	0.0414

Note:

* indicates the rejection of the null hypothesis at 1%.

Chapter 6

CONCLUSION AND RECOMMENDATIONS

In this thesis, the intent is to investigate the relationship among inflation, bank credit and economic development in Uganda using time series data from 1983-2015. Firstly, test for stationarity of the variables was carried out using ADF test, PP test, and KPSS as a confirmatory test and the variables became stationary at the first difference. Secondly, cointegration test was done using the Johansen Cointegration test and found that there is 1 cointegrating vector, indicating a long run link between bank credit, inflation, and growth of the economy. Through this work, a negative association between inflation and economic growth both in the long run and short run has been established using the VECM which shows that a 1% increase in inflation decreases the GDP by 0.1203% in the long run and also in the short run the coefficients are statistically significant in all the lags. For instance, in lag 4 a 1% increase in the inflation decreases GDP by 0.663% in the short run. In addition, a negative link was established between domestic credit by banks to the private sector and GDP both in the long run and short run and the coefficients are statistically significant, hence an increase in domestic credit by 1% will lead to a decline in GDP by 1.2%.

The negative link between DC and GDP in Uganda can be due to the fact that when the private sector gets loans from the financial institutions they invest in personal ventures and spend on luxurious items which may not lead to the development of the

country. Also, they might be investing in other neighboring countries because there is more interest earned on investments earned in these countries. The negative association between bank credit and economic development in Uganda is beefed up with the Odhiambo (2008a), Odhiambo (2008b), and Nyasha & Odhiambo (2017) studies which also found a negative association between financial development and growth in Kenya where they demonstrated the relationship amongst financial depth, savings, and economic growth. In table 5.5 the results of the ECM show that the short run values of GDP converge to equilibrium at 77% speed of adjustment with the help of bank credit to the private sector and inflation. Lastly, the study employed the Block exogeneity Granger Causality test to find the direction of causality between the variables. It established that inflation Granger causes economic growth and also economic development Granger causes inflation, suggesting a bilateral causality between INFL and GDP at 1% significance. Also established is that economic development Granger causes bank credit but bank credit does not Granger cause economic growth indicating a unilateral causality between GDP and DC at 1%; this agrees with Odhiambo (2008a) and Nyasha & Odhiambo (2017) who also found a negative relationship between bank credit and economic growth. They explain that it is due to the proxies used, country specificity, and data analysis method.

Due to the negative relationship between domestic credits by banks to the private sector this study recommends that the policymakers should ensure that domestic credit to the private sector is well distributed and utilized in productive ventures for the development of the economy of Uganda by, for instance, putting up restrictive measures on which activities to invest in. Also, policymakers should improvise means to reduce the importation of food into the country which is one of the factors

that have led to the increased inflation rates. For example, the government should give subsidies to the agricultural sector and also a strict monetary policy should be adhered to in order to control the money supply in the country.

With regards to the negative relationship of the domestic credit to the private sector, the study recommends an increase on the percentage of loans that are distributed to agriculture, transportation and communication, community, social and other services in the sectorial distribution of domestic credit which would increase on the economic development in the long run. Also a reduction in the percentage of the short run loans like personal and household loans and trade which might not lead to the development of the economy.

The policymakers should also ensure that the Non-Performing Loans (NPL) are reduced to enable development of the economy. As it can be noted, the Non-Performing Loans ratio has been increasing throughout the period for instance from 4.1% in December 2014 to 5.3% in December 2015 (Bank of Uganda, 2015).

A strong monetary policy to limit the amount of money in circulation should be encouraged and undertaken by the policy makers to curb the high inflation rates in the country to ensure growth of the economy.

REFERENCES

Abbey, E. N. (2012). Inflation and Financial Development; Evidence. *American Journal of Economics and Business Administration 4 (4), pp. 227-235.*

Abubakar, A, Kassim, S, H, J & Yusoff, M, B.(2015).Financial Development, Human Capital Accumulation and Economic Growth: Empirical Evidence from the Economic Community of West African States, *Procedia- Social and Behavioral Sciences, 172,(27) 96-103.*

Adeniyi, O, Oyinlola, A, Omisakin, O, & Egwaikhide, F.O (2015). Financial development and economic growth in Nigeria. Evidence from threshold modeling, *Economic analysis and policy, 47, 11-21.*

Ahmed, H.L & Zaid, S.A. (2016). Inflation and growth: An estimate of the threshold level of inflation in the U.S. *Journal of Economics and Finance, 7(6), 23-34.*

Akinsola, F. A & Odhiambo, N.M. (2017). Inflation and Economic Growth: a Review of the International Literature. *Comparative Economic Research, 20(3), pp 41-56.*

Akosah (2013). Dynamic of inflation and financial development: Empirical evidence from Ghana. *Journal of Economics and Sustainable Development, Vol 4, No.15.*

Almalki, A.M & Batayneh, K.I (2015) .The relationship between inflation and financial development in Saudi Arabia. *Proceedings of the Australasian conference on business and social sciences.*

Aydin C, Esen, O & Bayrat, M (2016) Inflation and economic growth: A Dynamic Panel Threshold Analysis for Turkish Republics in Transition process. *Procedia- Social and behavioral sciences, 229, pp 196-205.*

Bank of Uganda, (2013), The Bank of Uganda Economic and Financial Indicators.

Bank of Uganda, (2015), *Annual Supervision Report Issue 5.* Retrieved from https://www.bou.or.ug/bou/bou-downloads/asr/2015/Dec/Annual-Supervision-Report-December-2015.pdf on October 2017.

Bank of Uganda, (2015), *Annual Supervision Report, Issue 6*.Retrieved from https://www.bou.or.ug/bou/supervision/asr.html in October 2017.

Bank of Uganda, (2015), *Current State of the Economy 2015*.Retrieved from https://www.bou.or.ug/bou/publications_research/state_econ_reports.html.in October 2017.

Bank of Uganda, (2017) .Retrieved from https://www.bou.or.ug in October 2017.

Baoko, G, Acheampong, I. A, & Muazu, I. (2017). Determinants of bank credit in Ghana: A bounds-testing Cointergration approach. *African review of Economics and finance, 9, (1), 33-61*

Barro, Robert J. (1995).Inflation and economic growth, *NBER Working paper series, No 5326, National Bureau of Economic Research.*

Belinga, T, Zhou, J, Doumbe Doumbe, Gahe, Z & Yao, K. (2016). Causality Relationship between Bank Credit and Economic Growth: Evidence from a Time Series Analysis on a Vector Error Correction Model in Cameroon. *Procedia- Social and behavior vol.235,pp 664-671.*

Bittencourt, M. (2011). Inflation and financial development: Evidence from Brazil. *Economic modelling 28, 1-2 pp 91-99.*

Bittencourt, M. (2012). Inflation and Economic growth in Latin America: Some panel time series evidence. *Economic Modelling 29 (2),333- 340.*

Blinder, A, S. (2008). Keynesian Economics. *The concise Encyclopedia of Economics 2nd ed.*

Blinov, S, (2017) Inflation and Economic growth. *Munich Personal RePEc Archive, Paper no. 78212.*

Deloitte (2016). Uganda Economic Outlook. *The story behind numbers.* https://www2.deloitte.com/content/dam/Deloitte/ug/Documents/tax/Economic%20Outlook%202016%2

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

Dorrance, Graeme, S. (1966). Inflation and Growth: The statistical evidence, *IMF staff papers, 13(1), 82-102.*

Fischer, S. (1983). Inflation and growth, *NBER Working Paper series, No 1235, National Bureau of Economic Research.*

Friedman, M. (1994) Money Mischief: Episodes in monetary History. New York.

Hung (2003). Inflation, Financial development and economic growth. *International Review of Economics,* 12, 45-67.

Ghirmay, T, (2004) Financial Development and Economic Growth in Sub-Saharan African Countries: Evidence from Time series Analysis. *African development Review,* 16, (3), 415-432.

Ghosh, & Phillips, S (1998) Warning: inflation may be harmful to your growth. *IMF Staff paper,* 45 (4) pp 672-710

Gregorio (1993). Inflation, taxation and long run growth. *Journal of Monetary Economics*, vol. 31, pp 271-298.

Gujarati, D, N & Porter C, D. *Basic Econometrics*. (5th Ed.)

Gurley, J & Shaw, E. (1967). Financial Structure and Economic Development. *Economic Development and cultural change,* 15(3), 257-268.

Hasanov, F, & Huseynov, F. (2013). Bank credit and non- Oil economic growth. Evidence from Azerbaijan. *International Review of Economics and Finance*, *vol.27, pp 597-610.*

Henderson, D, (2007). The concise Encyclopedia of Economics.

Irfan, M, Attari, J & Javed, A, Y (2013) Inflation, Economic growth and government expenditure of Pakistan. *Procedia Economics and Finance, vol, 5 pp 57-68.*

Kasidi, F & Mwakanemela, K. (2013). Impact of inflation on economic growth: A case study of Tanzania. *Asian Journal of Empirical Research, 3(4), 363-380.*

Katircioglu, S, T, S, T, Kahyala, N, & Benar, H. (2007). Financial development, Trade and Growth triangle: A case of India. *International Journal of social Economics, 34, (9) .586-598.*

Khan, H. (2015). Impact of inflation on financial development. *International Journal of Innovation and Economic Development   1, (4), 44-48*

Khan, M.S, & Senhadji, A, S (2001).Threshold effects in the relationship between inflation and growth. *IMF staff Papers, Vol 48, pp 1-21. Washington, DC: International Monetary Fund.*

Khoutem, B, J Thouraya, B & Kamel, H (2014). Financial development and economic growth: New evidence from Tunisia. *Journal of policy modelling, .36, (5), 883-898.*

King, R, G & Levine, R (1993). Finance, Entrepreneurship and growth: *Journal of Monetarily Economics, 108, pp. 513-532.*

Kremer, S, B, A, & Nautz, D. (2013). Inflation and growth: new evidence from a dynamic panel threshold analysis, *Empirical Economics. 44(2) 861-878.*

Kwiatkowski, D, Phillips, P, C, B, Schmidt, & Shin, Y. (1992). Testing the null hypothesis of stationarity against the alternative of a unit root: How sure are we that economic time series have unit root?

Mallik, G, & Chowdhury, A. (2002). Inflation, government expenditure and real income in the long run, *Journal of Economic Studies 29, pp 240*

Mohsenia, M, & Jouzaryanb, F. (2016). Examining the Effects of Inflation and Unemployment on Economic Growth in Iran (1996-2012).*Procedia Economics and Finance, 36, 381-389.*

Nyasha, S, & N.M. Odhiambo, N.M. (2017). Financial development and Economic growth Nexus: A revisionist approach. *Economic Notes. Review of Banking, Finance and Monetary Economics.*

Odhiambo, N. M. (2008a). Financial depth, saving and economic growth in Kenya: A dynamic causal linkage. *Economic Modelling, 25, (4), 703-713.*

Odhiambo, N. M. (2008b). Financial Development in Kenya: a Dynamic Test of the Finance-led Growth Hypothesis. *Economic Issues, 13, (2).*

Ohlam, R, (2017). Relationship between tourism, financial development and economic growth in India. *Future Business Journal*, *.3, (1), 9-22.*

Raluca, D, & Pop, A. (2015). Implication of credit activity on Economic growth on Romania. *Procedia Economics and Finance, .30, 195-201.*

Rapach, D. E. (2003).International Evidence on the long run impact, *Journal of money, credit and banking*, *35(1),23-48.*

Rousseau, P.L, & Yilmazkuda, H. (2009). Inflation, financial development and growth: A trilateral analysis. *Economic Systems*, *33, (4), 310-324.*

Saeed, A, A, J (2007) .Inflation and economic Growth in Kuwait 1985–2005: Evidence from co-integration and error correction model. *Journal of Applied Econometrics and International Development, 7, .143-155.*

Sarel, M., (1996). Nonlinear effects of inflation on economic growth. IMF Staff Papers. 43 (1996) 199–215. Washington, DC: *International Monetary Fund.*

Schumpeter J, A. (1911). The Theory of Economic Development Translated by Redvers Opie Harvard University Press, Cambridge MA.

Seow, S.K, Siong, H.L, & Mansor, H.I. (2017). Credit expansion and financial stability in Malaysia. *Economic modelling*, *61, 339-350.*

Shahbaz, M, Hoang, T, H, V, Muhalik, M, K, & Roubaud, D. (2017). Energy consumption, Financial Development and Economic Growth in India. New evidence from a nonlinear and symmetric analysis. *Munich Personal RePEc Archive.*

Shaw E, S, (1973). Financial Deepening in Economic Development. *Oxford University Press, New York.*

Sumon, K.K, & Miyan, S. (2017). Inflation and Economic Growth: An Empirical Evidence of Bangladesh (1986-2016).*International Journal of Economics and Financial* issues. Vol.7.

Suna, K. (2015). Impact of Bank credit on Economic growth and Inflation. *Journal of Applied Finance and Banking, .5, (1) 51-69.*

The World Bank in Uganda (2017) http://www.worldbank.org/en/country/uganda in October 2017.

Vinayagathasan, T, (2013). Inflation and economic growth: Dynamic panel threshold analysis for Asian countries. *GRIPS Discussion paper 12-17.*

Wai, U.T, (1959) .The relation between inflation and Economic Development: A Statistical inductive study, *IMF staff paper, 7(2) pp.302-317.*

White, L, H (2008) .Inflation. *The concise Encyclopedia of Economics (2nd Ed.)*

World Development Indicators (2017). Retrieved from https://data.worldbank.org/data-catalog/world-development-indicators on October 2017.

Zang, H & Kim, Y.C, (2007). Does Financial Development Precede Growth? Robinson and Lucas Might Be Right. *Applied Economic letters.14, (1)15-19*

Zermeno, M.A, Martinez, F.V, & Preciado, V, H, T. (2014). Growth, bank credit, and inflation in Mexico: Evidence from an ARDL –bounds testing approach. *Latin American Economic Review. 23(1), 1-8*