The Effect of Monetary Policy on Economic Growth in Kenya

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Abstract

This study sought to quantitatively measure the effect of monetary policy on economic growth in Kenya. Findings from this study indicated that one standard deviation monetary policy shock proxied by the CBR has a negative and insignificant effect on the output in the first two months which then becomes positive and insignificant in the next four months. However, a one standard deviation shock of the interbank rate to inflation is positive and significant for the first two and a half months. The effect continues to be positive but insignificant upto the sixth month. The findings of this study will draw conclusions that will influence policy decisions that will ensure economic growth. Recommendations made from this study will assist the Central Bank of Kenya formulate policies that reduce interest rates to desirable levels to spur economic growth and still seek to achieve low levels of inflation.

Key Words *monetary policy, central bank rate (CBR), economic growth, gross domestic product (GDP), inflation, vector auto regression (VAR), interbank rate*

1. Introduction

This paper empirically investigates the effect of monetary policy on the economic growth in Kenya. Indeed, a spate of recent empirical research has confirmed the early finding of Friedman and Schwartz (1963) that monetary policy actions are followed by movements in real output that may last for two years or more (Bernanke and Blinder, 1992; Christiano, Eichenbaum and Evans, 1994a, b).Monetary transmission mechanism has been a subject of much research over a number of years (see Stiglitz, & Weiss, 1981; Bernanke & Gertler, 1995 and Christiano *et al.,* 1997). It describes how policy-induced changes in monetary policy actions impact on policy goals e.g. output and inflation. A substantial body of recent literature has focused on these issues for developed and emerging economies looking at the transmission mechanisms and sectoral effects of monetary policy. However, the vast empirical literature on monetary transmission has primarily focused on developed economies. The most distinguishing characteristic of monetary transmission mechanism in developed countries is the focus on prices (interest

rate, exchange rate, and other asset prices) rather than quantities (money, credit, base money, bonds, foreign assets, etc.) In contrast, the prevailing orthodoxy of monetary transmission mechanism in low-income countries has been its focus on quantities rather than prices. This difference is often attributed to weak institutional frameworks, oligopolistic banking structure, shallow financial markets, and extensive central bank intervention in foreign exchange markets in low income countries. Moreover economists do not agree about how monetary policy affects the economy Davoodi, Dixit & Pinter (2013). Different observers weigh in different ways the various specific channels through which monetary policy works. The lack of consensus is evidenced by the many studies that have emphasized the importance of different channels through which policy shocks are propagated through the economy. For example, Taylor (1995) takes the position that there are strong interest rate and exchange rate channels while Obstfeld and Rogoff (1995) stress the relative importance of the exchange rate channel.

Having been established in 1966 under Central Bank Act (Cap 481), The Central Bank Of Kenya has been entrusted with the responsibility of formulating and implementing monetary policy directed at achieving and maintaining stability in the general level of prices, to foster the liquidity, solvency and proper functioning of a stable market based financial system and to maintain a sound market based financial system. Measured against fiscal policy, monetary policy is said to be quicker at resolving economic shocks. Kahn (2010), observes that monetary policy objectives are concerned with the management of multiple monetary targets among them price stability, promotion of growth, achieving full employment, smoothing the business cycle, preventing financial crises, stabilizing long-term interest rates and the real exchange rate.

1.1 Monetary Policy in Kenya

The monetary policy committee is the organ of the central bank responsible for formulating monetary policy. It was formed vide Gazette Notice 3771 on 30th April 2008 replacing the hitherto monetary policy advisory committee (MPAC).The membership of MPC is composed of the Governor ,who is the chairman of the committee, the deputy Governor ,who is the deputy chairman ,two members appointed by the Governor from the bank ,one being a person with executive responsibility within the bank for monetary policy analysis(Director Research department)and the other person is a person with responsibility within the bank for monetary policy operations (External payment and reserve management);for external members who have knowledge ,experience and expert in matters relating to finance, banking ,fiscal and monetary policy who are appointed by the minister for finance ,The permanent secretary of the ministry of finance is a non -voting member of the committee or his designated alternate as representing the Treasury. Each external member of the committee serves for a term of 3 years which is renewable once (CBK Act, 2005).

According to economic surveys (1966-2010) CBK pursued a rather passive monetary policy during 1966 to 1970 this is partly because the bank had not then acquired sufficient experience in the management of monetary policy and because the Kenyan economy had no serious macroeconomic problems to contend with during this period. The economy grew at rates around 8 percent annually while inflation remained below 2 percent apart from 1967 and 1969, both the country's balance of payments and budget recorded substantial surpluses during this period. The bank focused on laying down the necessary infrastructure for effective management of monetary policy .It consolidated its role as the major holder of foreign exchange following the centralization of the custody of foreign exchange with the bank in 1967. In the same year it introduced liquidity ratio.

Kenya entered the second decade of independence, during the 1970-1980; with major difficulties that threatened her ability to sustain the commendable 6-8 percent annual growth rate that the country enjoyed in the 1960's .The country had to confront emerging and severe constraints on the balance of payments. Particularly following the collapse of the Bretton woods system of fixed exchange rates in 1971-1975, and the balance of payments and domestic prices came under increasing pressure. After consecutive surpluses over the previous 3 years to 1970, the overall balance of payments moved into a deficit of 362 million in 1971 and inflation climbed to 7 percent from 2.6 percent in 1996 .These adverse developments were largely attributed to a sharp expansion percent in domestic credit that had occurred in the previous two years and resulted in a much higher imports in 1970/1971.The reduction in net capital inflows also contributed to the weakening of the balance of payment in 1971.

The Bank took a number of measures aimed at containing credit expansion and at helping to curb imports .These measures included the imposition of a minimum cash ratio of 5 percent put in place in 1969 .The cash ratio was however removed and liquidity ratio was raised to 15 percent in February 1972,commercial banks and non bank financial institutions (NBFI's) were also instructed by the CBK to reduce their lending for financing imported consumer durables by specified amounts between July and October 1971.The shilling exchange rate was also devalued following the devaluation of the US dollar.

At the initial stages following liberalization in mid-1992, there was virtually no intervention by CBK in the foreign exchange market. As result, Kenya was categorized among developed countries as a free floater. The stated exchange rate policy of the CBK has been and continues to be to pursue a market determined exchange rate, intervening only to smooth out erratic movement, service external obligations and achieve targeted level of foreign exchange reserves. Nonetheless, there have been instances where intense lobbying from non-traditional exporters for a depreciated exchange rate putting pressure on the CBK to influence the market exchange rate in the short run. There were also instances where depreciation pressures emanating from speculative tendencies occasioned by fragile donor relations and large food importation to mitigate adverse effects of drought could have led CBK to intervene in the foreign exchange market to reduce pressures on domestic inflation. The exchange rate has been volatile and in October 2011, the Kenya Shilling depreciated and hit an all-time low of 105.96. This was attributed to various factors including the debt crisis in the euro zone, pressures from Kenya's balance of payment and due to arbitrage in the local money market. This forced the cost of living to rise above the income and expectation of ordinary Kenyans.
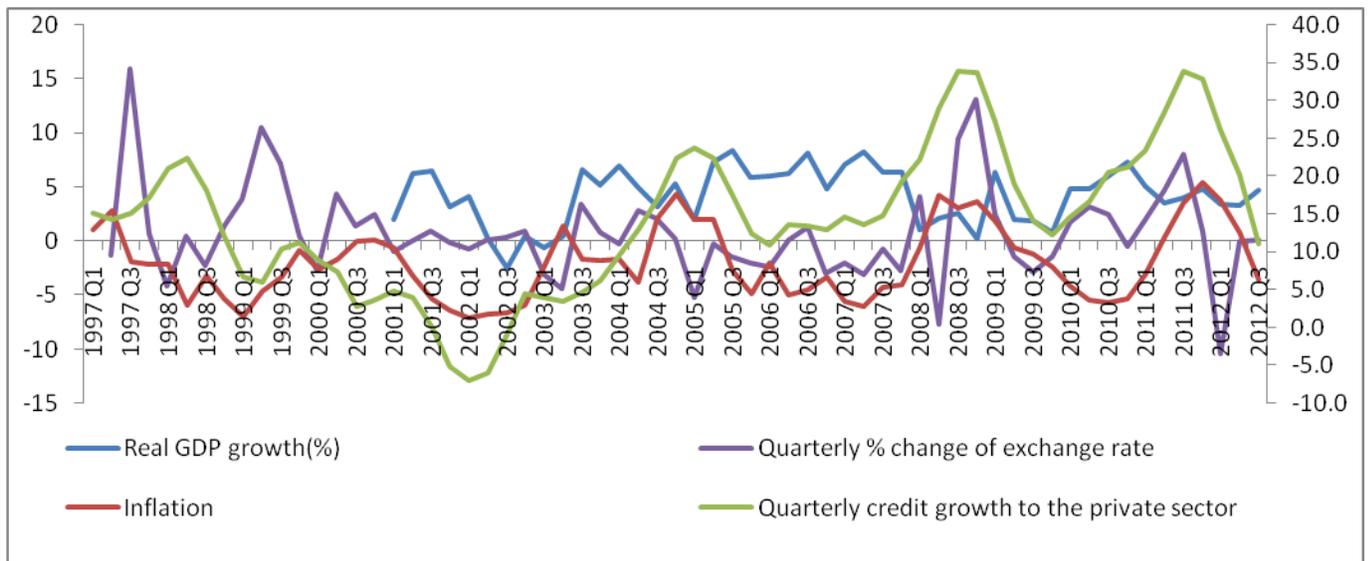
1.2 Review of Key Macroeconomic Developments

1.21 Comparison of interest rates in Kenya (Figure 1)
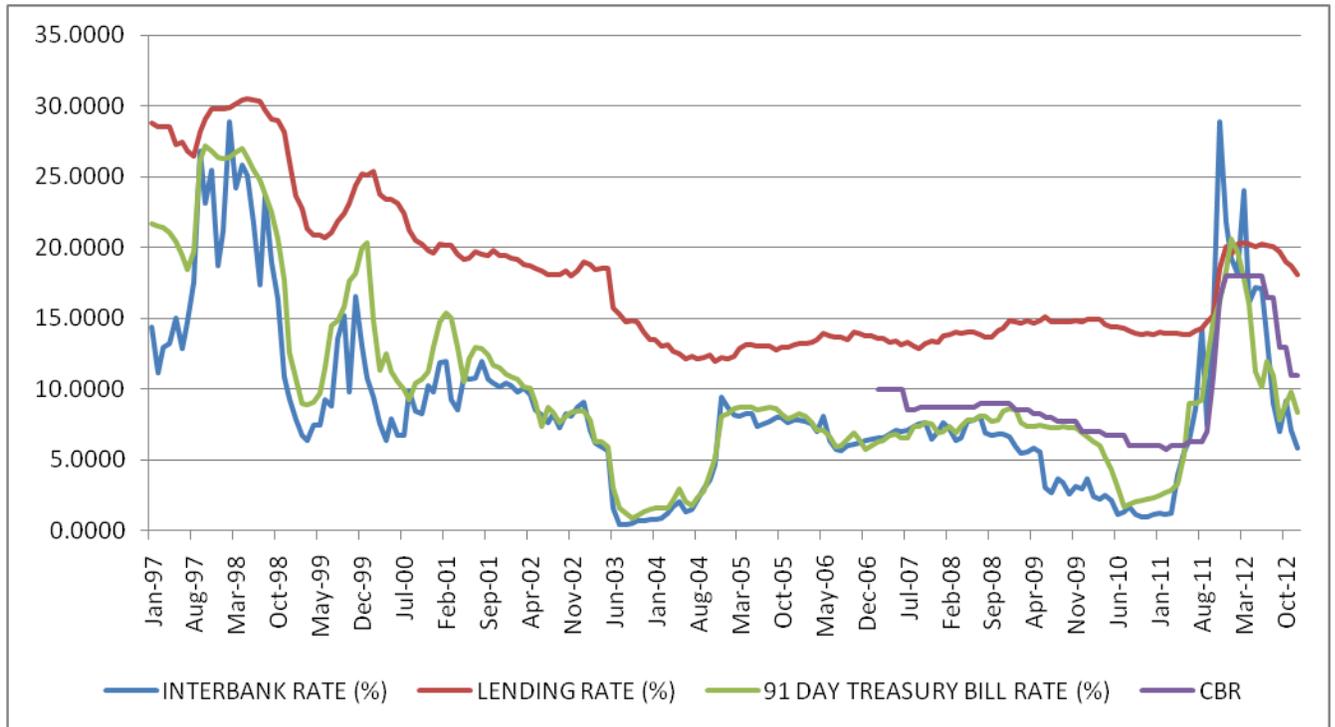
Source: Central Bank of Kenya

1.22 GDP, Inflation, credit growth to the private sector and the exchange rate (Figure 2)

Source: Kenya National Bureau of Statistics

1.3 The Problem Statement

The Economic Pillar of Vision 2030 seeks to improve the prosperity of all regions of the country and all Kenyans by achieving a 10 percent Gross Domestic Product (GDP) growth rate by 2012. However, the latest statistics indicate that GDP grew by 3.4 percent in the first quarter of 2012, declining to 3.1 percent in second quarter and rose to 4.8 percent in third quarter of 2012. These rates are far below the target of 10 percent growth per annum. To achieve the Vision 2030 objective on economic growth, the government must put in place appropriate policies such as fiscal and monetary policies. In the literature the role of monetary policy in influencing economic performance dates back to Friedman and Schwartz (1963) where it is shown that monetary policy actions are followed by movements in real output which is confirmed by recent empirical evidence that the effect of monetary policy on output may delay for up to two years (Bernanke and Blinder, 1992; Christiano, Eichenbaum and Evans, 1994a, b).

Theoretically monetary policy is transmitted through various channels- interest rate channel, exchange rate channel, bank lending channel and asset price channel. However the debate about the effectiveness of each of these channels in Kenya is far from over. For example, focusing on the interest rate channel, it is shown that during the period 1998- 2012, the monetary policy rate (CBR) has been successful in influencing short term rates but not the retail rates such as the lending rate. During the period 1997 -2000, the average rate for the interbank, 91 day Treasury bill and the lending rate were 14.04 percent, 17.79 percent and 25.63 percent respectively. In the subsequent period between 2001 and 2004, the interbank rate reduced to 6.33 percent and the 91 day Treasury bill rate reduced to 6.33 percent and the lending rate followed suit and declined to 16.77 percent. Between 2009 and 2011, the average of the CBR reduced to 7.64 percent triggering a reduction in the interbank rate to an average to 5.19 percent and the 91 day Treasurybills average rate declined to 6.57 percent. But the lending rate either remained sticky or took an opposite trend. This suggests the desired effect of monetary policy to influence credit to the private sector and therefore economic growth may have not been achieved. This behavior of the lending rates has an impact on the average credit growth to the private sector.

The exchange rate channel requires that tight monetary policy is expected to cause appreciation of exchange rate which eventually impacts on export performance and economic growth. However, available evidence shows that during the period under study, the exchange rate movement was not consistent with the monetary policy decisions and therefore casting doubt on the effectiveness of the exchange rate channel. For example, 2004-2006, the exchange rate appreciated but economic growth improved.

Following this evidence it appears that the role of monetary policy in influencing economic growth in Kenya is not clear. A few studies have been conducted on Kenya to investigate the effectiveness of monetary policy on economic growth (see Cheng 2006; Maturu, 2006; Kimanja, 2011; Durevall and Ndung'u, 1997). However, all these studies used quarterly data and also used data on inflation which was computed using the old methodology (arithmetic approach). Using old dataset on inflation may have important implications on the results and therefore policy. In view of these shortcomings the current study will contribute to the debate using monthly data and new inflation data set.

1.4 Objectives

1.4.1 General objective

The general objective of this study is to assess the effectiveness of monetary policy on economic growth in Kenya

1.4.2 Specific objectives

1. To establish the effect of monetary policy actions on exchange rate in Kenya.
2. To establish the effect of monetary policy actions on GDP in Kenya.
3. To establish the effect of monetary policy actions on inflation in Kenya.
4. To establish time taken for the full effect of a monetary policy actions on exchange rate in Kenya.
5. To establish time taken for the full effect of a monetary policy actions on GDP in Kenya.
6. To establish time taken for the full effect of a monetary policy actions on inflation in Kenya.
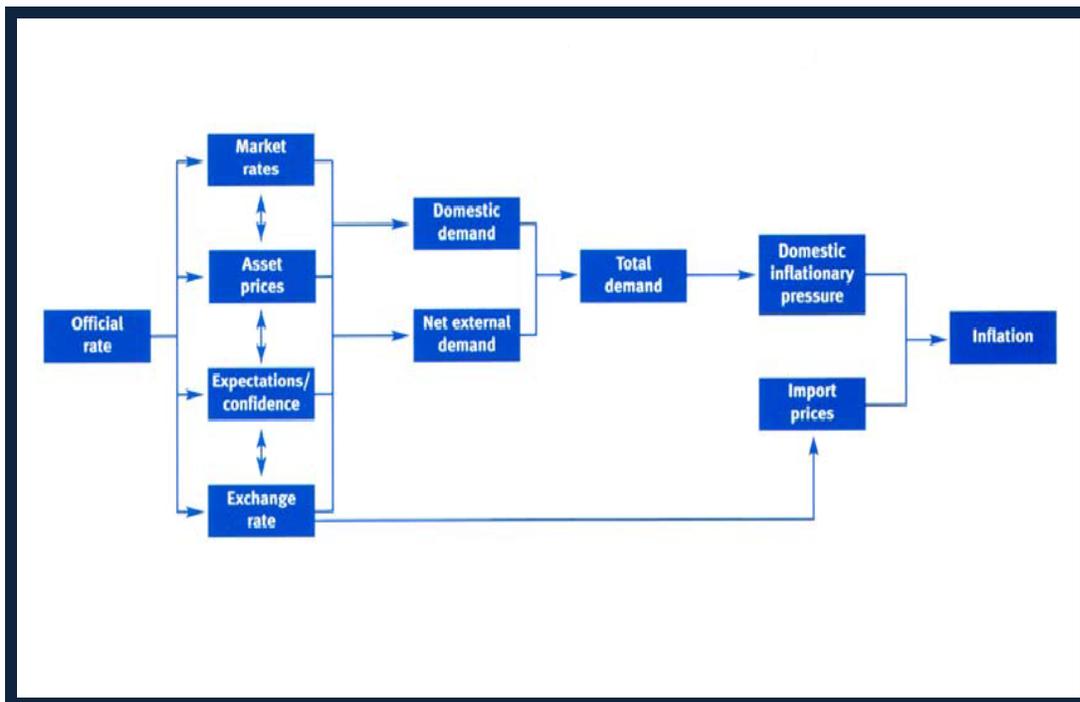
2. Literature Review

2.1 Introduction

This section reviews the theoretical framework and empirical literature on the relationship between monetary policy and exchange rate in Kenya and also between the exchange rate and economic growth.

2.2 Theoretical Review

There are a number of channels that show how monetary policy stance is transmitted into the real economy, namely: asset price channel, interest rate channel, exchange rate channel, credit channel, and expectations channel: as shown in figure 1 below

2.2.3 Transmission Channels of Monetary Policy

Source: http://www.bankofengland.co.uk/images/from_int_inf2.gif).

2.3 Summary of Literature

From the literature review, it is evident that there exist various channels through which monetary policy actions are transmitted to output and inflation in the economy. As for the exchange rate channel, most authors are in consensus that the exchange rate channel has an effect on the economic growth apart from a few see McCarthy who concluded that the exchange rate channel does not play a significant role in economic growth. Most of the literature on credit channel indicates that an increase in credit will lead to an increase in economic growth. However, part of the literature argues against a linear relationship between credit and economic growth Krishnakutty (2011) stating that credit does not have an impact on economic growth due to default in payments and lack of monitoring by authorities. As for the interest rate channel, most of the studies indicate that there is no relationship between investment expenditure and the market interest rate, which suggests that the effect of monetary policy on economic growth through the interest rate channel is impeded. Literature on the asset price channel indicates that existence of this channel is mixed in various countries.

2.4 Critique and Research Gap

While the literature reveals that different policy instruments have different effects on output and inflation, most of it contradicts expectations derived from theory. There is lack of general consensus as to why some of the monetary policy actions do not affect economic growth through some channels. A number of studies have been carried out about various aspects of the monetary policy in Kenya. Using vector auto-regression model, none of them addresses the effect of monetary policy on economic growth comprehensively. This study argues that for the government to achieve its desired level of economic growth effective monetary policies need to be put in place. To help achieve this goal, this study therefore confronts the effect of monetary policy on economic growth through the exchange rate channel using vector auto-regression analysis by asking the following questions do monetary policy actions have an effect on exchange rates ,GDP and inflation in Kenya? How long does it take for monetary policy actions to filter through to the exchange rate, GDP and inflation in Kenya? So far, there has been little empirical evidence on the effect of monetary policy on economic growth in Kenya. The study aims to bridge this gap.

3. Methodology

Two decades ago, Christopher Sims (1980) provided a new macro econometric framework that held great promise: vector auto regressions (VARs). A VAR is an *n*-equation, *n*-variable linear model in which each variable is in turn explained by its own lagged values, plus current and past values of the remaining *n* 2 1 variables. This framework provides a systematic way to capture rich dynamics in multiple time series, and the statistical toolkit that came with VARs was easy to use and to interpret. As Sims (1980) and others argued in a series of influential early papers, VARs held out the promise of providing a coherent and credible approach to data description, forecasting, structural inference and policy analysis.

VAR was appropriate in this study since VAR is hypothesized that the variables are contemporaneous related and therefore using single equation framework will not be appropriate because of the problem of endogeneity. They typically treat all variables as a priori endogenous. Thereby they account for Sims' critique that the exogeneity assumptions for some of the variables in simultaneous equations models are adhoc and often not backed by fully developed theories.

The VAR model assumed that the Kenyan economy can be described by the following structural form equation:

$$G(L)Y_t = C(L)X_t + \varepsilon_t \qquad (1)$$

where $G(L)$ is a $n \times n$ matrix polynomial in the lag operator; $C(L)$ is a $n \times k$ matrix polynomial in the lag operator; Y_t is a $n \times 1$ vector of endogenous variables; and X_t is a $k \times 1$ vector of exogenous variables; ε_t is a $n \times 1$ vector of structural disturbances, with var(ε_t) $= \Lambda t$

where Λ is a diagonal matrix. Corresponding with this structural model is a reduced-form VAR:

$$Y_t = A(L)Y_t + B(L)X_t + \mu_t \qquad (2)$$

Where $A(L)$ and $B(L)$ are matrices polynomial; μ_t is a vector of reduced-form disturbances, with var $(\mu_t) = \Sigma$.

Let F be the contemporaneous coefficient matrix in the structural form, and let $H(L)$ be the coefficient matrix in $G(L)$ without contemporaneous coefficient. That is,

$$G(L) = F + H(L) \qquad (3)$$

Therefore, the structural and reduced-form equations can be related by

$$A(L) = -F^{-1}H(L) \text{ and } B(L) = F^{-1}C(L). \qquad (4)$$

And the error terms are related:

$\mu_t = F^{-1}\varepsilon_t$ or $\varepsilon_t = F\mu_t$, which implies

$$\Sigma = F^{-1}\Lambda F^{-1}{}' \qquad (5)$$

Consistent estimates of F and Λ are inferred by estimates of Σ, which can be obtained by the maximum likelihood estimation. Since the right-hand side contains $n \times (n+1)$ free parameters to be estimated, while the left-hand side contains only $n \times (n+1)/2$ parameters, $n \times (n+1)/2$ restrictions were needed to achieve identification. Normalization of the diagonal elements of F to be unity leaves $n \times (n-1)/2$ additional restrictions, which was motivated by economic theory.

Throughout this paper, the exogenous vector X_t was assumed to contain a commodity price index (*Comm*), which was calculated based on Kenya's main exports, the world fuel commodity price index (*Oil*), and the U.S. Federal Fund's rate (*Fed*):

$$X_t' = [\ Comm\ Oil\ Fed\ ] \qquad (6)$$

These variables were included to control for changes in overall global economic stance, and Fluctuations in energy prices and commodity prices of Kenya's main exports. Given that the Kenyan economy is unlikely to have an impact on the global economy, these variables were treated as exogenous.

The endogenous variables are as follows

$$Y_t' = [GDP_t \quad CPI_t \quad CRDT_t \quad CBR_{t_t} \quad TB_{t_t} \quad INBK_{t_t} \quad LR_{t_t} \quad NEER_t] \, , \qquad (7)$$

Where GDP is gross domestic product etc, consumer price index (*CPI*), credit to the private sector (CRDT), Central Bank Rate (CBR), treasury bills (TB) short-term interest rate (INBK), lending rate (LR) and the nominal effective exchange rate (*NEER*).
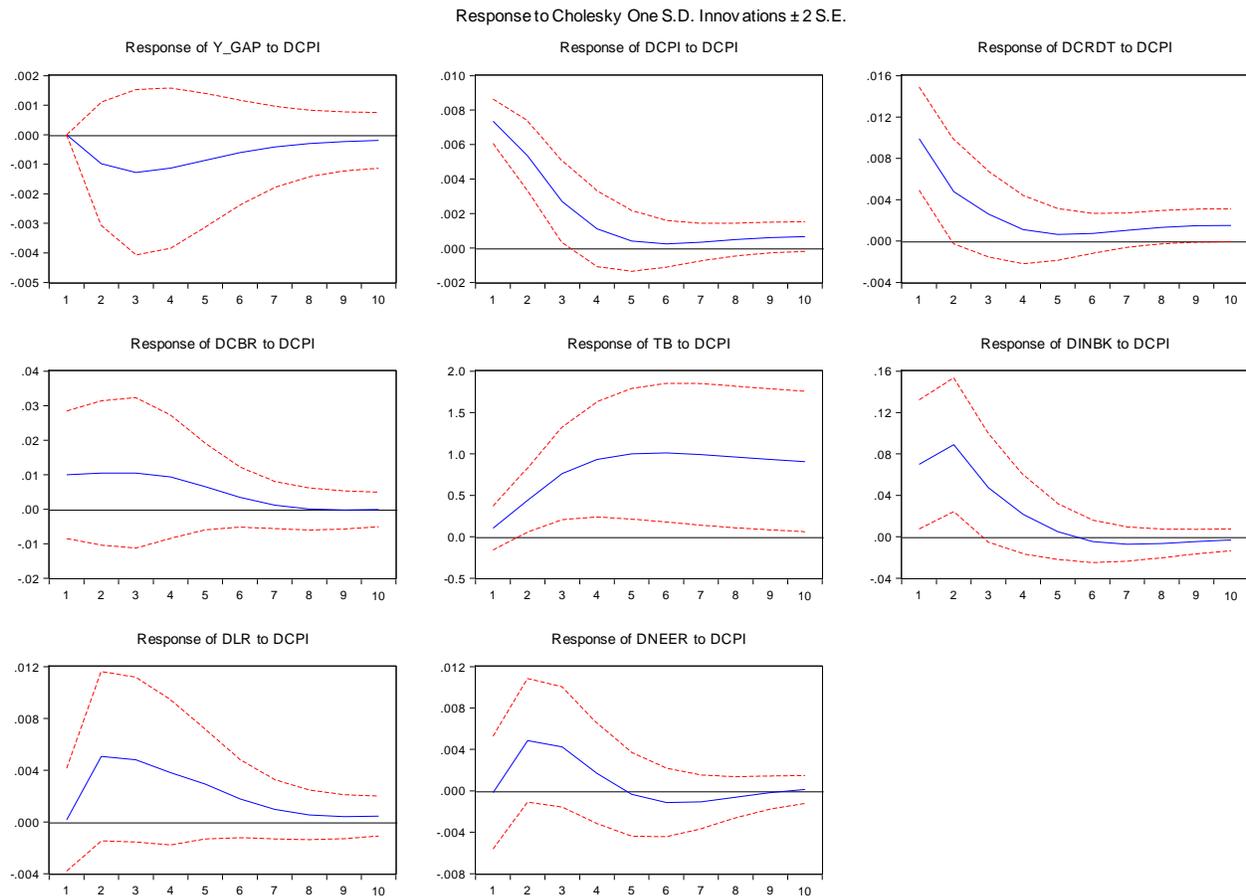
4.   Impulse Response Graph Analysis

The graphs indicate the impact of a one standard monetary policy shock on macro-economic variables. The impulse response function traces the effect of each shock on each variable in VAR under the period of study. Monetary policy shock is measured in terms of the CBR rate. From the impulse response graphs, it is noted that the response of monetary policy to output is has a negative and insignificant effect on the output in the first two months which then becomes positive and insignificant in the next four months. The second graph shows the response of inflation to the various variables. It can be noted that a one standard deviation shock of the interbank rate to inflation is positive and significant for the first two and a half months. The effect continues to be positive but insignificant upto the sixth month.

4.1 Response of Variables to CBR

Response to Cholesky One S.D. Innovations ± 2 S.E.
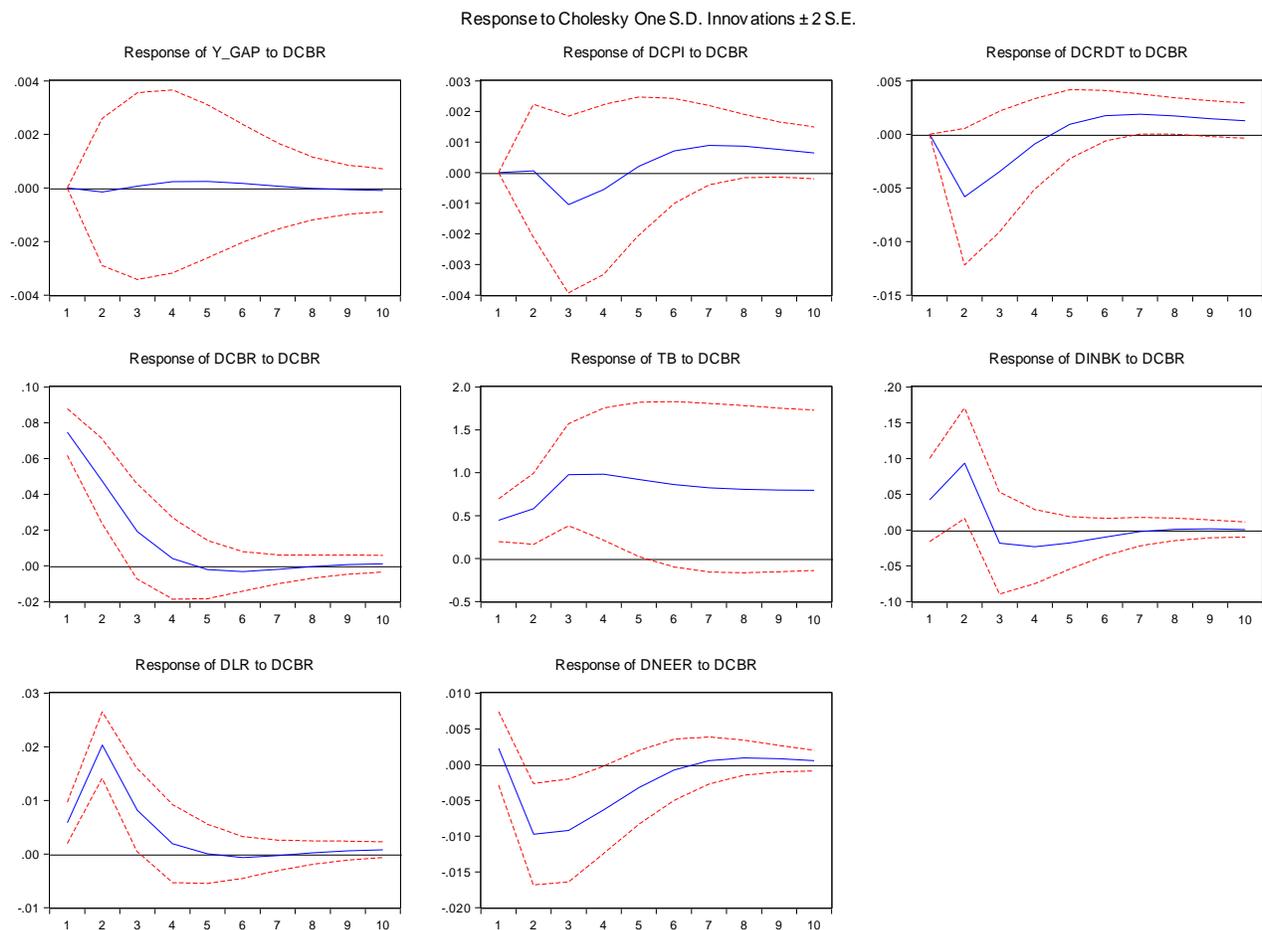
4.2 Response of Variables to Inflation

Response to Cholesky One S.D. Innovations ± 2 S.E.

5. Summary of Findings, Conclusions and Recommendations

5.1 Findings

Findings from this study suggest that for effective monetary policy management, it is important that a central bank tackles the monetary policy transmission mechanism problem by finding adequate answers to three basic questions, namely, Does monetary policy impact on economic growth in Kenya? Which of the monetary policy transmission channels is most effective in affecting the economic growth? To what extent does monetary policy affect economic growth? What is the average amount of time taken for the full impact of a monetary policy shock on economic growth to materialize?

The study finds that economic growth does not respond to monetary policy shocks alluding that there are other factors that influence the economic growth in Kenya. The study also finds the interest rate channel followed by the credit channel to be the most effective channels in influencing economic growth. In the period under review, the monetary policy shock accounts for 14.98% of the inflation growth.

5.2 Conclusions

The study concludes that an exogenous, unexpected, and temporary rise in the CBK's interbank rate tends is not followed by an impact on output The study also concludes that the interest rate channel is the most operational channel of monetary policy transmission on inflation in Kenya. In line with Kenya

Vision 2030 where the country is supposed to maintain sustained economic growth of 10% per year, Vision 2030 economic pillar places high premium on the stable macroeconomic environment i.e. low levels of underlying inflation, limited public sector deficits, a stable exchange rate and low interest rates over that period. The Monetary Authority should put proper policies in place to ensure stable low interest rate to enable the country attain Vision 2030 in terms of economic growth.

5.3 Recommendations

Because of existence of inverse relationship between monetary policy shock and economic growth in Kenya the Central Bank of Kenya should formulate policies that reduce interest rates to desirable levels and still seek to achieve low levels of inflation. The results indicate that there are factors that affect economic growth other than monetary actions.

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