APPLICATION OF MONETARY POLICY IN THE MONEY MARKET: A COMPARATIVE STUDY BETWEEN GHANA AND INDIA

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ABSTRACT

This study examined the effectiveness of monetary policy in managing inflation and real GDP and compares the monetary policy between Ghana and India using a multivariate modeling technique of the Vector Autoregression (VAR) and focusing on impact of broad money supply (M2), lending rate, USD exchange rate and domestic credit for the quarterly period 2000-2022 in the case of Ghana and semi-annual period of 1977-2022 in the case of India. The stochastic shocks of monetary policy actions and decisions on the real GDP and inflation were carried out by examining the dynamic nature of Granger Causality Test. The study found that the potency of monetary policy in influencing real GDP and inflation is limited in the case of Ghana but the potency of monetary policy in influencing real GDP is not limited in the case of India, as important channels of monetary transmission are not fully functional in the case of Ghana. It has revealed that money supply and lending rate are the most important variables in predicting real GDP and inflation in Ghana during the study period. This study also revealed that money supply, lending rate, domestic credit and exchange rate are important variables in predicting real GDP in India during the study period. It is recommended that a more expansionary monetary policy in Ghana and a more contractionary monetary policy in India should accompany a set of policies geared towards improving investment efficiency and bolstering consumption.

Keywords: Inflation, Real GDP, Monetary Policy, Domestic Credit, Exchange Rate.

INTRODUCTION

The monetary policy strategy of a Central bank depends on a number of factors that are unique to the country and the context. Given the policy objectives, any good strategy depends on the macroeconomic and the institutional structure of the economy. An important factor in this context is the degree of openness in the economy. The second factor is the stage of development of markets, institutions and technological development. In such a setup, where these conditions are satisfactory, it is possible for the Central bank to signal its intention with one single instrument or a combination of instruments. It is important to recognize that all the objectives cannot be effectively pursued by any single arm of economic

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policy. Hence, there is always the problem of assigning to each instrument the most appropriate target or objective. It is clear from both the theoretical literature and the empirical findings that, among various policy objectives, monetary policy is best suited to achieve the goal of price stability in the economy. In today‘s altered economic context, a low and stable price environment is being increasingly regarded as an essential condition for bringing down the nominal interest rate and for improving the growth and productive potential of the economy. In India, the emphasis of monetary policy shifted towards control of inflation in 1995-96. Ensuring price stability requires the pursuit of a consistent policy over a period of time. A process of openness was initiated by Governor Rangarajan and has been widened, deepened and intensified by his successors Bimal Jalan, Y.V. Reddy and D. Subbarao. Now, the goals of monetary policy, in India, are not set out in specific terms and there is greater freedom in the use of instruments. After independence in 1957, the immediate challenge that faced the Ghanaian economy was how to accelerate economic growth in order to help reduce extreme poverty, improve health care, overcome illiteracy, strengthen democratic and political stability, improve the quality of the natural environment, diminish the incidence of crime and violence, and become an investment destination of choice for global capital. Long term broad based economic growth is essential for Ghana to increase incomes and enable her to reach her potential of becoming a significant trade and investment partner in the world (GPRS II Annual Progress Report, 2007, page, 9 -24). While rapid growth in China, Malaysia and Japan, for instance, have lifted millions beyond subsistence living, Ghana and many other African countries have, however, experienced the opposite by recording low growth rates and even in some years recorded negative growth Rates in the1970s, to the early 1990s (The Global Social Change Research Project, 2007). In 2010, Ghana launched the Shared Growth and Development Agenda Programme (GSGDA), with the aim of becoming an upper middle-income country by the year 2020 with an average growth rate of at least 8% per annum (GSGDA Report, 2010). This requires policies that can push GDP growth rates above 8% to 10% over the medium to long term, which can only be done if policy makers understand the determinants of growth, as well as how policies affect growth. Unfortunately, there have not been thorough studies on specific areas that most policies and strategies should be geared towards in order to achieve the desired rate of growth and even if there is, according to Easterly (2001), over the last decades, the issue of economic growth has attracted increasing attention and empirical research. Greater transparency in the setting of objectives of monetary policy and instrument freedom are expected to bring about greater rigor in the formulation of strategies and the choice of instruments. In India and Ghana, Money supply has been regarded as an appropriate intermediate target between the variables and objectives. Hence, it is also important to measure the structure of different economic variables that varies with respect to monetary policy decisions. In this regard, this study is appropriate in seeking to critically analyze how different variables of the monetary policy are manipulated to India and Ghana money markets. It is only by studying the sources and causative factors of economic growth that policy makers can be moved to embark on the proper paths to achieve rapid, sustainable, broad-based economic growth and prosperity in Ghana and India, hence the need for this study.

LITERATURE REVIEW

Concept of Monetary Policy

Monetary policy got its root from the works of Irving fisher who laid the foundation of monetary policy in the quantity theory of money through his equation of exchange (Diamond, 2003). In his proposition, money has no effect on economic aggregates but price.

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However, the role of money in an economy got further elucidation from (Keynes, 1930) and other Cambridge economists who proposed that money has indirect effect on other economic variables by influencing the interest rate which affects investment and cash holding of economic agents. Monetary policy refers to the combination of measures designed to regulate the value, supply and cost of money in an economy. It can be described as the art of controlling the direction and movement of credit facilities in pursuance of stable price and economic growth (Chowdhury, Hoffman and Schabert, 2003). Monetary policy refers to the actions of the Central Bank to regulate the money supply which could be through discretional monetary policy instruments such as the open market operation (OMO), discount rate, reserve requirement, moral suasion, direct control of banking system credit, and direct regulation of interest rate (Loayza, and Schmidt-hebbel, 2002). Accordingly, monetary policy comprises the formulation and execution of policies by the central bank aimed at guiding bank lending rates to levels where credit demand and money growth are at a level consistent with aggregate supply elasticity. The objectives and goals that the central bank seeks to achieve generally are low inflation (usually targeted), protection of value of currency, full employment and sustainable economic output (economic growth). Faure (2007) explained that the effectiveness of monetary policy and its relative importance as a tool of economic stabilization varies from one economy to another, due to differences in economic structures, divergence in degrees of development in money and capital markets resulting in differing degree of economic progress.

The transmission mechanism

Kuttner and Mosser (2002) defined monetary transmission mechanism as the mechanism through which changes in money supply affects the decisions of firms, households, financial intermediaries, investors and ultimately alters the level of economic activities and prices. It can be thought of as encompassing the various ways in which monetary policy shocks propagate through the economy. Samuelson and Nordhaus (2010, pp. 211) have defined monetary transmission as the route by which monetary policy is translated into changes in output, employment, prices and inflation. Ireland (2008) outlined interest rates, exchange rates, bank lending and firm balance sheet as specific channels of monetary transmission.

Tobin's q Theory

Tobin's q theory of investment gives another systematic formal account of the link between stock prices and business investment and then to output. Tobin (1969), denoted "q" as the ratio of market value of installed capital to its replacement cost. Thus, "q" is the market value of installed capital replacement cost of installed capital. The market value of installed capital is priced in the stock market and is the number of shares outstanding times their market price. The replacement cost of installed capital depends on the situation in the capital goods sector. If the demand for capital goods is strong, the price of capital will rise. When the interest rate "r" increases, the opportunity cost of holding a share increases, which makes shares become relatively less attractive than bonds. Consequently, financial investors will sell off their shares of the firm to buy bonds and the market value of shares will drop. The decrease in the share price leads to a decline in "q" which also equal to the fact that the marginal benefit from investment (i.e. the gain "q" in the value of shares resulting from the installation of an extra unit of capital) will also reduce. At the optimal level of investment, the marginal dividend forgone is just compensated by the extra capital gain on shares. Clearly, the lower the market valuation of "q" of an extra unit of capital, the lower the chance the firm can push its level of investment before the marginal installation cost reaches the threshold

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where the shareholder‘s additional capital gain is offset by the extra dividend forgone. Therefore, firms may not purchase new investment goods when the value of “q” is low so that investment will decrease causing output to fall (Tobin, 1969). According to Mishkin (1996), when money supply rises, individuals finds that it has more money than it wants and so tries to reduce the holdings of money by increasing their spending. The individuals can spend money in the stock market, increasing the demand for equities and consequently raising their prices. The Keynesian analysis comes to a similar conclusion because it sees the fall in interest rates stemming from expansionary monetary policy making bonds less attractive relative to equities, thereby causing the price to rise. A higher equity prices will lead to a higher q and thus lead to a higher investment spending. A higher investment spending increases output.

Interest rate channel

The relationship between interest rate and output has been discovered and expatiated very clearly in the traditional IS-LM model. The IS-LM model could be viewed as showing what causes income to change in the short run when the price level is fixed or as a model showing what causes the aggregate demand curve to shift. Given that the Central Bank conducts a contractionary monetary policy by reducing the money supply, the real money balance, decreases. This triggers the LM curve to decrease and the quantity demanded of money exceeds the quantity supplied. Individuals try to obtain money by selling financial assests or making bank withdrawals. Banks and financial products issuers respond by increasing the interest rates. This in turn raises the capital cost for production, hence results in a reduction in investment and net exports Mankiw (2006). The new equilibrium in the IS-LM model will move the IS curve to decline thereby leading to a decline in aggregate demand and a fall in output. Bernanke and Gertler (1995) recognize two short comings of this view. First, there is lack of compelling empirical evidence if not few and weak to suggest that supposedly interest sensitive component of aggregate spending are indeed sensitive to the cost of capital. Secondly, that monetary policy is presumed to exert large effects on short term interest rate example federal funds rate but contrary to this view, it is recognized that monetary policy exerts large effects on purchase of long-term assets such as housing or production equipment which should be more responsive to real long-term rates than real short-term rates.

The Credit Channel

This channel may be perceived as a set of factors that amplify and propagate conventional interest rate effects (Bernanke and Gertler (1995). Mishkin (1996), outlined three reasons on the significance of the credit channels to an economy. Firstly, the effect of credit market imperfection to the firm‘s decision on input and output. Secondly, that there is evidence that small firms which are faced with credit constraint are more hurt by monetary policy than large firms. Finally, Mishkin maintains that asymmetric information view of imperfections in the credit market helps in clarifying some important phenomena in economics. Bernanke and Gertler (1995) describe a broader credit channel to explore whether credit market frictions could explain the effectiveness of the transmission mechanism. They suggested that credit channel has its own role in explaining the effects of monetary policy on an economy. The general argument is that the effect of monetary policy on interest rates is amplified by endogenous changes in the so-called external finance premium (i.e., the wedge between the costs of externally-raised and internally-raised investment funds). The size of this premium is a reflection of market imperfections, and a change in market interest rates due to monetary policy is positively related to a change in the premium, hence credit conditions, money supply, prices and output. This channel is divided into two possible

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linkages: The balance sheet channel and bank lending channel. The bank lending channel focuses on the effects of monetary policy through the supply of loans to the bank. The bank lending channel is based on the view that banks play a special role in the financial system because they are especially well suited to solve asymmetric information problems in credit markets. An expansionary monetary policy, which increases bank reserves and bank deposits, increases the quantity of bank loans available. This will result in an increase in loans. Investment and consumer spending will then rise and result in a rise in output.

The Exchange Rate Channel

Taylor (1995) considers the exchange rate channel to captures the international effect of domestic monetary policy. In an open economy, the effect of the exchange rate on net export impacts on aggregate demand and national output through the exchange rate channel. Assuming flexible exchange rates, a tightened monetary policy raises domestic real interest rates and this makes deposits and investment financial assets denominated in domestic currency more attractive than those denominated in foreign currency. This increases net capital inflows and then appreciation of the domestic currency. The appreciation of the domestic currency makes domestic commodities relatively more expensive than foreign commodities; hence there will fall in exports, export-oriented investment and aggregate output. Furthermore, the appreciation of the domestic currency makes imports competitive in the domestic economy. Consequently, net export will decline causing a fall in aggregate output. Ghosh et al (1996) sampled 145 countries for 30 years to examine the effect of different exchange rate regime on macroeconomic performance in these countries. The reported that countries with fixed exchange rate regime can achieve lower inflation rate by increasing the currency ‘s confidence and bringing higher policy discipline. A pegged exchange rate regime, therefore, is considered to be an anti-inflationary tool but equally, output growth and employment are at risk of higher volatility. They also concluded that monetary policy is more effective in countries operating floating exchange regimes. In Radzyner and Riesinger (1997) point of view, a pegged or fluctuation with narrow bands exchange rate reduce the possibility of using exchange rate as an effective monetary policy instrument. They also suggested that Central bank should be allowed to create monetary policy autonomously independent of the Government.

Empirical Review of monetary policy

Yoshino and Taghizadeh-Hesary (2015) developed a model with the New Keynesian approach to examine the effectiveness of the easing of monetary policy in the Japanese Economy, incorporating energy prices. They used quarterly data from Q2 1994 to Q2 2014, which includes the era during which the Bank of Japan adopted a zero-interest rate policy. They used inflation, GDP and price of oil for the study. They revealed that, currently the Bank of Japan is trying to achieve an inflation target of 2 percent by quantitative easing in order to overcome deflation and achieve sustainable economic growth. Jawadi and Sousa (2013) estimated money demand for the euro area, the United States and the United Kingdom using a Dynamic Ordinary Least Squares (DOLS) estimator. They provided an international comparison of the money demand equation for the euro area, the United States and the United Kingdom, based on the use of the DOLS estimator. They uncovered the presence of wealth effects on money demand in the case of the euro area and the United Kingdom. They revealed that, the interest rate elasticity of money demand was negative but small in magnitude, highlighting that the quantitative theory of money demand is a good description of the behaviour of real money holdings, in particular, after the global financial turmoil. They also revealed that monetary policy has a significant impact on interest rate and income.

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Berument, Denaux and Yalcin (2012) estimated the effects of monetary policy on components of aggregate demand using quarterly data on Turkish economy from 1987–2008 by means of structural Vector Autoregression (VAR) methodology. They used quarterly data of interbank interest rate as interest rate, M1 plus Repurchase Agreements (REPO) as money aggregate, Turkish Lira (TL) value of US dollar as exchange rate, Gross Domestic product (GDP) deflator as prices, GDP as income, the private consumption as consumption, gross fixed capital formation as investment, government purchase of goods and services as government, export of goods and services as export and import of goods and services as import. Their results revealed that the expansionary monetary policy leads to increase in both price and income in the short-run. They concluded that monetary policy has a significant effect on exchange rate, GDP, inflation and prices of goods and services. Attah Kumah and Mazhar (2017), examined the effectiveness of monetary policy in managing inflation and real GDP in Ghana using a multivariate modeling technique of the Vector Autoregression (VAR) and focusing on impact of broad money supply (M2), lending rate, USD exchange rate and domestic credit for the quarterly period 2000-2017. The stochastic shocks of monetary policy actions and decisions on the real GDP and inflation were carried out by examining the dynamic nature of Granger Causality Test, Cholesky Ordered Impulse Response Functions and Forecast Error Variance Decomposition for the VAR model. The study revealed that, the monetary policy in influencing real GDP and inflation is limited, as important channels of monetary transmission were not fully functional.

METHODOLOGY

The study made use of only secondary sources of data. Secondary data span 2000 to 2020 consisting of 84 quarterly observations for each variable was sourced for the study. The data (lending rate, inflation rate, exchange rate, domestic credit, broad money supply and real GDP) used in the empirical analysis was mainly secondary data collected from the period, 1977 to 2022 consisting of 41 annually observations for each variable in India and 72 quarterly observation spanning from 2000 to 2022 in the case of Ghana money market. The data on the variables for India were obtained from the World Bank Development Indicators (WDI) and Reserve Bank of India (RBI). The data on the variables for Ghana were obtained from Bank of Ghana (BOG) and Ghana Statistical Service (GSS). The data set contain six variables. These are: Real Gross Domestic product (in constant 2005 US$); Inflation (i.e. year on year inflation) measured as the rate of change in the annual CPI (2005=100); broad money supply (measured in millions Ghana Cedis and in billions of Indian Rupees); The lending rate of interest in real terms; domestic credit to private sector measured as a percentage of GDP; and USD exchange rate. The Ghana money market data on inflation, exchange rate, broad money supply and lending rate were obtained from Bank of Ghana. The Ghana money market data on domestic credit to private sector was obtained from World Bank Development Indicators. The real GDP data in Ghana was obtained from Ghana Statistical Service (GSS). The inflation data in India was obtained from worldwide inflation data (WID). The India money market data on broad money supply, lending rate and exchange rate were obtained from Reserve bank of India. The India money market data on domestic credit to private sector and real GDP were obtained from World Bank Development Indicators (Figure 1). In order to ensure that all aspects of the research are analyzed critically before drawing relevant conclusions, both quantitative and qualitative analysis were used for the research in Table 9. Descriptive statistics analysis was used to analyze the data. For the accomplishment of this research, excellent comparison between India and Ghana money markets were made using Auto Regression Moving Average statistical model. To assess how effective monetary policy

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is in explaining the changes in national output and the general price level, the study adopted the model used by Sims (1980). The model is stated as follows in its functional form;

INF = f (M2, LRATE, CREDIT, EXRATE), and,
GDP = f (M2, LRATE, CREDIT, EXRATE)

Where:
INF=Inflation Rate; M2=Broad Money Supply; LRATE=Real Lending Rate; CREDIT=Domestic Credit Ratio; GDP=Real Gross Domestic Product and EXRATE=USD Exchange Rate
The models are transformed into econometric form as follows;
$INF = B_o + \beta_1 M2 + \beta_2 LRATE + \beta_3 CREDIT + \beta_4 EXRATE + U_t$
$RGDP = B_o + \beta_1 M2 + \beta_2 LRATE + \beta_3 CREDIT + \beta_4 EXRATE + U_t$
All variables are as defined, the βs represents the coefficients of estimations and U_t represents the error term.

FINDINGS AND ANALYSIS

Table 1
DESCRIPTIVE STATISTICS FOR INDIA AND GHANA

	RGDP IN	RGDP GH	INFI N	INFG H	M2IN	M2GH	LRATE IN	LRATE GH	CREDIT IN	CREDIT GH	EXRATE IN	EXRATE GH
Mean	61191.95	2977258	7.69	31.44	495.53	2284012	13.63	27.76	32.42		33.55	0.82
Median	35078.34	20745.29	8	22.3	191.63	12243.1	13.5	26.4	24.99	8.195	36.32	0.23
Maximum	188781.9	20560727	15.32	122.88	1932.92	28912727	18.92	47	54.63	22.84	67.92	4.38
Minimum	9762.63	6694.34	-0.36	8.73	31.7	1051.65	8.33	12.5	17.73	1.54	7.88	0.0003
Std. Dev.	56056.89	6880721	3.8	29.02	573.58	6345107	2.8	7.94	12.59	6.37	18.74	1.19
Skewness	1.08	2.00	-0.03	2.053	1.2	3.06	-0.06	0.43	0.71	0.42	0.013	1.78
Kurtosis	2.63	5.04	2.55	6.55	2.96	11.4	1.77	2.959	1.8	1.896	1.75	5.34
Jarque-Bera	8.23	34.43	0.35	50.28	9.87	184.36	2.62	1.29	5.92	3.26	2.69	30.98
Probability	0.02	0	0.84	0	0.007	0.00	0.27	0.52	0.05	0.195	0.26	0.00
Sum	2508870	1.22E+08	315.43	1289.07	20316.7	93644486	558.74	1138.13	1329.32	388.79	1375.44	33.66
Sum Sq. Dev.	1.26E+11	1.89E+15	577.14	33677.7	13159803	1.61E+15	313.17	2521.71	6336.96	1625.33	14051.26	56.36
Observations	41	41	41	41	41	41	41	41	41	41	41	41

From Table 1, the maximum and minimum real GDP in India are $188781.9billion and $9762.63billion and that of Ghana are $20560727million and $6694.34million respectively; Indians produce more GDP than Ghanaians and this is due to more innovations in India than Ghana. The descriptive statistics as evidenced in Table 1 reveals that real GDP in India has a larger standard deviation of $56056.89billion and that Ghana is $6880721million indicating a high volatility of real GDP (output) in India than in Ghana. However, the rise of the real GDP in India and Ghana is due to the increasing of the money supply and domestic credit. The maximum and minimum inflation in India are 15.32% and -0.36%, and that of Ghana are 122.88% and 8.73% respectively; in India, deflation is occurring instead of inflation occurring in Ghana. The inflation rate in Ghana is too high as

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compared to India. This is because in India there are more innovations, less imports, more exports, more domestic credit to private sector and less lending (interest) rate as compared to Ghana. The descriptive statistics as evidenced in Table 1 reveals inflation in Ghana as having a larger standard deviation of 29.02% than in India 3.8% indicating a high volatility of inflation in Ghana (inflation) than in India (deflation) in Table 6. The high inflation in Ghana has affected the prices of goods and services to increase as compared to India for the same goods and services (Figure 2). The maximum and minimum money supply in India is $1932.92billion and $31.7billion that in Ghana are $28912727million and $1051.65million respectively. The money supply in Ghana is too high as compared to India in Table 7. The standard deviation for money supply in Ghana is $6345107million for only 24million population as compared to the standard deviation for money supply in India, $573.58billion for 1.2billion population indicating a high volatility in broad money supply in Ghana than in India; this is the major factor of expansionary monetary policy in Ghana and contractionary monetary policy in India. The expansionary monetary policy as a result of high money supply in Ghana has caused inflation to increase and the contractionary monetary policy in India as a result of low money supply in India has caused the deflation. The maximum and minimum lending rates in India are 18.92% and 8.33%; in Ghana are 47% and 12.5% respectively in Table 8. The standard deviation for the lending rate in Ghana of 7.94% as compared to the standard deviation for the lending rate in India of 2.8% indicating a high volatility of lending (interest) rate in Ghana than in India; this high lending rate in Ghana has caused the low production (output), innovation and exports but more imports as compared to the Indian economy. The maximum and minimum domestic credit to private sector (% of GDP) in India are 54.63% and 17.73% and in Ghana are 22.84% and 1.54% respectively, shows a high domestic credit to private sector in India than in Ghana. The standard deviation for the domestic credit to private sector in India is 12.59% as compared to the standard deviation for the domestic credit to private sector in Ghana, 1.54% indicating a high volatility of domestic credit to private sector (% of GDP) in India than in Ghana; this high domestic credit to private sector in India has caused the high production (output), innovation and exports but less imports as compared to the Ghanaian economy (Figure 3). The maximum and minimum USD exchange rates in India is 67.92 and 7.88, in Ghana are 4.38 and 0.0003 respectively, shows a high USD exchange rate to Indian rupees than the USD exchange rate to Ghana cedis. The standard deviation for the USD exchange rate in India is 18.74 as compared to the standard deviation for the USD exchange rate in Ghana of 1.19 indicating a high volatility of USD exchange rate in India than in Ghana; the low USD exchange rate in Ghana is due to the redenomination of Ghana cedis (from ¢ to GH¢) but in India there has not been a redenomination of Indian rupees. The mean-to-median ratio of each variable is approximately 1. The range of variation between maximum and minimum values is quite logical. The standard deviation in comparison with the mean is low for all the variables which indicate small coefficient of variation. The skewness for RGDP, INF and LRATE reveals approximate normality of these variables; however, CREDIT and M2 indicate distribution of long left tails. EXRATE shows a distribution of long right tail. The kurtosis of normal distribution is 3, but the distribution of RGDP, CREDIT, LRATE and M2 are platykurtic (flat) relative to normality. INF indicates a normal distribution whilst EXRATE indicates a leptokurtic (peaked) distribution relative to the normal. The Jacque-Bera statistics also indicate that the distribution of all the variables during the sample period have long left and right tails and flat than normal distribution Table 11. On the whole the Jacque-Bera test of the variables do not

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conform to the normal distribution but display negative, positive and flat distributions. These results are however, based on the null hypothesis of normality and provide no information for the non-parametric distribution of the series.

Stationarity Test

To compare between Ghana and India how the time series property of each variable is examined using the Philip-Perron test for the unit root. Once the variables are stationary, the results generated would not be spurious. The results are found in Table 2

Table 2
PHILLIPS-PERRON UNIT ROOT TEST RESULTS

	VAR Model for Ghana		VAR Model for India	
Method	Statistic	Prob**	Statistic	Prob**
PP-Fisher Chi-square	29.4798	0.0033	23.4269	0.0243
PP-Choi Z-stat	2.01075	0.9778	1.49506	0.9326

From Table 2, when each variable is examined through level, the calculated PP statistics reject the null hypothesis since the P-Values are more than 5%; that is, for Ghana VAR Model, the P-Value for PP-Fisher Chi-square is 0.0033 and that of PP-Choi Z-stat is 0.9778 and for India, the P-Value for PP - Fisher Chi-square is 0.0243 and that of PP - Choi Z-stat is 0.9326. This means that, the variables in the VAR model are not stationary for both Ghana and India. When each variable is examined through first difference, the calculated PP statistics accepted the null hypothesis that there is no unit root at 5% significant levels when compared with the relative critical values; that is, P-Value for PP - Fisher Chi-square is 0.0000 and that of PP - Choi Z-stat is 0.0000 for both Ghana and India. This means that, the variables in the VAR model are stationary as found in Table 2.

Table 3
PHILIP-PERRON UNIT ROOT TEST AT 1ST DIFFERENCE

	VAR Model for Ghana		VAR Model for India	
Method	Statistic	Prob**	Statistic	Prob**
PP-Fisher Chi-square	161.875	0.000	161.891	0.0000
PP-Choi Z-stat	-11.4041	0.0000	-9.04727	0.0000

From Table 3, when each variable is examined through first difference, the calculated PP statistics accepted the null hypothesis that there is unit root at 5% significant levels when compared with the relative critical values; that is, P-Value for PP - Fisher Chi-square is 0.0000 and that of PP - Choi Z-stat is 0.0000 for both Ghana and India. This means that, the variables in the VAR model are stationary. The null

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hypothesis of the presence of a unit root is rejected since the p-values for the various macroeconomic variables are less than 5 percent at first difference.

Table 4
GRANGER CAUSALITY WALD TESTS RESULT FOR VAR MODEL

	India Money Market				Ghana Money Market			
	M2	**LRATE**	**CR EDIT**	**EXRATE**	**M2**	**LRATE**	**CREDIT**	**EXRATE**
RGDP	0.0000	0.0021	0.0000	0.0054	0.000	0.0054	0.5559	0.8957
INF	0.0094	0.2376	0.0495	0.9968	0.0022	0.0042	0.2355	0.1939

The Granger causality tests results in Table 4 show that money supply, lending rate, domestic credit to private sector and exchange rate granger cause real GDP at the 5% significance level in India but in Ghana only money supply and lending rate granger cause real GDP at 5% significance level. Domestic credit to private sector and exchange rate do not granger cause real GDP in Ghana. The implication is that Past values of domestic credit to private sector and exchange rate cannot be used to forecast the present value of real GDP in Ghana. The Granger causality tests results in Table 4 reveal that only money supply and domestic credit to private sector granger cause inflation at the 5% significance level in India but in Ghana only money supply and lending rate granger cause inflation at 5% significance level. The implication is that past values of lending rate and exchange rate cannot be used to forecast the present value of inflation in India and also past values of domestic credit and exchange rate cannot be used to forecast the present value of inflation in Ghana.

Impact of money supply and lending rate on real GDP in Ghana

In Ghana, the quantity of real GDP increased from $1051.65million in January, 2000 to $17846.5million in January, 2017 which was recorded by Ghana Statistical Service. The increasing in money supply in Ghana from $250.15million in January, 2000 to $1932.922million in 2017 has caused real GDP to increase. This confirms the result obtained from the granger causality test. Theoretically Keynes had explained that when money supply increases interest rate falls, investment increases and real GDP increases. Ahmed & Suliman (2011) confirm a strong positive impact of money supply on GDP. Moreover, the decreasing in the lending rate in Ghana from 47% in January, 2000 to 31.33% in January, 2017 has caused real GDP to increase; Lower interest rate encourages investments and therefore enhances growth of the economy (Table 13). Recent cross-country studies which found interest rate affecting economic growth negatively include: Fischer (1993) and Barro (1996).

Impact of money supply, domestic credit and lending rate on real GDP in India

The real GDP in India increased from $9762.625billion in 1977 to $188781.9billion in 2017; the increasing money supply from $31.704billion in 1977 to $1932.922billion in 2017 has caused the real GDP to increase. This confirms the granger causality test result. Empirical studies such as Ahmed & Suliman (2011) confirm a strong positive impact of money supply on GDP. The increasing domestic credit from 17.731% in 1977 to 54.634% in 2017 has caused real GDP to increase; Empirical studies such McQuinn & Stuart (2013) and Iwedi, Igbanibo and Onyekachi (2015), confirm a positive relationship between GDP and domestic credit. This also confirms the granger causality test result. The decreasing in the

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lending rate from 12.50% in 1977 to 9.15% in 2017 has caused real GDP to increase; this confirms the granger causality test result. Lower interest rate encourages investments and therefore enhances growth of the economy (Table 14). Recent cross-country studies which found interest rate affecting economic growth negatively include Barro (1996) and Bruno & Easterly (1998).

Impact of money supply and lending rate on inflation in Ghana

The inflation rate in Ghana increased from 14.3% in January, 2000 to 15.4% in December, 2016; this is due to increasing in money supply and decreasing in lending rate in Ghana. The increasing money supply from $1359.72million in January, 2000 to $13559.14million in December, 2016 has caused the inflation rate to increase. This confirms the granger causality test result. Empirical studies such as McCandless & Weber (1995) and Walsh (2003) confirm a strong positive impact of money supply on inflation. The decreasing lending rate from 37.5% in January, 2000 to 31.21% in December, 2017 has caused inflation to increase. This confirms the granger causality test. Empirical studies such as Singh (2010) and Alex & Inne (2006) confirm a negative relationship between inflation and interest rate (Table 13).

Impact of money supply and domestic credit on inflation in India

The inflation rate in India increased from 7.856% in 1977 to 11.168% in 2012; this is due to the increase money supply and domestic credit. The increasing money supply from $31.704billion to $1381.944billion in 2012 has caused the inflation to increase. This confirms the granger causality test result. Walsh (2003) confirmed a strong positive impact of money supply on inflation. The increasing domestic credit from 17.731% in 1977 to 51.85% in 2012 has caused the inflation rate to increase. This confirms the granger causality test result (Figure 4). Empirical studies such as Fokwa & Guy-Paulin (2013) confirmed a positive relationship between inflation and domestic credit.

Table 5
PANEL RANDOM-EFFECTS GLS REGRESSION MODEL

corr(u_i, X) = 0 (assumed) **Wald chi2(4) = 269.38** **Prob > chi2 = 0.0000**

RGDP	Coefficient	Std. Err.	Z	P>|z|	[95% Conf.	Interval]
M2	.8578499	.0665254	12.90	0.000	.7274625	.9882374
LRATE	-101502	44124.85	-2.30	0.021	-187985.2	-15018.93
CREDIT	-72287.61	42103.65	-1.72	0.086	-154809.2	10234.03
EXRATE	-2289.771	32685.16	-0.07	0.944	-66351.51	61771.96
_cons	4193737	1333827	3.14	0.002	1579484	6807991
sigma_u	0					
sigma_e	2358538.7					
rho	0	(fraction of variance due to u_i)				

The Prob > chi2 =0.0000 is less than 5% and confirms that the model is good for the study. This is a test (F) to see whether all the coefficients in the model are different than zero.

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corr(u_i, X)= 0 (assumed) reveal that differences across units (India and Ghana) are uncorrelated with the regressors in Table 5. The above random-effect regression model contain money supply (M2), lending rate (LRATE), domestic credit (CREDIT) and exchange rate (EXRATE) as the independent variables and real GDP is the dependent variable. The result of the random effect model reveals that, the P-value of money supply is 0.000% and that of the lending rate is 2.1% which are less than 5% significance level; thus, money supply and lending rate have a significant impact on real GDP across time and between India and Ghana (Table 12). Theoretically Keynes had explained that when money supply increases interest rate falls, investment increases and real GDP increases in Table 10. Empirical studies such as Ahmed & Suliman (2011) confirm a strong positive impact of money supply on GDP. Recent cross-country studies which found interest rate affecting economic growth negatively include: Fischer (1993) and Bruno and Easterly (1998). Past values of domestic credit and exchange rate cannot be used to forecast present value of real GDP across time and between India and Ghana (Table 15).

CONCLUSIONS

The monetary policy strategy of a Central bank depends on a number of factors that are unique to the country and the context. The second factor is the stage of development of markets, institutions and technological development. It is clear from both the theoretical literature and the empirical findings that, among various policy objectives, monetary policy is best suited to achieve the goal of price stability in the economy. In India, the emphasis of monetary policy shifted towards control of inflation. It is necessary to recognize the existence of a large informal sector, the limited reach of financial markets relative to the growing sectors, especially services. This tends to constrain the effectiveness of monetary policy in India and Ghana. In this regard, this study is appropriate in seeking to critically analyze how different variables of the monetary policy are manipulated to India and Ghana money markets. It is only by studying the sources and causative factors of economic growth that policy makers can be moved to embark on the proper paths to achieve rapid, sustainable, broad-based economic growth and prosperity in Ghana and India, hence the need for this study. The analysis and findings reveal that money supply, domestic credit, lending (interest) rate and exchange rate are important sources of real GDP fluctuations in India but money supply has more impact than all the variables at least over the sample period under study. It was also revealed that money supply and domestic credit are important sources of inflation fluctuations in India but domestic credit has more impact than the money supply at least over the sample period under study. Since the broad money (M2) is one of the announced operating targets of the Central Bank of Ghana and India, shocks to the broad money supply were identified as monetary policy innovations. The granger causality, the impulse response functions (IRFs) and the forecast error variance decomposition (FEVD) reveal that real GDP reacts immediately and significantly to expansionary money supply shock in Ghana and contractionary money supply shock in India. The increasing monetary policy rate has affected the economic variables negatively in Ghana which is not good for the Ghanaian economy. The researcher recommends Bank of Ghana to introduce Contractionary monetary policy to reduce and prevent the negative impact of the economic variables such as inflation rate in the country. The decreasing rate of monetary policy rate has affected the unemployment rate to increase which is not good for the economy. It is recommended that RBI may introduce expansionary monetary policy to reduce the unemployment rate in the country.

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APPENDIX

Table 6
OPTIMAL LAG LENGTH CHECKS FOR THE BASIC VAR MODEL FOR GHANA

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-1248.95	NA	4.32e+08	36.91016	37.10600	36.98776
1	-665.065	1047.550	43.51742	20.79603	22.16690*	21.33921*
2	-625.117	64.62277	39.69448	20.67990	23.22580	21.68866
3	-585.034	57.76620*	37.49252*	20.55982*	24.28076	22.03417
4	-553.193	40.26875	48.01570	20.68216	25.57813	22.62209

Table 7
OPTIMAL LAG LENGTH CHECKS FOR THE BASIC VAR MODEL FOR INDIA

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-1348.18	NA	2.48e+24	73.19900	73.46023	73.29110
1	-1076.82	440.0524	7.62e+18	60.47654	62.30515	61.12121
2	-1015.16	79.99016	2.23e+18	59.08956	62.48555	60.28681
3	-924.918	87.79970	1.89e+17	56.15774	61.12111	57.90756
4	-819.88	68.13322*	1.35e+16*	52.42592*	58.95667*	54.72832*

Table 8
VAR RESIDUAL CORRELATION LM TEST

Model	Lag	Lm stat	P-value
Base var model for ghana	3	41.22144	0.2528
Base var model for india	4	69.19282	0.0007

Table 9
VAR RESIDUAL HETEROSKEDASTICITY TEST FOR THE BASE VAR MODEL

Model/channel	Joint test p-values
Ghana var model	0.0354
India var model	0.0021

Table 10
VAR Residual Normality Test

Channel/model	Joint probability values		
	Skewness	Kurtosis	J-b test
Base var model for ghana	0.3834	0.0000	0.0000
Base var model for india	0.0884	0.0171	0.0093

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Table 11 VAR STABILITY TEST	
Ghana var model (modulus)	**India var model (modulus)**
1.000385	1.057056
0.947189	1.047346
0.918629	1.025467
0.863044	1.00654
0.729739	0.903702
0.715390	0.898941
0.652118	0.844719
0.609181	0.818621
0.606890	0.780128
0.353468	0.692306
0.328351	0.282537

Table 12 WALD TEST ON SIGNIFICANCE OF VAR COEFFICIENTS FOR GHANA		
Independent variables	**Dependent variables**	
Coeeficients of	**Inflation**	**Real gdp**
	Joint p-values	
Money supply	0.0041	0.0000
Lending rate	0.0042	0.0015
Domestic credit	0.0817	0.0908
Exchange rate	0.1939	0.8957

Table 13 WALD TEST ON SIGNIFICANCE OF VAR COEFFICIENTS FOR INDIA		
Independent variables	**Dependent variables**	
Coeeficients of	**Inflation**	**Real gdp**
	Joint p-values	
Money supply	0.0033	0.0000
Lending rate	0.2376	0.0021
Domestic credit	0.0369	0.0002
Exchange rate	0.4896	0.0000

Table 14 REGRESSION RESULT FOR THE BASE VAR MODEL FOR GHANA						
	RGDP	**INF**	**M2**	**LRATE**	**CREDIT**	**EXRATE**
RGDP(-1)	0.544134	-0.00793	0.418015	-0.00045	-0.00017	9.54E-05
	-0.12381	-0.01854	-0.38367	-0.01042	-0.002	-5.10E-05

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	[4.39473]	[-0.42778]	[1.08952]	[-0.04320]	[-0.08596]	[1.86916]
RGDP(-2)	0.209888	-0.02351	-0.08899	0.010279	-0.00053	-0.0001
	-0.14421	-0.02159	-0.44687	-0.01214	-0.00233	-5.90E-05
	[1.45544]	[-1.08873]	[-0.19914]	[0.84692]	[-0.22570]	[-1.69664]
RGDP(-3)	0.06012	0.024221	0.239527	-0.01024	0.000745	-4.95E-06
	-0.10242	-0.01533	-0.31738	-0.00862	-0.00166	-4.20E-05
	[0.58697]	[1.57948]	[0.75469]	[-1.18817]	[0.44922]	[-0.11709]
INF(-1)	-0.99159	1.207994	2.723181	0.013057	0.003824	-0.00073
	-0.87119	-0.13043	-2.69958	-0.07332	-0.01411	-0.00036
	[-1.13821]	[9.26152]	[1.00874]	[0.17808]	[0.27114]	[-2.01770]
INF(-2)	-0.74995	-0.23622	-3.60951	0.016504	0.004251	0.001279
	-1.41233	-0.21145	-4.37644	-0.11886	-0.02287	-0.00058
	[-0.53100]	[-1.11715]	[-0.82476]	[0.13885]	[0.18590]	[2.19641]
INF(-3)	2.052961	-0.08231	2.898966	0.038644	-0.01359	-0.00067
	-0.94075	-0.14085	-2.91514	-0.07917	-0.01523	-0.00039
	[2.18226]	[-0.58442]	[0.99445]	[0.48809]	[-0.89226]	[-1.73572]
M2(-1)	-0.12527	-0.00642	0.861861	-0.00261	0.000276	2.66E-05
	-0.04363	-0.00653	-0.1352	-0.00367	-0.00071	-1.80E-05
	[-2.87110]	[-0.98343]	[6.37455]	[-0.71071]	[0.39094]	[1.47753]
M2(-2)	0.049906	-0.00836	0.259627	-0.00125	0.000397	-3.30E-06
	-0.0615	-0.00921	-0.19057	-0.00518	-0.001	-2.50E-05
	[0.81148]	[-0.90796]	[1.36235]	[-0.24236]	[0.39905]	[-0.13020]

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M2(-3)	0.167781	0.017732	-0.4919	0.001597	0.000295	-2.01E-05
	-0.05008	-0.0075	-0.15519	-0.00421	-0.00081	-2.10E-05
	[3.35011]	[2.36490]	[-3.16965]	[0.37898]	[0.36376]	[-0.97475]
LRATE(-1)	-5.06191	-0.47855	-4.00348	0.94173	0.025768	0.000349
	-1.66807	-0.24974	-5.1689	-0.14039	-0.02701	-0.00069
	[-3.03459]	[-1.91621]	[-0.77453]	[6.70814]	[0.95410]	[0.50687]
LRATE(-2)	5.606573	1.255411	6.809944	-0.12415	0.011634	-0.00222
	-2.37083	-0.35495	-7.34658	-0.19953	-0.03839	-0.00098
	[2.36481]	[3.53684]	[0.92695]	[-0.62220]	[0.30308]	[-2.27398]
LRATE(-3)	-3.58456	-0.78083	-8.06254	-0.09204	-0.01191	0.001054
	-1.72948	-0.25893	-5.3592	-0.14555	-0.028	-0.00071
	[-2.07262]	[-3.01557]	[-1.50443]	[-0.63232]	[-0.42521]	[1.47743]
CREDIT(-1)	-8.99652	-1.41233	-0.37592	0.53381	0.74038	0.00233
	-8.73154	-1.30726	-27.0567	-0.73485	-0.14137	-0.0036
	[-1.03035]	[-1.08038]	[-0.01389]	[0.72642]	[5.23715]	[0.64696]
CREDIT(-2)	14.33626	-0.13619	40.25082	-0.32838	-0.01636	-0.0031
	-10.981	-1.64404	-34.0273	-0.92417	-0.17779	-0.00453
	[1.30555]	[-0.08284]	[1.18290]	[-0.35532]	[-0.09199]	[-0.68511]
CREDIT(-3)	-4.04933	1.79599	-38.1281	0.194671	-0.00045	0.000797
	-7.92854	-1.18704	-24.5684	-0.66727	-0.12837	-0.00327
	[-0.51073]	[1.51300]	[-1.55191]	[0.29174]	[-0.00350]	[0.24362]
EXRATE(-1)	-107.568	79.40335	323.2588	-21.7763	-1.65812	0.76879
	-305.089	-45.677	-945.39	-25.6766	-4.93964	-0.12582

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	[-0.35258]	[1.73837]	[0.34193]	[-0.84810]	[-0.33568]	[6.11034]
EXRATE(-2)	43.60631	-50.3632	-1081.55	49.84882	6.776921	0.536196
	-356.381	-53.3562	-1104.33	-29.9934	-5.7701	-0.14697
	[0.12236]	[-0.94390]	[-0.97937]	[1.66199]	[1.17449]	[3.64832]
EXRATE(-3)	97.33047	-14.332	675.939	-26.8894	-7.93074	-0.389
	-271.655	-40.6713	-841.786	-22.8627	-4.39831	-0.11203
	[0.35829]	[-0.35239]	[0.80298]	[-1.17612]	[-1.80313]	[-3.47232]
C	1024.044	25.28495	-2455.19	7.857795	3.300985	0.155352
	-221.407	-33.1484	-686.082	-18.6338	-3.58476	-0.09131
	[4.62516]	[0.76278]	[-3.57857]	[0.42169]	[0.92084]	[1.70142]
R-squared	0.99921	0.952788	0.997167	0.975083	0.967596	0.997417
Adj. R-squared	0.998926	0.935792	0.996147	0.966113	0.955931	0.996488
Sum sq. resids	12066.49	270.4718	115864.3	85.46783	3.16314	0.002052
S.E. equation	15.53479	2.325819	48.13821	1.307424	0.251521	0.006407
F-statistic	3514.964	56.05841	977.7994	108.7053	82.94619	1072.794
Log likelihood	-276.068	-145.036	-354.106	-105.291	8.440913	261.6856
Akaike AIC	8.552683	4.754663	10.81467	3.602635	0.30606	-7.03437
Schwarz SC	9.167871	5.369852	11.42986	4.217824	0.921249	-6.41918
Mean dependent	5733.182	23.14493	1598.462	36.39754	13.08716	0.809448
S.D. dependent	474.0446	9.178676	775.555	7.102357	1.198139	0.108099

Determinant resid covariance (dof adj.)	9.656029
Determinant resid covariance	1.398054
Log likelihood	-599.001
Akaike information criterion	20.66669
Schwarz criterion	24.35782

TABLE 15
REGRESSION RESULT FOR THE BASE VAR MODEL FOR INDIA

	RGDP	INF	M3	LRATE	CREDIT	EXRATE

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RGDP(-1)	0.032707	0.000759	-0.00174	0.000151	-0.00032	0.000352
	-0.26416	-0.00042	-0.00257	-0.00014	-0.00015	-0.00021
	[0.12382]	[1.79525]	[-0.67743]	[1.06244]	[-2.08431]	[1.68403]
RGDP(-2)	-0.12114	0.000499	-0.00297	0.000111	-0.00023	0.000283
	-0.26936	-0.00043	-0.00262	-0.00015	-0.00016	-0.00021
	[-0.44972]	[1.15841]	[-1.13255]	[0.76316]	[-1.46025]	[1.32800]
RGDP(-3)	-0.70716	-0.00144	-0.00837	-0.00068	0.000653	-9.50E-05
	-0.76882	-0.00123	-0.00749	-0.00041	-0.00045	-0.00061
	[-0.91981]	[-1.17229]	[-1.11684]	[-1.64949]	[1.45193]	[-0.15625]
RGDP(-4)	-0.51301	0.000506	0.005068	0.00051	-0.00043	0.000708
	-0.74393	-0.00119	-0.00725	-0.0004	-0.00043	-0.00059
	[-0.68959]	[0.42528]	[0.69901]	[1.27141]	[-0.98415]	[1.20365]
INF(-1)	-293.752	-0.535	-0.82599	-0.01453	0.166446	0.229907
	-240.628	-0.38498	-2.34496	-0.12964	-0.14067	-0.19033
	[-1.22077]	[-1.38969]	[-0.35224]	[-0.11209]	[1.18326]	[1.20796]
INF(-2)	160.1965	-0.48986	3.121009	-0.07624	0.357869	-0.03067

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	-251.013	-0.40159	-2.44616	-0.13524	-0.14674	-0.19854
	[0.63820]	[-1.21981]	[1.27588]	[-0.56377]	[2.43882]	[-0.15448]
INF(-3)	247.888	-0.92501	1.999054	-0.2088	0.537767	-0.1772
	-271.22	-0.43392	-2.64309	-0.14612	-0.15855	-0.21452
	[0.91397]	[-2.13176]	[0.75633]	[-1.42891]	[3.39174]	[-0.82603]
INF(-4)	-179.141	-0.42982	-2.34279	-0.06485	0.375963	0.100167
	-226.679	-0.36266	-2.20903	-0.12213	-0.13251	-0.17929
	[-0.79028]	[-1.18520]	[-1.06055]	[-0.53104]	[2.83716]	[0.55868]
M3(-1)	155.3606	0.006345	1.35523	0.00562	-0.0119	-0.01059
	-37.138	-0.05942	-0.36192	-0.02001	-0.02171	-0.02937
	[4.18333]	[0.10679]	[3.74459]	[0.28087]	[-0.54827]	[-0.36045]
M3(-2)	-163.808	-0.0449	-0.85106	-0.04061	0.021765	-0.01214
	-53.987	-0.08637	-0.52611	-0.02909	-0.03156	-0.0427
	[-3.03422]	[-0.51986]	[-1.61764]	[-1.39624]	[0.68964]	[-0.28419]
M3(-3)	232.3232	0.126062	1.861216	0.081786	-0.07022	0.006021
	-89.0442	-0.14246	-0.86775	-0.04797	-0.05205	-0.07043
	[2.60908]	[0.88490]	[2.14487]	[1.70482]	[-1.34890]	[0.08548]

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M3(-4)	-19.5077	-0.08339	-0.48998	-0.04474	0.066981	-0.09309
	-76.308	-0.12208	-0.74363	-0.04111	-0.04461	-0.06036
	[-0.25564]	[-0.68307]	[-0.65890]	[-1.08828]	[1.50151]	[-1.54235]
LRATE(-1)	-737.289	1.261893	2.557146	1.087906	-0.55089	0.925371
	-690.764	-1.10514	-6.73162	-0.37216	-0.40381	-0.54637
	[-1.06735]	[1.14184]	[0.37987]	[2.92325]	[-1.36422]	[1.69369]
LRATE(-2)	-852.082	1.810691	-1.53267	-0.27931	-0.41717	0.009832
	-587.574	-0.94005	-5.72601	-0.31656	-0.34349	-0.46475
	[-1.45017]	[1.92617]	[-0.26767]	[-0.88234]	[-1.21452]	[0.02116]
LRATE(-3)	1323.105	1.658453	13.93141	0.161888	-1.07791	-0.35418
	-822.12	-1.31529	-8.01171	-0.44293	-0.4806	-0.65026
	[1.60938]	[1.26090]	[1.73888]	[0.36550]	[-2.24284]	[-0.54467]
LRATE(-4)	243.506	-0.71198	1.780203	0.386435	-0.06906	0.029027
	-429.988	-0.68793	-4.19031	-0.23166	-0.25137	-0.3401
	[0.56631]	[-1.03497]	[0.42484]	[1.66811]	[-0.27475]	[0.08535]
CREDIT(-1)	-76.7901	-0.25533	1.290238	0.183766	0.519947	0.194078
	-417.331	-0.66768	-4.06696	-0.22484	-0.24397	-0.33009

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	[-0.18400]	[-0.38241]	[0.31725]	[0.81731]	[2.13122]	[0.58795]
CREDIT(-2)	1066.837	-0.28839	17.46036	-0.14289	0.929755	-0.88424
	-436.024	-0.69759	-4.24914	-0.23491	-0.25489	-0.34488
	[2.44674]	[-0.41341]	[4.10916]	[-0.60828]	[3.64761]	[-2.56394]
CREDIT(-3)	578.5719	-0.88352	2.49623	-0.07386	0.368016	-0.71544
	-499.887	-0.79976	-4.87149	-0.26932	-0.29223	-0.39539
	[1.15741]	[-1.10473]	[0.51242]	[-0.27425]	[1.25935]	[-1.80945]
CREDIT(-4)	-767.231	0.146998	-19.5114	-0.26527	0.100844	0.800101
	-562.944	-0.90064	-5.48599	-0.30329	-0.32909	-0.44526
	[-1.36289]	[0.16321]	[-3.55659]	[-0.87463]	[0.30643]	[1.79691]
EXRATE(-1)	1567.446	0.247984	8.311555	0.149601	-0.50597	0.524386
	-526.947	-0.84305	-5.1352	-0.2839	-0.30805	-0.41679
	[2.97458]	[0.29415]	[1.61855]	[0.52695]	[-1.64251]	[1.25814]
EXRATE(-2)	-2141.36	0.121324	-12.8016	-0.14507	0.035919	0.588761
	-579.989	-0.92791	-5.65209	-0.31247	-0.33905	-0.45875
	[-3.69207]	[0.13075]	[-2.26493]	[-0.46427]	[0.10594]	[1.28341]
EXRATE(-3)	329.1118	-0.4727	-2.59189	-0.17214	0.373667	-0.0084

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	-659.73	-1.05549	-6.42919	-0.35544	-0.38567	-0.52182
	[0.49886]	[-0.44785]	[-0.40314]	[-0.48430]	[0.96888]	[-0.01611]
EXRATE(-4)	680.2222	0.0243	11.13999	0.088119	0.244788	-0.27074
	-507.31	-0.81163	-4.94383	-0.27332	-0.29657	-0.40126
	[1.34084]	[0.02994]	[2.25331]	[0.32241]	[0.82541]	[-0.67473]
C	3824.504	-13.5518	-300.224	3.34439	6.827415	-7.90725
	-12981	-20.768	-126.502	-6.99363	-7.58852	-10.2674
	[0.29462]	[-0.65253]	[-2.37327]	[0.47820]	[0.89970]	[-0.77013]
R-squared	0.999643	0.798002	0.999682	0.960584	0.997486	0.997707
Adj. R-squared	0.998928	0.394005	0.999045	0.881753	0.992459	0.993121
Sum sq. resids	41105158	105.2133	3903.695	11.93129	14.04738	25.71599
S.E. equation	1850.792	2.961043	18.03629	0.997133	1.08195	1.463899
F-statistic	1399.234	1.97527	1569.886	12.18531	198.4093	217.544
Log likelihood	-310.034	-71.8346	-138.688	-31.5633	-34.5838	-45.7703
Akaike AIC	18.10995	5.2343	8.847989	3.057475	3.220746	3.825423
Schwarz SC	19.19841	6.322758	9.936447	4.145933	4.309204	4.913881
Mean dependent	66481.34	7.710243	544.2093	13.56065	33.82278	36.28212
S.D. dependent	56537.24	3.803736	583.5861	2.899732	12.45916	17.6497
Determinant resid covariance (dof adj.)				1.04E+09		
Determinant resid covariance				1208775		
Log likelihood				-574.099		
Akaike information criterion				39.14049		
Schwarz criterion				45.67124		

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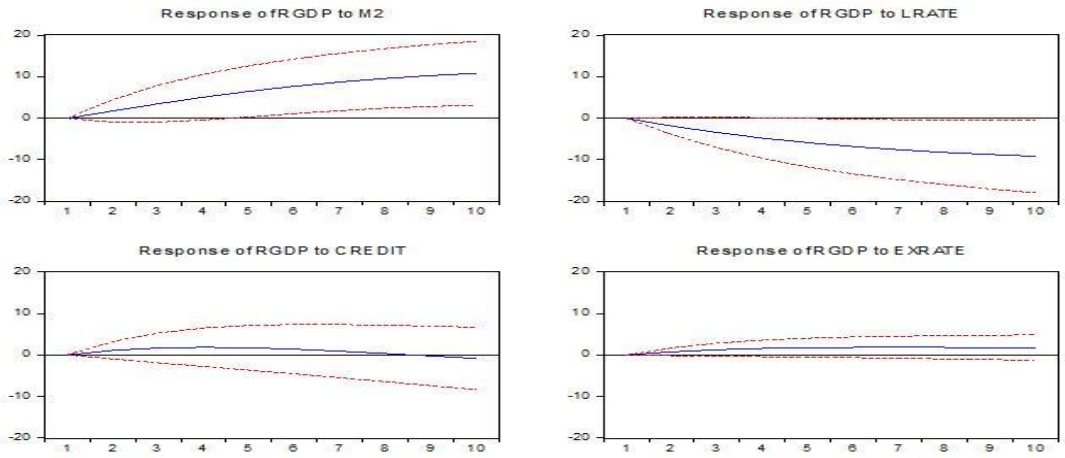

Figure 1
IMPULSE RESPONSE FUNCTION GRAPHS FOR THE VAR BASE MODEL FOR GHANA

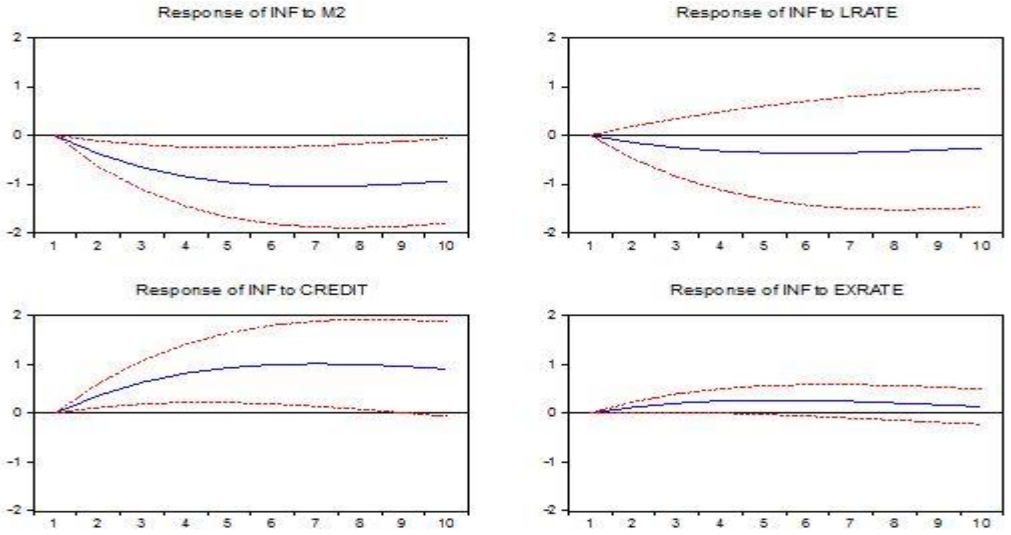

Figure 2
RESPONSE TO CHOLESKY ONE S.D. INNOVATIONS

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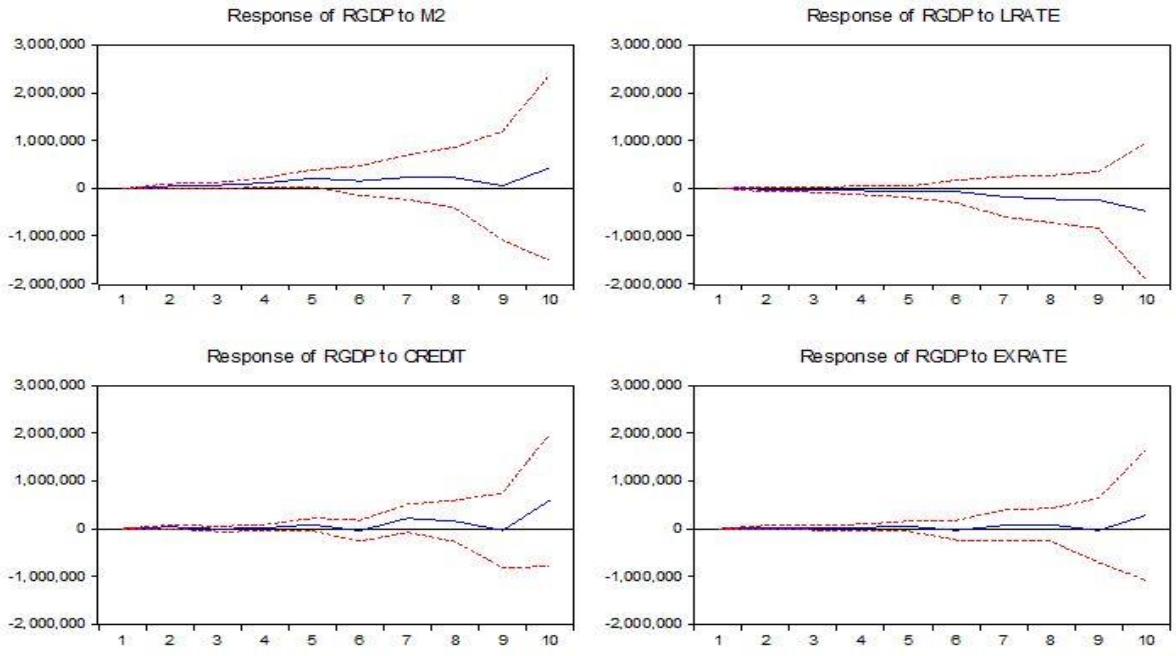

Figure 3
IMPULSE RESPONSE FUNCTION GRAPHS FOR THE BASE VAR MODEL FOR INDIA

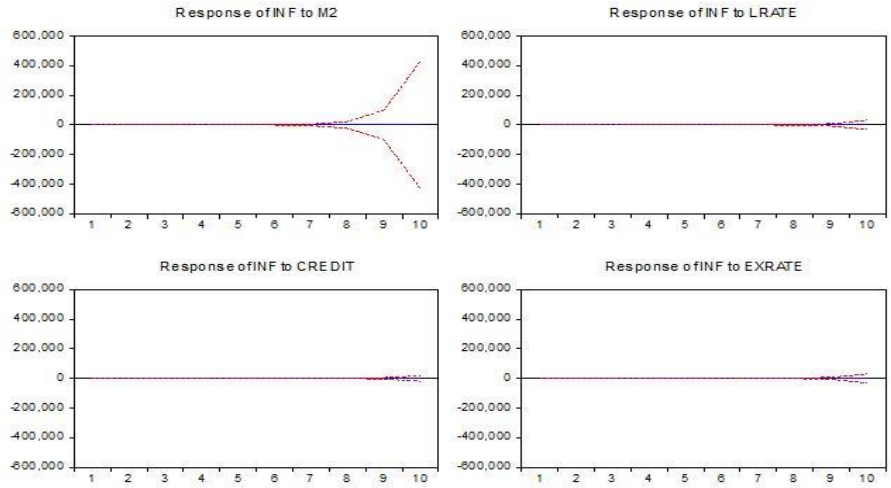

Figure 4
RESPONSE TO CHOLESKY ONE S.D.INNOVATIONS +2 S.E.

REFERENCES

Adu, A. L., & Adu, G. (2016). An Empirical Analysis of the Determinants of Interest Rates in Ghana. *Journal of African Business, 17*(3), 377-396.

Ahmed, A. E. M., & Suliman, S. Z. (2011). The long-run relationship between money supply, real GDP, and price level: Empirical evidence from Sudan. *Journal of Business Studies Quarterly, 2*(2), 68.

Akosah, N. K. (2015). Is the monetary policy rate effective? Recent evidence from Ghana (No. HEIDWP14-2015). Graduate Institute of International and Development Studies Working Paper.

Citation Information: Amponsah, E., Ampong , G., Afriyie, S., Akomeah, M., Asare, J., Amponsah, R., & Quarshie, F.,(2024). Application of monetary policy in the money market: A comparative study between ghana and india. *Academy of Accounting and Financial Studies Journal, 28*(1), 1-26.

Albuquerque, C. R., & Portugal, M. S. (2005). Exchange rate and inflation: A case of sulkiness of volatility. UFRGS, Department of Economy, text for Discussion, (2005/1).

Alex, H., & Innes, M. (2006). The relationship between interest rates and inflation in South Africa, *Revisiting Fishers' Hypothesis.Euro Journals Publishers Inc.*

Attah Kumah, E. and Mazhar, S. (2017). The effectiveness of monetary policy in managing inflation and real GDP in Ghana. *International Journal of Business Economics and Management Research Vol. 8*, Issue 3. Skirec Publication, India.

Barro, R. J. (1996). Determinants of economic growth: A cross-country empirical study.

Bernanke, B. S., & Gertler, M. (1995). Inside the black box: The credit channel of monetary policy transmission. *Journal of Economic perspectives, 9*(4), 27-48.

Bernanke, B., Laubach, T., Mishkin, F., & Posen, A. (1999). Inflation targeting: Lessons from the international experience, Princeton University Press.

Berument, M. H., Denaux, Z., & Yalcin, Y. (2012). Turkish monetary policy and components of aggregate demand: A VAR analysis with sign restrictions model. *Applied Economics, 44*(36), 4787-4798.

Bruno, M., & Easterly, W. (1998). Inflation crises and long-run growth. *Journal of Monetary economics, 41*(1), 3-26.

Diamond, R. (2003). Irving Fisher on the international transmission of boom and depression through money standard. *Journal of Money, credit and Banking*, 35, 49.

Easterly, W. R. (2002). The elusive quest for growth: Economists' adventures and misadventures in the tropics. MIT press.

Ebiringa, O. T., & Anyaogu, N. B. (2014). Exchange rate, inflation and interest rates relationships: An autoregressive distributed lag analysis. *Journal of Economics and Development Studies, 2*(2), 263-279.

Fischer, S. (1993). The role of macroeconomic factors in growth. *Journal of monetary economics, 32*(3), 485-512.

Fokwa, A. & Dazoue, D. G. (2013). An Econometric analysis of the nexus between credit to the private sector, inflation & economic growth: Case of Cameroon 1965 –2010, *Global Journal of Management and Business Research Interdisciplinary*, 2249-4588, 13, 7, 1.0 Global Journals Inc. (USA).

Gozgor, G., & Gozgor, K. (2013). The relationship between domestic credit and income: Evidence from Latin America.

GPRS II Annual Progress Report, 2007, 9 -24.

Jarque, C. M., & Bera, A. K. (1980). Efficient tests for normality, homoscedasticity and serial independence of regression residuals. *Economics letters, 6*(3), 255-259.

Jawadi, F., & Sousa, R. M. (2013). Money demand in the euro area, the US and the UK: Assessing the role of nonlinearity. *Economic Modelling*, 32, 507-515.

Kelly, R. J., McQuinn, K., & Stuart, R. (2013). Exploring the steady-state relationship between credit and GDP for a small open economy: The case of Ireland.

Keynes, J. M. (1930). A Treatise on money, London. The *Collected Writings of John Maynard Keynes*, 6.

King, M. (2002). No money, no inflation-the role of money in the economy. *Bank of England Quarterly Bulletin, Summer*.

Kumar, N. (2009). An optimal spatial sampling design for intra urban population exposure assessment. *Atmosph eric Environment, 43*(5), 1153-1155.

Kuttner, K. N., & Mosser, P. C. (2002). The monetary transmission mechanism: some answers and further questions. *Economic Policy Review, 8*(1).

Lee, C. C., & Chang, C. P. (2008). Energy consumption and economic growth in Asian economies: A more com prehensive analysis using panel data. *Resource and energy Economics, 30*(1), 50-65.

Loayza, N., & Schmidt-Hebbel, K. (2002). Monetary policy functions and transmission mechanisms: an overview. *Serieson Central Banking, Analysis, and Economic Policies, no. 4*.

Mankiw, N. G., (2006). Macroeconomics, 5th Edition. Thompson Southern Western Publishers.

Marshal, I., Solomon, I. D., & Onyekachi, O. (2015). Bank domestic credits and economic growth nexus in Nigeria (1980-2013). *International Journal of Finance and Accounting, 4*(5), 236-244.

McCandless, G. T., & Weber, W. E. (1995). Some monetary facts. Federal Reserve Bank of Minneapolis Quarterly Review, 19(3), 2-11.

Radzyner, O., & Riesinger, S. (1997). Central bank independence in transition: legislation and reality in Central and Eastern Europe. *Focus on transition*, (1), 57-91.

Samuelson, P., & Nordhaus, W., (2010). *Economics 19th Edition*, pp. 211.

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Singh, B. (2010). Monetary policy behaviour in India: Evidence from Taylor-type policy frameworks. *Reserve Bank of India Staff Studies*, 2, 2010.

Stock, J. H., & Watson, M. W. (2002). Macroeconomic forecasting using diffusion indexes. *Journal of Business & Economic Statistics, 20*(2), 147-162.

Taylor, P., & Lowe, J. (1995). A note on corporate strategy and capital structure. *Strategic Management Journal, 16*(5), 411-414.

Tobin, J. (1969). A general equilibrium approach to monetary theory. *Journal of money, credit and banking, 1*(1), 15-29.

Walsh, C. E. (2003). Monetary theory and policy. *MIT press*.

Worms, A., & Ehrmann, M. (2001). Interbank Lending and Monetary Policy Transmission: Evidence for Germany.

Yoshino, N., & Taghizadeh-Hesary, F. (2015). Effectiveness of the easing of monetary policy in the Japanese economy, incorporating energy prices. *Journal of Comparative Asian Development*, *14*(2), 227-248.

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