

UNIVERSITY OF EDUCATION, WINNEBA

**MONETARY POLICY, INSTITUTIONAL QUALITY AND ECONOMIC
GROWTH IN GHANA**



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UNIVERSITY OF EDUCATION, WINNEBA

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GROWTH IN GHANA**



**A Dissertation in the Department of Accounting,
School of Business, submitted to the School of
Graduate Studies, in partial fulfillment of the
requirements for award of the degree of
Master of Business Administration
(Accounting)
in the University of Education, Winneba**

DECEMBER, 2022

DECLARATION

Student's Declaration

I, **Justice Impraim**, declare that this work except quotations and references contained in published works which have all been identified and duly acknowledged, is entirely my original work, and it has not been submitted either in part or whole for another degree anywhere.

Signature:

Date: Friday, 22 March 2024

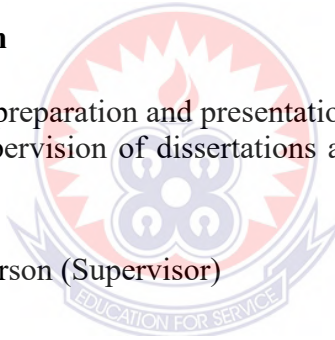
Supervisor's Declaration

I, hereby declare that the preparation and presentation of this work were supervised by the guidelines for the supervision of dissertations as laid down by the University of Education, Winneba.

Dr. Joseph Ato Forson (Supervisor)

Signature:

Date: Friday, 22 March 2024



DEDICATION

This work is dedicated to the Almighty God who granted me the strength and ability to come up with this idea and have enabled me for completion. I also dedicate it to my family and friends for their immense support and encouragement during the whole period of writing this thesis.



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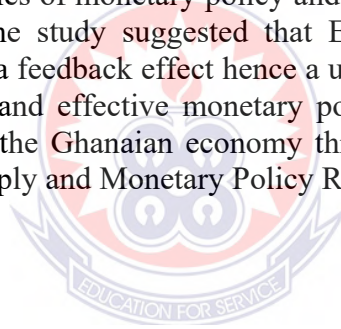


LIST OF ABBREVIATIONS

ADF	Augmented Dickey-Fuller
ARDL	Autoregressive Distributed Lag
BOG	Bank of Ghana
CES	Constant Elasticity of Substitution
CPI	Consumer Price Index
CRP	Credit to Private Sector
CUSUM	Cumulative Sum
CUSUMSQ	Cumulative Sum of Square
ECM	Error Correction Model
GDP	Gross Domestic Product
M2+	Broad Money Supply
MEC	Marginal Efficiency of Capital
MPR	Monetary Policy Rate
OLS	Ordinary Least Square
OMO	Open Market Operations
SBP	State Bank of Pakistan
VAR	Vector Autoregressive
WDI	World Development Indicator

ABSTRACT

The study was aimed at investigating the relationship between Monetary Policy, Institutional Quality and Economic Growth in Ghana. More specifically, the study aimed at examining the long run and short run impact of Monetary policy on economic growth in Ghana and as well test the causal relationship between monetary policy and economic growth in Ghana. The data period was 1980 to 2022 on annual basis. The study adopted both (ARDL) and the Granger Causality Test for the estimations. The study found that there exist a long run association between Monetary policy, rule of law, control of corruption, regulatory quality and economic growth in Ghana. Money Supply has a positive significant impact on economic growth, Monetary policy rate had an insignificant impact on economic growth however, in the short run, Monetary Policy Rate had a negative significant impact on economic growth in Ghana. The estimated tests reveal joint relationship among the variables. The findings of the estimated linear model shows that economic growth responds positively to monetary policy whilst control of corruption and regulatory quality are inversely related to monetary policy with rule of law being and statistically significant, thus, suggesting that, economic growth is susceptible to changes in institutional quality while effective monetary policy exert positive and insignificant effect on economic growth. In addition, the results reveal that economic growth is engendered by the variables of monetary policy and economic growth. Finally, on the granger causality test, the study suggested that Economic growth granger causes monetary policy without a feedback effect hence a unidirectional causality. In view of this, consistent, prudent and effective monetary policies and measured institutional quality will aid to grow the Ghanaian economy through Money Supply in the long run, and both Money Supply and Monetary Policy Rate in the short run.



CHAPTER ONE

INTRODUCTION

1.0 Background of the Study

Monetary policy is a pecuniary policy taken by the government regularly through the highest order bank of a country, Central Bank, to impact the economy. It is geared towards creating stability in the economy and encouraging financial development which have been the quest of every country (Sulaiman & Migiyo, 2014). Monetary policy alludes to government activity or fiat made explicitly to control the value, circulation and direction of money in the economy while thinking about the predominant economic circumstance (Ajanaku, 2016). According to Thirlwall and Pacheco-López (2017), monetary policy is the most important tool to fulfil the dreams of developing as well as developed economies and to achieve the price stability and sustainable economic growth.

For most economies, the objectives of monetary policy incorporate value soundness, upkeep of equalization of instalments harmony, advancement of work and yield development, and manageable improvement (Woodford, 2011). The quest for price stability means that the indirect pursuit of other objectives such as the growth of the economy, which can only take place under conditions of allocative efficiency and price stability of the financial markets. Monetary policy ensures that money supply is at a level that is in line with the growth target of real income, such that non-inflationary growth will be maintained.

Monetary Policy, as practiced in different parts of the world, is implemented alongside fiscal policies to ensure that the progress of that economy in question is achieved while, at the same time, addressing fiscal and other equally important

macroeconomic issues. Generally, these strategies and policies have been dynamic and often in line with global trends. Monetary Policy involves the use of different measures aimed at regulating the value, supply and cost of money in a way that would match up to the expected level of economic activity. Sustainable development, output growth, creation of employment, maintenance of balance of payments equilibrium and price stability are the main objectives of any Monetary Policy practiced around the world. Globally accepted and effective Monetary Policies practiced around the world are normally dynamic. Thus, monetary policies have gone through a lot of changes globally. This dynamism actually began in the 1980s and 1990s in African countries. In the case of Ghana, the monetary policy has evolved significantly from the use of direct instruments to the market-based approach where the main policy target was money supply (Alexander et al., 1995). While this approach, compared to others, was fairly easy to implement, there were quite a number of inefficiencies experienced in relation to its ability to portray the appropriate signals for the efficient allocation of resources.

According to Bernanke (1996), even the well-known big economies in the world, such as Switzerland and Germany, often missed the publicly announced monetary targets. In addition, the monetary targets that were announced were year on year adjusted to reflect competing objectives of monetary authorities and economic conditions. As the Bank of Ghana financial sector reforms began in 1992, this system was eschewed in favour of a more market-based form for the management and distribution of resources (Alexander et al., 1995). This approach was mainly based on the monetary school of thought that inflation (in Ghana) was predominantly a monetary phenomenon. The market-based system was mainly aimed at using indirect instruments to regulate money supply in order to achieve price stability and other economic activities. The

tools which are used in monetary policy consist of open market operations, central bank discount rate (Monetary Policy Rate in the case of Ghana), bank reserve requirement and printing of new money (Alvarez et al. 2001). The ability of monetary policy to energize aggregate output and prices especially in the short-run is economic theory and well-documented by enormous time series analyses of monetary policy transmission (Thomas, 2015). Monetary policy is profoundly essential since it assumes a stabilizing role in the economic system by addressing imbalances that affect aggregate productivity and growth level through a number of channels (Alqalawi, et al., 2017). However, the scope of monetary role might be limited by the nature of monetary policy transmission mechanism, the uncertainty surrounding the policy makers and the stance of economic policies.

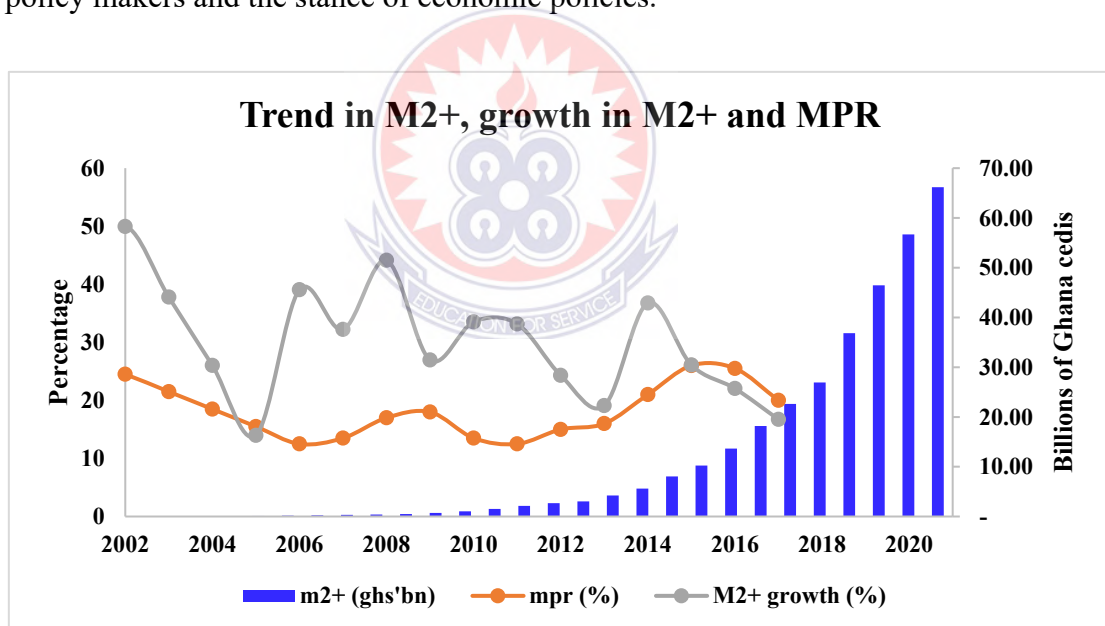


Figure 1: Trends in monetary policy rate and money supply

Source: Bank of Ghana (BOG)

Figure 1 shows the trends in money supply and monetary policy rate from the year 1980 to 2022. Over the years, broad money supply has seen an upward trend in cedi terms. Money supply (M2+) increased from GHS 0.3 billion in 2003 to a little over

GHS 66 billion in 2021. The rate of growth in broad money within that period ranged between 13.9 percent and 53.13 percent. Monetary policy rate took an upward trend from 2003 to 2010 when it moved from 20 percent to 45 percent. From that time, it fell to about 12.5 percent in 2006. Then it turned upward to 25.5 in 2016 before easing to about 20 percent in 2017. It then raised from 20 percent in 2016 to 26.5 percent in 2021.

Economic growth is indispensable in an economy as it diminishes poverty as well as improves livelihoods (Jorgenson, Gollop & Fraumeni, 2016). Economic growth is achieved by an efficient allocation of resources and by increasing the production capacity of a country. It facilitates the income redistribution between population and society. The aggregate impacts, the little fluctuations of the increased rates, become huge for times of decade or more. It is simpler to reallocate the income in an unpredictable developing society, than in a static one. At the point when the economic growth is high, the creation of goods and services rise and, accordingly, unemployment rate declines, the quantity of job opportunities upsurges, just as the populace's standard of life improves (McCombie & Thirlwall, 2016).

However, the financial space in the Ghanaian economy has come under several shocks. The financial space clean-up is one very recent measure taken by the Central Bank of Ghana to strengthen the financial sector and also to ensure sound financial system. According to the Bank of Ghana report in 2017, the move was necessary to primarily save both the depositors funds and the financial market from collapse. A sound financial market is very necessary to ensure that there is consistent and steady growth in an economy.

Monetary policy is necessary to circulate money supply into productive areas of the

economy which will engineer growth. Investment which forms part of the national income is one very key element that directly affects economic growth. This investment component of the aggregate demand is made up of both the public and the private sector investment. Both the government and the private sector of each economy require investment in the long run to promote sustained growth and expansion respectively. Real economic growth in the country rose from 4.8 percent in 2009 to 14 percent in 2011 after the country commenced commercial production of crude. This figure has declined consistently year on year to about 2.2 percent in 2015 before there was a little rise to about 3.4 percent in 2016 and further rise to 8.1 percent in 2017.

Rising significance of monetary policy has made its usefulness in influencing economic growth by most governments. Numerous writers have studied the effect of monetary policy rate on the sustainable economic growth and development in several countries including developed and developing economies. While others encourage a positive effect of monetary policy rate on economic growth (Nwoko, Ihemeje & Anumadu, 2016; Anowor & Okorie, 2016; Duskobilov, 2017; Ahmad, Afzal & Khan 2016; Lennard, 2018), some researches show evidence in favour of negative impact (Inam & Ime, 2017; Younsi & Nafla, 2017; Lut & Moolio, 2015). Notwithstanding the lack of agreement among economists on how monetary policy rate really works and on the extent of its effect on the economy, there is an extraordinary strong agreement that it has some degree of effect on the economy (Imoisi, 2019).

1.1 Problem Statement

Monetary policies have attracted a lot of interest in the past from study as they are significant subject under macroeconomic theory (Granger & Newbold, 1974). The

basic goal of monetary policy are the promotion of stable prices, sustainable output and employment.

In macroeconomic theory, monetary policy is expected to impact on the economic conditions prevailing through the changes in the rate of interest gotten which would result in a variance in the prices of investments as well as that of the capital in the production sector (Nwoko, Ihemeje & Anumadu, 2016). However, establishment of these policies on money and their objective is recognized as a big factor and especially for the economists and the opinions of the integration of all the central banks since they are the ones charged with the responsibility of provision of the domestic currency to the economy as well as the application of these monetary policies set (Imoisi, 2019). In addition, despite the implementation and frequent review of monetary policy transmission tools, the economic performance of some of the developing world has been poor for years (Smith, 2014).

The main objective of Bank of Ghana (BOG) is to achieve stability in the general level of prices, as stated in the BOG Act 2002 (Act 612) subsection 3(1). To ensure this, the Central Bank of Ghana adopted the inflation targeting in 2007 as its main monetary policy framework.

A study carried out between the period of 2002 to 2014 on monthly data to review the effectiveness of the Monetary Policy Rate, the results indicated that Monetary Policy Rate had the potency to effectively signal the market interest rate both in the long and the short run in Ghana within the period of the study (Akosah, 2015). The study also indicated that inflation is mostly driven by interest rate shock over the medium to long term, as a result of an impact of monetary policy. In the short term, however, exchange rate shocks have relatively larger impact on inflation than that resulting

from the market interest rate. On the contrary, output is largely driven by shocks in credit and assets prices. This suggests that an agents' knowledge about future output prospects are often immediately reflected in assets prices before they impact on output. The paper therefore agrees with policies that would promote strong macroeconomic and financial stability to help accustom effective monetary policy transmission in Ghana. In the year 2011, the growth of the Ghanaian economy was about 14% and that was the highest recorded in the last two decades. This growth rate steadily declined over the years until it reached its lowest of 2.2% in 2015. Within the same period, the Monetary Policy Rate saw an increasing pattern from 12.5% to about 25.5%. This is to say that, within the period of a steady increase in the Monetary Policy Rate, the Ghanaian economy also concurrently saw a reduction in its growth rate. After the period of 2015, the growth of the economy started performing quite better compared to the previous years and during this same period, the Monetary Policy Committee reviewed the Monetary Policy Rate on several occasions downwards.

It is therefore evident from the trends in monetary policy rate and economic growth, which appears that during periods of higher monetary policy rate, economic growth has been stunted (Chipote, 2014; Ajanaku, 2016). Growth rather pick up with the easing of monetary policy through lower rates (Anyawu, 199; Akosah, 2015). This, therefore, calls for investigation into the relationship between these two key elements, namely the Monetary Policy and Economic growth due to recent times' events and also to review the causal relationships that exist between them.

1.2 Objectives of the Study

1.2.1 Main objective

To examine the long and short run relationship between Monetary Policy and Economic Growth in Ghana.

1.2.2 Specific objectives

1. To investigate the long and short run effect of Monetary Policy on the Growth of the Ghanaian Economy.
2. To examine the effect of institutional quality on monetary policy.

1.3 Research Questions

The Research question to be answered by the study include;

1. What are long and short run effects of monetary policy effect on the Growth of the Ghanaian Economy?
2. Does Monetary Policy have an influence on Economic Growth in Ghana?
3. What are the effects of institutional quality on monetary policy?

1.4 Significance of the Study

The study aims at examining the extent to which monetary policy relates to economic growth in Ghana. One of main monetary policy tool used in Ghana is the monetary policy rate to manage inflation in the country. This study is purposed to empirically evaluate if the intended purpose of the monetary policy rate announcement in Ghana on periodic basis plays its intended purpose by improving the growth rate of the economy. The study further unearthed if there exist a bi-directional or unidirectional relationship between economic growth and monetary policy in Ghana. This study, amidst the current financial woes of the country, will serve as a basis to evaluate if the monetary policy rate has also contributed to the development of the financial sector.

1.5 Scope of the Study

The study seeks to investigate the long-run and short-run relationship between monetary policy and economic growth in Ghana. The study covers the period of 1980 to 2022 on annual basis. The main dependent variable in the study was the Economic growth in Ghana proxied by the log of Gross Domestic Product in Ghana under the period of consideration. The main independent variables in the study were the Monetary Policy Rate and Money Supply in Ghana. The control variables of the study include Gross Capital Formation, Labour force, 91-day treasury bill rate, Credit to Private Sector, Foreign Reserves and Exchange Rate.

1.6 Organisation of the Study

The study has been organised into five main chapters. The first chapter is the introduction aspect of the study. This chapter mainly deals with the background of the study, problem and objectives of the study. The second chapter of the study; literature review, also reviews both the theoretical and empirical literature but prior to that it also looks at the current information with regards the growth in the Ghanaian Economy and unemployment rate in the country as well. The third chapter; methodology, focuses on the model specifications, data used for the study as well as the estimation technique for the study. The fourth chapter then presents the results with thorough discussions of the results of the study. Finally, the fifth chapter looks at the summary, policy implication and conclusion of the study.

1.7 Limitation of the Study

1. Inadequate research logistics such as human and financial resources.
2. The cost of the research will create a barrier thereby minimizing the sample size for statistical measurement.

3. The research will require intensive labour to achieve the objective of the work..
4. Difficulty in access the relevant data for the research.
5. Time constraints.
6. Conflicts arising from cultural bias and other personal issues in evaluating data and in the design of the study.



CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

The outline of this chapter is theoretical review of the existing literature, the new institutional theory, theory of monetary policy, and a review of international and local studies under the empirical review section, the conceptual model and hypothesis development.

2.1 Theoretical Framework

Neoclassical growth theory by Solow (1950), The Quantity theorem of money, liquidity preference theorem and the new classical monetary tool will form the theoretical foundation of the study.

2.1.1 *Neoclassical Growth Theory*

The theory was initiated by Solow (1950). The neoclassical growth theory is a model of capital accumulation in a pure production economy. No prices are involved as we are interested in output as a measure of real income (Ugur, 2016). The theory is built on the concept that firms acquire capital up to a point where they get reducing returns on their capital employed. Due to the absence of labour units, those available utilize the extra units of capital available (Imoisi, 2019). This leads to firms abandoning capital accumulation and depending on other factors like advancement of technology which is external to the firm hence it can influence it (Smith, 2014).

In this model, the assumption made is that the function of capital is (k), Labor (L) as well as the advancement in technology. Under this model, markets are assumed to be operating under perfect condition which implies no under-utilization of available resources (Smith, 2014). According to the theory, firms produce output using capital and labor, where these inputs are turned into outputs through constant returns to scale production function (Ugur, 2016). The theory states that when suitable monetary policies are implemented they are complimented by interest rates, increased demand for goods and services, and grants from World Bank acts as a boost to GDP and sustainable development in long-term (Ufoeze, 2018). In this study, the theory will help highlight the role played by capital, labor and advancement in technology in national production.

2.1.2 The Quantity Theory of Money

The theorem began in the 16th century and is associated with lead economist Henry Thornton. The theory led to the emergence of classical monetary theories which dominated the 19th century on issues pertaining to monetary theories (Akosah, 2015). The theory asserts changes in money supply lead to the changes in the pricing levels by the same proportions *ceteris paribus* (Tsoulfidis, 2010). The theory is founded on the assumption that the relationship between money supply and level of price changes is one dimensional (Chuba, 2015).

The theory is analysed using Fisherian equation of exchange, $MV = PY$ (Farooq, Hassan & Shahid, 2015). M is money supply which implies cash circulation in the economy; V represents money velocity which implies the times money changes hands; P stands for price levels in the economy. The left side of the equation is money supply side while the right hand side is the money demand side hence the left side

equates to the right hand side (Tsoulfidis, 2010). However, the theory has come under so much criticism with some arguing that money velocity changes from time to time thus it can only hold in the short term (Nwoko, Ihemeje & Anumadu, 2016).

The quantity theory of money sets basis for the association between monetary policies and policies to macroeconomic variables. In the fisher's theory, the assumption made is that money velocity is constant hence increment in money supply results to an increment in the price levels at the same proportion. This implies that money supply has effect in the short-term but doesn't have any effect in the long-term (Twinoburyo & Odhiambo, 2018). The theory is only relevant in conditions where money supply as well as government financing is not responding to public expenditures (Farooq, Hassan & Shahid, 2015). With relation to this study, the QTM expounds on the correlation linking money supply to economic growth where the amount and velocity of money in circulation influences GDP growth.

2.1.3 Liquidity Preference Theory

The theorem is linked to Keynes (1936). The Keynes asserted that holding liquid savings is influenced by the fact that people are unaware of what to expect in the future pertaining to the interest rates (Nwoko, Ihemeje & Anumadu, 2016). According to the theory, variations in the levels of liquidity were mainly influenced by people preferences at a particular time (Chuba, 2015). The theory reiterates that there are only two reasons for holding money which include; speculative and precautionary reasons. The former hold money and government bills depend on the anticipated interest rates. Expected rise in interest rates induces many people to hold government bills while expected low interest rates will induce people to hold their wealth in form of cash (Tily, 2016).

The theory is mainly established on the basis of market forces which are the demand and the supply. The demand for assets points towards the need for balance between holding money and bonds (Tily, 2016). This theory is a combination of both sides of the demand for money as well as the money supply side which brings about equilibrium in the money market. The theory further asserts that interest rates impact on the economic growth through; low interests have positive relationship to GDP as capital is cheap which has a direct correlation to Production capacity (Twinoburyo & Odhiambo, 2018).

2.1.4 New Classical Monetary Model

The new classical theory is associated with Chuba (2015). The theory establishes a structure of backing the existence of a correlation linking inflation to economic growth assuming that there is no room to be exploited by the economist pertaining to the correlation between these two economic factors (Ufoeze, 2018). This theory assumes that markets operate under perfect conditions. It further assumes that the monetary policies have no impact on the real economic variables (Tsoulfidis, 2010).

The theory is based on various assumptions which include; rationality, natural rate hypothesis, market clearing, and information imperfection. The economic equilibrium is influenced by the technological advancement and has no correlation to monetary policies (Twinoburyo & Odhiambo, 2018). According to this theory, the monetary economists believe monetary policies are vital to the sustainable economic growth as it directly impacts on the productivity (Ufoeze, 2018).

2.1.5 The New Institutional Theory

It is argued that economic growth may have limitations caused by lack of raw materials, climate change and overcrowding. Given the failure of Malthus predictions to come true, these theories are often rubbished. Nevertheless, there may come a time when growth is constrained by environmental factors.

Now we ask the question, what is the of what governments can learn from economic theory about raising their economies long-term growth rate?

The long-term growth rate depends upon the underlying trend rate of economic growth rate. This underlying trend rate of growth depends primarily on the growth of aggregate supply and productivity. To increase the long-term growth rate, Aggregate Demand plays a very limited role. In the Classical model of economic growth, an increase in AD would only cause inflation. However, you could argue that AD does have a role to play.

If an economy experiences a recession for a long time, the average long-run growth rate will be lower. This is related to the theory of hysteresis. What has happened in the past is likely to happen in the future. Thus, if governments can manage aggregate demand, they can prevent recessions and help increase the average growth rate.

2.1.6 Theory of Monetary Policy

2.1.6.1 Overview of Monetary Policy

The importance of monetary policy in an Economy has been central to Economic theory due to its impact on output, employment, growth and other economic processes. In most countries, the power to formulate and implement Monetary policies is vested in the hands of central banks. These central banks have varying

degrees of independence in the exercise of this power. In some jurisdictions, there is a lot of government or political influence in the formulation of monetary policies while in others, there is little or no political influence.

The main purpose of monetary policy in any economy is to achieve certain national goals. These goals could include but not limited to full employment, full employment output, stable prices, stable exchange rate and so on. Currently, many central banks are centered on reducing the deviation of output from its full level of employment and of inflation from a target level with a trade-off between them as in a Taylor rule.

Monetary policy refers to the rules and regulations of the top monetary authority with the motive of efficient control of aggregate money supply, rate of interest and availability of credit so as to achieve certain acceptable macroeconomic objectives of the government. The operating target of a monetary policy can be a monetary aggregate (money supply) or an interest rate (monetary policy rate).

For some years, monetary aggregates were selected for monetary policy and it is still used by some central banks across the world. However, currently, many advanced countries and some developing economies are focusing on interest rate as their primary operating target. It is a fact that central banks do not control money supply directly but has to use its instrument to indirectly control it. These tools include Open Market Operations (OMO), the use of discount rates (or policy rates) and reserve requirements. Since 2005, Ghana has been using inflation targeting as its monetary policy instrument. The monetary policy committee of the central bank of Ghana periodically issues directives on monetary policy rate as well as other policy instrument with the aim of ensuring long run price stability.

An important tool of revitalizing an economy toward a path of growth is monetary policy because of its ability to impact on macroeconomic variables. Chipote (2014) enunciated the importance of monetary policy as it plays a significant role in affecting the growth of the economy which motivates many resource managers (the governments) to use it foremost among others.

To the Classical economists, money does not really matter in an economy as it directly affects prices only. In their own view, money plays a catalytic role in the real sector. Money is therefore seen as a veil and does not play any active role in the economic system. This implies that monetary forces do not affect output, real income and employment in an economy. However, the classical believe that money is determined by capital stock, state of technology, labour, availability of natural resources and saving habits of the populace among others. And also, the major role of money is to act as a medium of exchange and as such determines the general level of prices at which exchange of goods and services are done.

2.1.7 Modern Monetary Theory (MMT)

Modern Monetary Theory (MMT) is a policy model for funding government spending. While MMT is not new, it has recently received widespread attention, particularly as government spending has increased dramatically in response to the ongoing COVID-19 crisis and concerns grow about how to pay for this increased spending. The essential message of MMT is that there is no financial constraint on government spending as long as a country is a sovereign issuer of currency and does not tie the value of its currency to another currency.

In principle, being a sovereign issuer of currency endows the government with the ability to borrow money from the country's central bank. The central bank can

effectively credit the government's bank account at the central bank for an unlimited amount of money without either charging the government interest or, indeed, demanding repayment of the government bonds the central bank has acquired. MMT is arguably an expeditious way of funding increased government spending by obviating the need for government to raise additional tax revenues or to compete for private capital by offering competitive interest rates on government bonds sold to private sector investors. The MMT policy model has been met with a number of objections. One is that central banks, such as the Bank of Ghana, may not concur with government requests to fund the latter directly by purchasing government bonds. In principle, the Bank of Ghana, as well as the central banks of other wealthy countries, are nominally independent of government control or funding mandates.

A second objection to MMT is that its implementation will lead to inflation, perhaps even hyper-inflation, with devastating consequences for domestic economies. MMTers acknowledge the potential for increased government spending financed by the central bank to generate problematic inflation in a "full employment" economy. However, most MMTers see a low risk of inflation pursuant to increased government spending given current economic conditions, including relatively high unemployment as well as recent experience of relatively low inflation notwithstanding growing amounts of government borrowing. MMTers also note that government can reduce its spending or increase taxes in the event that inflation is becoming a problem.

Whether government has the political will and technical ability to raise taxes and/or cut spending in response to rising risks of faster inflation is an open question. Hence, while the risk of MMT igniting a sustained and relatively fast rate of general price increases is uncertain, there has been relatively recent historical experience in Latin

America and Greece where the implementation of MMT did, indeed, result in runaway inflation and a significant decline in the standards of living in the relevant countries. The classical believe that, increase in money supply will lead to a direct and proportional growth in general price level. This was illustrated in Fishers quantity theory causation. $MV = PT$ (where M =money supply, V = Velocity, P= Price level and T= transaction level). They also believe that increase in money supply does not impact on the real GDP, but rather, it increases price. This implies that changes in money supply will not have any impact on the macroeconomic variables (Jhingan, 2005).

2.1.8 Keynes's Theory of Monetary Policy

The confidence to undertake investment projects depends upon our ability to project governed by natural laws but are instead the result of the series of investment projects undertaken by forward-looking investors in the past. In every short-period situation in which such investment projects were undertaken, the long-run trends of the economy would have taken off in a different direction, if those investment projects had not been undertaken.

For this reason, investors take a two-step approach to the evaluation of prospective investment projects. First, they project long-run trends into the future by assigning probabilities to the likelihood of their continuance, and thereby calculate the expected profit . Second, they contemplate the degree to which the principle of non-sufficient reason captures their uncertainty about the degree to which knowable but unknown or unknowable factors may cause the future trends of the economy to differ from past ones, and thereby calculate the expected profit.

Monetary policy is a factor that has shaped the long-run trends of the economy. It is thus necessary for investors to assign a probability to the likelihood that the monetary authority will continue to act in the same way that it has in the past, and incorporate it into the calculation of expected profit. Keynes noted that, increase in the supply of money influences price but not directly and proportionately. Keynes stated that money does play active role in the economic system by affecting the real sector, especially when we consider the Keynesian Quantity Theory of Money. The classical posits that $\uparrow M_s \rightarrow \uparrow P$ $\downarrow M_s \rightarrow P \downarrow$ $MV = PT$ (where: M_s is money supply; P = Price level) whereas Keynes posits that $\uparrow M_s \rightarrow \downarrow i \rightarrow \uparrow I \rightarrow \uparrow YON \rightarrow \uparrow COST \rightarrow \uparrow PRICE$. In this, the relationship is indirect but money supply affects prices through a chain of causation as shown above. This means a growth in money supply (M_s) will result in a decrease in interest rate (i) given liquidity preference and thereby increase investment due to the marginal efficiency of capital (MEC). This will also lead to an increase in income, output and employment through the multiplier (k) and in turn lead to an increase in cost due to elasticity before increasing the price level (Keynes, 1936).

2.2 Financial Theory and Central Bank Policies

At an unexpected meeting on 21 March—the meeting was originally scheduled for 23–25 March—the Monetary Policy Committee of the Bank of Ghana (BoG) decided to hike its policy rate by 250 basis points to 17.00%. The move followed a decision to keep the rate stable in late January. The hike responded to mounting external headwinds, as the Russian invasion of Ukraine drove prices up in commodity markets and both developed and emerging economies tightened their policies. Meanwhile, February inflation reached 15.7%, up from 13.9% in January, while the cedi has suffered from sustained and substantial depreciation from late January due to harsher

global financing conditions and limited government access to international markets. In its communiqué, the Bank noted that fiscal reforms, together with the rate hike, should be enough to calm markets and soften inflation (Agalega & Antwi, 2012). Given that the bank still sees inflation reaching the target in the medium term—which is 8.0% with a symmetric band of 2.0%—the forward guidance is interpreted as neutral.

Reduction in poverty, the control of income inequality and employment creation for the resources of the society are important issues when considering the growth of the economy. Economic Growth is a measure of the increase in an economy's capacity to produce goods and services in a particular period of time. Generally, Economists agree that economic growth is mainly influenced by human resources, natural resources, physical capital and technology. Economic growth is of high significance to both developed and developing economies of the world. This is because, economic growth leads to an increase in employment, an increase in tax revenue which has a positive effect on government spending on public goods and services as well as an increased consumption which also results in higher levels of investment.

In order to effectively measure economic growth, the effect of inflation over the period must be adjusted for. Economic Growth can either be measured using the Real Gross Domestic Product or the Real Gross National Income of the economy. Amongst the two measures above, the Real Gross Domestic Product is the most used to determine a country's economic growth (Adugyamfi, 2019). This is because, it takes into consideration the whole economic output produced in the country. It includes all the goods and services that businesses, individuals and the government produced in the economy over the period under review. According to Walt Rostow,

the process of transformation of an economy can be classified under five main phases. The first stage of economic growth is the Traditional Society which is based on primitive and old means of production. Production at this stage is mainly for consumption. The second stage of economic growth is the Pre-Takeoff Stage which is characterized by the sprouting of education, savings and investments. This stage actually exhibits an upward trend in trade and commerce. The third stage is the Takeoff Stage which is identified by the industrial revolution with the use of improved technology. The fourth stage is the Drive to Maturity. At this stage, the economy would have effectively applied a wide range of modern technology in all sectors of production. There is also the emergence of a significant level of international trade and there is also an exponential growth in investment and capital formation in the economy. The final stage, according to Rostow, is the High Mass Consumption Stage which is characterized by the production of high quality and durable consumer goods and services. The economy experiences a high level of per capita output.

The Solow Growth Model seeks to explain the role of capital stock in accelerating the growth of an economy through the Cobb-Douglas production function (Solow, 1950). In his submission, the growth of the economy to a larger extent depends mainly on the capital accumulation and other parameters (i.e. population, savings rate and depreciation).

The model investigates how a closed economy with technological progress drives the economy to steady state with capital accumulation. According to the research, capital and labour force experience same rate of growth. The rental cost of capital is relatively low when there is ease in accessing foreign capital to boost the domestic

capital. As the rental cost reduces to ensure equilibrium, the marginal product of capital is also reduced. This is so when the growth of capital stock in the short term is faster than that of labour growth.

This theory actually explains free access in the stock market in the short term and promotes capital stock accumulation in a country based on the assumption that marginal product of capital equals the post-liberalization cost of capital, the rate of growth of the stock of capital will return to its pre-liberalization rate (i.e., the same rate as the labour force). Ascertaining the appropriate the measure of capital for countries that are nowhere close to their steady state is very problematic. This bottleneck of the Solow residual is almost acute in applications in which its accuracy is most highly valued.

Irrespective of the assumptions built, the Solow model augmented by both human and structural changes provides a near explanation of the variations in the growth patterns of various economies. For example, the Chinese monetary development achievement is credited to high physical capital venture, restrictive balance increases, sensational changes in the structure of work and yield, and low populace development.

Technological advance places a key role in the Argumented Solow model when population and capital accumulation are held constant. Owing to the non-linear nature of production technology in the production function, the Cobb-Douglas production function is replaced with the Constant-Elasticity of Substitution (CES). This is justified by showing the cross-country regression of the Constant Elasticity of Substitution over the Cobb-Douglas technology function (Gregory et al., 1992).

2.3 Empirical Review

2.3.1 Monetary policy and economic growth

The relationship between monetary policy and economic growth has been an inconclusive argument over the years with different theories arguing on either money is neutral in the economy or not.

Before 1936, Economic thinking was dominated by Fisher's classical quantity theory of money which assumes that the velocity of money and economic output are constant. By these assumptions, changes in money supply only results in a proportionate change in price levels (inflation) and hence money is neutral both in the short and in the long-run. Thus, to the Classical economists, money does not really matter in an economy as it only directly impacts on the price level. In their view, money plays a stimulating role in the real sector. Money is seen as a veil and does not play active role in the economic system. The major role of money is to act as a medium of exchange and as such determines the general price level at which exchange of goods and services are done. This implies that monetary forces do not influence output, real income and employment in an economy.

In addition, these economists did not acknowledge the trade-off between economic output and inflation. Rather they were of the strong conviction that economic growth was determined by real factors like labour, capital stock, state of technology, availability of natural resources, saving habits of the populace among others (Twinoburyo & Odhiambo, 2018; Jhingan, 2005).

Keynes (1936) refuted the assumption of constant velocity of money and hence the quantity theory of money and rather used the liquidity preference theory to link money to economic output growth. While Keynes accepted certain classical

assumptions like the exogenous supply of money by monetary authorities, he, through the liquidity preference theory argued that, demand for money was not exogenous but rather endogenous and a function of interest rate. By this argument, Keynes established an equilibrium in the money market where interest rates adjust to equate demand for money with the exogenous supply of money. It follows then that an increase in money supply will decrease interest rate to increase demand for money to establish an equilibrium in the money market. This decrease in interest rate has marginal efficiency on capital and investment within the economy which then leads to explosion in economic output and hence growth. Thus, to Keynes, money and decisions about money were not neutral in the real economy. Keynesianism acknowledges the tradeoff between output and inflation; as an increase in output will lead to an increase in aggregate demand which will ultimately lead to increases in price levels (Twinoburyo & Odhiambo, 2018; Keynes, 1936)

In the 1950s, the Monetarist theory, revived some of the assumptions of the classical quantity theory of money like exogenous supply of money and constant velocity of money. In addition, the theory acknowledged the tradeoff between output and inflation and reformulated the Philips curve using real wages rather than the original nominal wages. The monetarists also agreed to the assumption of sticky wages and prices which implied that, monetary policy affected real output but only in the short run. The proponents of the monetarists theory like Friedman explained that, increase in money supply resulted in excess money balances. These excess money balances are used to obtain both financial and real assets. Thus, any time the Central Bank buys securities, their prices increase, their yield declines, and demand for financial and real assets increases. As demand increases, the prices of these assets rise, and the rise in prices of real assets inspires production which on the other hand increases the demand

for resources required for their production. Demand for services also see a rise with increase in the prices of real assets. Hence, it can be pointed that an expansionary monetary policy raises demand, raises prices and raises spending for financial and real assets and for services through substitution effect. Thus, in the short run, an increase in money supply will increase output.

However due to the classical assumption of full employment in the long run, there will be a countervailing effect on an increase in general prices. In the long run, money supply was inflationary and hence the monetarist theory assumed long-run neutrality. After the monetarist theory of money, there have been other theories like the new classical model, the new Keynesian model and the new consensus model (Twinoburyo & Odhiambo, 2018).

The new Keynesian model re-arranged the traditional Keynesian model to be consistent with the microeconomic fundamentals which upholds the long run neutrality of money in the real economy and posits that monetary policies can only affect output in the short-run. Based on the assumption that, prices and wages are temporarily inflexible, economic quantities adjust as governments uses fiscal and monetary policy to respond to external shocks.

The New Consensus model is the product of the new classical model and the new Keynesian model. This model upholds the rational expectation theory in the new classical model as well as maintaining the price and wage rigidities in the new Keynesian model. Thus, there are temporary nominal rigidities in prices and wages but due to rational expectations, the market is able to clear and therefore there will be no long run implications in the real economy. As a result, this model proposes that monetary policy should concentrate on short-run stabilization and

long run price stability. It is this model that has become the bedrock inflation targeting monetary policy where price stability has become the primary objective with other economic objectives like output and employment being secondary. From the above, the theoretical argument of a linkage between monetary policy and economic growth is still on-going. However, there have been many empirical studies which have attempted to establish this nexus within the various theoretical framework. Irfan (2010) reported on the relationship between monetary policy and GDP. The study adopted OLS regression technique with annual time series data from 1980 -2022. The outcome indicates that GDP is greatly affected by monetary policy. Also, the study revealed that there are various factors which are unknown that affect the GDP but the monetary policy or growth in money supply has a huge effect.

Iqra and Anjum (2013) stated that, the higher the money supply by the State Bank of Pakistan (SBP), the higher the growth in inflation. The relationship between monetary policy and GDP has been investigated by applying regression model. In arriving at the conclusions for the study, data covering a period of 12-years was taken into consideration. The research proved that the interest rate has a huge effect on GDP and therefore, it is necessary to maintain interest rate in order to bring the rate of inflation downwards.

Qamber (2012) investigated the relationship of long run and short run of monetary policy, inflation and the growth of the economy in Pakistan. The secondary data from the period 1982 to 2020 with co-integration and causality method were used to analyze the data. The result showed the effectiveness of monetary policy in

maintaining inflation in the country and the real exchange rate also causing the financial depth and budget deficit.

Ahmad et al. (2017) investigated the relationship that exists between GDP and monetary policy in Malaysian economy. Annual time series data from 1991 to 2021 with co-integration and Vector error correction model were applied to derive the relationship that exist between real GDP and real interestrate. The outcome shows that there is a possibility of existence of long run equilibrium relationship between GDP and real interest rate and there is also a positive relationship between GDP and money supply in Malaysia. Rabbi (2011) examined the connection between money, price and GDP which has a massive importance for the formulation of monetary policy in Pakistan. Annual time series data with techniques such as ARDL and ECM were used from the year 1989 to 2020. The results clearly suggest that there is a relationship between GDP, money supply and consumer price index (CPI).

According to Chipote (2014), the research described three quantitative goals which included exchange rate, money growth rate and inflation rate and empirically analyzed the effects of inflation on both quantitative targets. The empirical work used data on annual basis and covered 42 countries. The research concluded that successfully achieving a quantitative monetary goal is also associated with less volatile output.

Mehmood (2012) investigated the relationship and effects of selected factors on Gross Domestic Product (GDP) in Bangladesh and Pakistan for the purpose of ascertaining the better position. Time series data with regression model over the

period 1970-2020 were used. The study concluded that external debt and export service has adverse impact on Gross Domestic Product (GDP)

Anowor and Okorie (2016) reported on the impact of monetary policy on gross domestic product (GDP) in Pakistan. Time series data from 2005 to 2019 was used for driving the result. To determine the relationship that exist between the variables, regression and correlation techniques were used. The study proved that money supply, rate of interest and inflation rate greatly affected the GDP. The study also indicated that, there are many unknown factors that impact on GDP.

Chipote (2014) examine the monetary policy and economic performance; evidence from selected African countries. Annual time series data between 1985 and 2021 was used. The study employed the bounds testing approach to cointegration and the Autoregressive Distributed Lags (ARDL). The findings show significant differences in the interest rate of 3 countries that were studied. Ghana and Gambia were characterized by under shooting in the response of lending rates to monetary policy changes whilst Nigeria was characterized by over shooting in bank lending rates. Financial development proved significant in some, but not in all the cases, while the growth of the economy proved mostly insignificant in the transmission of the policy rate to bank lending rates

Mutuku and Koech (2014) investigated the fiscal and monetary policy shocks and economic growth in the Kenyan economy using a recursive vector autoregressive (VAR) framework. The analysis of variance decomposition and urgent response functions revealed that fiscal policy has a significant positive effect on real output growth in Kenya while monetary policy shocks are almost completely insignificant in altering the real output for a period of almost eight quarters.

Chuba (2015) investigated fiscal and monetary policies coordination and public debt in the economy of Kenya; evidence from regime-switching and self-exciting threshold autoregressive models. This study explored the nature of monetary and fiscal policy coordination and their impact on long-run sustainability in the Kenyan economy. The study used annual time series data from 1973 to 2020. Markov switching models were adopted to ascertain fiscal and monetary policy regimes endogenously. The fiscal policy regime was seen as passive if the coefficient of debt in the MS model was significant and negative. This fiscal policy regime is also seen as unsustainable since the increase in debt is associated with a worsening of the fiscal balance. On the other hand, the active monetary policy is identical with contractionary monetary policy since real rate of interest reacts positively to an increase in inflation. Vigorous analysis conducted using self-exciting threshold models confirmed that monetary and fiscal policy reaction functions are nonlinear.

Agalega and Antwi (2012) examined the effect of changes in the interest rate and inflation that have brought changes to the Gross Domestic Product in the regions of Ghana. The results were derived from multiple linear regressions to establish that there is a strong correlation between interest rate, GDP and inflation. The study recommended that the government and the Bank of Ghana must work together to develop policies that aim at stabilizing both macro and micro indicators.

Adu-Gyamfi (2019) examined the effect of monetary policy and fiscal policy on the lending rates of commercial banks in Ghana. The study used secondary data acquired from the Central Banks quarterly report spanning starting 2004 - 2018. Time series data was analyzed using ARDL model. The study found that monetary policy had a significant positive effect on the lending rates of commercial banks.

In investigating the relationship between monetary policy and economic growth, Wauk and Adjorlolo (2019) investigated the games of inflation, monetary policy and the growth of the Ghanaian economy for the period between 1980 and 2022. The researcher used Autoregressive Distributed Lag (ARDL) to cointegration model; it was revealed that in the long run, interest rate significantly influences the growth of the economy but in a negative direction. This implies that the higher the interest rate, the more the tendency to restrain economic growth and inflationary pressures. In relation to exchange rate, the long run result indicated an insignificant negative effect on the growth of the economy. The general results suggested that macroeconomic variables which influence economic growth are interest rate and exchange rate. This is evidence enough that macroeconomic instabilities have significant effect on economic growth.

In conclusion, there have been many empirical studies on the relationship between monetary policy and economic growth around the world in Africa. Most of these studies used OLS analysis while a few used co-integration analysis and error correction models including ARDL. This study is unique in that the context of the study is Ghana and it makes use of more current data as well as employing a more efficient ARDL model.

2.3.2 Institutional quality and monetary policy

Chipote (2014) asserts that inflation is always and everywhere a monetary phenomenon, scholars such as Adu-Gyamfi (2019) agree that inflation and monetary policy are interrelated. They further assert that an expectation of firms on monetary policy has impact on inflation. According to the research, the characteristics of monetary process once implemented define their expectations. Also, following the

work of Chipote (2014), increased “market orientation” of monetary policy implementation involves a short-term market interest rate as the operating target of monetary policy.

In this type of framework, for monetary policy to have a desired impact on the real economy and inflation, which is the ultimate objective of monetary policy, it is essential that changes in the short-term market interest rate eventually translate into changes in other interest rates in the economy (that is, interest rate changes are passed through to retail interest rates for loans and deposits), which then influence the overall level of economic activity and prices. Anowor and Okorie (2016); Chipote (2014); Ahmad et al., (2017) assert that inflation can induce short run growth through expansionary macroeconomic policies, but this effect is not sustainable in the long run. In the long run, the relationship between inflation and growth is undoubtedly negative. Ajanaku (2016) asserts that there is no effect of inflation on growth (money is super-neutral) (Agalega & Antwi, 2012; Akosah, 2015; Imoisi, 2019) assumes that money is a substitute for capital, causing inflation to have a positive effect on long-run growth. Farooq, Hassan and Shahid (2015) explains through a cash-in-advance model in which money is complementary to capital, causing inflation to have a negative effect on long-run growth.

Roberts (1995) confirms that the monetary policy changes predict large declines in the slope of the reduced-form relationship between the change in inflation and the unemployment rate, holding fixed the structural parameters underlying inflation behavior. He further states that the notion that monetary policy should affect inflation dynamics is an old one, dating at least to Friedman’s dictum that inflation is always a monetary phenomenon. Changes in monetary policy can account for most or all of the

reduction in the slope of the reduced-form Phillips curve. Granger and Newbold (1974) showed how changes in monetary policy could, in principle, affect inflation dynamics. However, Granger and Newbold considered only very stylized monetary policies. Farooq, Hassan and Shahid (2015) show that monetary policy may have become more predictable, implying smaller shocks to a simple monetary-policy reaction function. Adu-Gyamfi (2019) have argued that changes in monetary policy may lead to changes in the frequency of price adjustment and, thus, changes in the parameters of the price-adjustment processes. However, as in other recent works (Agalega & Antwi, 2012; Akosah, 2015; Imoisi, 2019), changes in policy accounts for a smaller proportion of changes in output growth. The ability to explain the reduction in inflation volatility is mixed: in a small-scale model, it is possible to explain all of the reduction in inflation volatility. In Ghana however, the Bank of Ghana reports in 2011 that loose monetary policy stance is likely to pose undoubtedly a risk on persistent inflation. The paper further reports that monetary policy by itself may not be successful in any case in bringing down rising inflation rates. In an economy, such as Ghana's, characterized by fiscal dominance, monetary policy is apt to be overwhelmed by expansionary fiscal policy. Thus tighter fiscal policy with complementary monetary policy to slow-down aggregate demand is the appropriate macroeconomic policy mix to curb inflation.

To account for the effect of institutional quality on monetary policy, Nawaz et al (2018) employed myriad of econometric models including principal component analysis and generalized method of moment on annual data spanning from 1984 to 2015 for a number of sampled countries from developing economies. The investigation revealed that stronger institutions significantly influence the policies set to guide central government's supply of money in an economy to arrive at a desired economic

outlook. The study contains a weak making it dictums questionable owing the sample being selected from only SAARC region where some countries found in such destination may share similar economic as well as socio-cultural commonalities.

Again, the research used a proxy of institutional quality that contains plethora of more than ten indicators which may adversely affect the quality of measurement. Similarly, an enquiry that sought to find out the relationship between institutional quality and monetary policy through the use of Taylor rule with data from 1983 to 2015 for 51 countries comprising of 28 developed and 23 emerging countries. The empirical result showed that countries with strong institutions turn to have low level of inflation which is a derivative of monetary policy (Kakar, Younas & Malik, 2020). The investigation furthered that countries characterized with low level of corruption and stable governmental administration have low level of inflation relative to countries where corruption is rampant. Per the evidence from the study central banks of emerging economies respond aggressively to soar in inflation above the threshold level (Kakar et al., 2020). This insinuate that countries having low level of corruption have stronger and efficient institutions leading to formulating good monetary policies to spearhead economic growth. This result confirms the account of Nawaz et al (2018) whose study adduced evidence that better institutions facilitate good monetary policies in emerging economies. Notwithstanding, Ullah, Wajid and Khan (2016) assessed the effect of institutional quality on monetary policy in Pakistan, the enquiry through the Taylor rule to control for any adverse influence that might be posed by the variables under review in order to ascertain the true impact of the regressor on the regressand.

The study concluded that there is no iota of truth that institutional quality affect monetary policy in Pakistan. This account contradict the evidence provided by Kakar et al (2018); Nawaz et al (2020) who provided evidence that strong institutions positively influence monetary policy implemented by a country. The difference in findings in the analysed studies can be attributed to the varying sample frame, different setting used as well as the different estimation techniques employed by the diverse studies. A study to examine the effect of institutional quality on monetary policy used institutional quality measure that compose of law and order, government stability, investment profile among others as against monetary policy set by central bank. The enquiry discovered quality institutions foster formulation of good monetary policies nevertheless poor nature of a country's institution discourages and reduces wealth, drop in wages and salaries as well as diminishes inflation (Duncan, 2013). This account opposes the argument as championed by Ullah et al (2016) who documented that contrary to conventional wisdom that institutional quality positively impact monetary, institutional quality relate inversely with monetary policy. However, the account of Duncan (2013) coincides with the argument harnessed by Kakar et al (2018); Nawaz (2020). Through the use of robust fixed panel estimation technique with data spanning from 1990 to 2017 gathered from thirty-seven countries, an enquiry unveiled that improved institutions trigger reduction in lending rate which is an indicator of monetary policy. This account divert from the position Ullah et al (2016) who registered that a inverse link exist between institutional quality and monetary policy. Seemly, the same account support the aha moment put forward by Duncan (2013); Kakar et al (2018); Nawaz (2020) who unanimously documented that countries with high quality institutions have good monetary policy that enhance financial market growth and consequentially economic growth.

2.3.3 Monetary policy, institutional quality and economic growth

This study conceptualized institutional quality as those basic tenets that guide the operations of public and other private institutions in order to maximise wealth. The enforcement of these tenets is based on the act that establishes the institution, which most times conforms to global best practice. The pioneer of the theory in institutional economics Akosah (2015) describes institutions as a set of rules, compliance procedures, and moral and ethical behavioral norms designed to constrain the behavior of individuals in the interests of maximizing the wealth or utility of principals. Adu-Gyamfi (2019) defines institutions as habits that bring limitations to our actions through rules and organizations settled in social life, direct us on how we should behave, and lead social life. The trust factor that makes up the informal aspect of corporate structure of society forms the basis of social order, individual life and economic and political development through resulting effects in the form of growing business scales, industrial structure flexibility and increased social strength to external shocks (Imoisi, 2019). Trust increases the effectiveness of the economic and social system and makes it possible to produce more goods (Chuba, 2015). To Chipote (2014) institutions should promote and incentivize productive and wealth increasing actions such as innovation, capital and education acquisition, ensure property rights and prevent predatory, wealth-destructive behaviour (e.g. corruption, theft and rent seeking). Ahmad et al., (2017) further emphasizes that institutions not only exert direct influence on economic growth but also affect other determinants of growth such as the physical and human capital, investment, technical changes, which in turn lead to an increase in the growth of an economy.

Solow-Swan neoclassical growth model emphasis centres on technological change, labour, and capital (Solow, 1950) in boosting economy output. Granger and Newbold,

(1974) later modified this with the inclusion of accumulation of human capital. However, this no longer prevail as there several driving forces to sustainable development and one of which is institutional quality and has taken centre stage in the midst of other determinants. The ‘institutions’ quality hypothesis’ contends that the institutional framework within which economic agents interact with each other in an economy affects economic development (Akosah, 2015). According to this view, what matters most are the ‘rules of the game’ in a society, which are defined by the prevailing explicit and implicit behavioural norms and their ability to create appropriate incentives for desirable economic behaviour (Chuba, 2015).

The earlier studies attention was on the relationship between economic development and political institutions (Agalega & Antwi, 2012; Akosah, 2015; Imoisi, 2019), however as time evolve, the development of new measures has led to a number of different institutional issues being discussion (Agalega & Antwi, 2012; Akosah, 2015; Imoisi, 2019). For instance, studies by Ahmad et al., (2017); Chipote (2014); Anowor and Okorie (2016) showed that institutions that promote economic freedom have a positive effect on economic performance. In a similar vein, studies by Levine (2003), report that countries with high level of civil liberty experience equality in per capita income. In addition, Adu-Gyamfi (2019) in revised Washington Consensus is one of the leading in supporter for good governance for countries to experience rapid development. Currently, the bulk of the research on the determinants of economic performance concentrates on the role of institutions in the discussion and its focus has shifted from macroeconomic variables to the quality of institutions (Anowor & Okorie, 2016), hence it is in the light of this arguments that this study is embark upon.

Anowor and Okorie (2016) the study examine the role of institutional quality in

economic growth: implications for the Baltic States. The study use Generalized Method of Moments on a panel of 113 countries during 2006 -2016. Government effectiveness, regulatory quality, tax burden, monetary freedom, financial freedom, trade freedom, strength of auditing and reporting standards, efficacy of corporate boards, and strength of investor protection has positive effect on economic growth. Ajanaku (2016) the study looks at institutions, economic freedom and structural transformation in 11 sub-Saharan African countries. The study use Panel Tool. Result reveals a positive and statistically significant effect of quality of institutions and economic freedom measures on structural transformation between sectors. Ahmad et al. (2017) the study the investigate the effect of institutions on economic growth in Africa. The study use Generalized Methods of Moment (GMM), Fixed Effects (FE) and Random Effects (RE) models. 1996-2016. Institutional quality indicators political stability appears to be the most significant factor in explaining real GDP per capita growth in Africa. Farooq, Hassan and Shahid (2015) the study analyse institutional quality and economic growth: the case of emerging economies. The study use System Generalized Method of Moments (SGMM) 2002-2015. Finding shows significant positive impacts of institutional quality on economic growth. The institutional quality has negative effects on foreign direct investments (FDIs) and trade openness on economic growth. Ahmad et al. (2017) the study examine the effect of institutional quality on economic performance in West Africa. The study uses a Panel data set of 1996 to 2015. Findings reveal that control of corruption, government effectiveness, regulatory quality and rule of law have positive and significant impact on economic performance in West Africa. Chipote (2014) the study examine democratic institutions and foreign direct investment affect economic growth? evidence from Nigeria. The study Generalized Method of Moments (GMM) covering the period of 1981 to 2015.

Finding shows that democratic institution exert negative impact growth while FDI exert positive relationship with economic growth. Yildirim and Gokalp (2016) an analysis of Turkey institutions and economic performance: a review on the developing countries. The study use Panel Data Analysis' method 2000-2011. Finding shows that institutional indicators such as the integrity of the law system, regulations on trade barriers, restriction of foreign investments, the share of the private sector in the banking system have a positive effect on the macro-economic performance. Judiciary independence, government expenditures, transfers and subsidies, civil freedoms, the black market exchange rate, collective bargaining and political stability have negative impact on the macro-economic performances. Anowor and Okorie (2016) study examine the impact of institutional quality on economic growth in developing economies of Asia. The study use Panel ARDL for the period 1990-2013. Finding shows that institutional quality exerts positive influence on economic growth in addition to causality running between institutional quality to economic growth. Yusuf and Malarvizhi, (2014) the study assess institutional qualities and Nigeria's economic growth performance. The study use RDL model approach to co integration and Causality. Findings reveal that sustainable improvement in good institutions is associated with rising growth and per capita income. Findings of this study indicate that there is a reverse causality. Chipote (2014) the study investigate institutions, governance structure and economic performance nexus in Nigeria. The study use Ordinal Least Squares. Findings shows that government effectiveness, voice and accountability exert positive and significant relationship with economic performance. Farooq, Hassan and Shahid (2015) the study analyse institutional quality and economic growth: empirical evidence from the Sudanese economy. The study use ARDL bounds testing approach to cointegration proposed by Pesaran et al. (2001),

1972-2008. Result indicates that the institutional quality environment proxy by political freedom index exist negative effect on the economy's economic prosperity. Ahmad et al., (2017) the study investigate whether economic growth and institutional quality contributed to poverty and inequality reduction in South Asia (China, Indonesia, Malaysia, Philippines, and Thailand (East Asia), and Bangladesh, India, Pakistan, and Sri Lanka). The study use System Generalized Method of Moments (GMM) estimation 1985-2009. Results show that corruption, democratic accountability, and bureaucratic quality are associated with a worsening of the income distribution. Chuba (2015) the study examine institutions and economic performance in sub-Saharan Africa: A Dynamic Panel Data Analysis. The study use Blundell-Bond System Generalized Method of Moment (GMM) estimators. Findings show that institutions in sub-Saharan African have significant effect on economic performance particularly regulatory framework and government effectiveness. Adu-Gyamfi (2019) the study investigate institution and economic growth performance in Nigeria. The study use ARDL approach to cointegration and Causality. Findings show that corruption has positive effect on economic growth while Accountable executive, Rule of law, competitive politics is not significant to economic. In addition, findings from Granger Causality test reveal that institution and economic growth granger cause each other. Ajanaku (2016) the study analyse the impact of institutional quality on economic growth and development: an empirical study of Sub-Saharan Africa, East Asia and Pacific, Europe and Central Asia, Latin America and Caribbean, Middle East and North Africa, South Asia, North America. The study use pooled regression model and a fixed effects model 1950 to 2009. Results show that institutional quality do influence positively on economic growth. The impact (size or magnitude) of the institutional quality differs across regions.

Anowor and Okorie (2016) the study analyse institutional quality and economic growth: Maintenance of the rule of law or democratic institutions, or both? The study use Panel of one hundred developing and developed countries. Empirical results show that while some measures of institutional quality have a strong relationship with growth, democracy measures have no apparent relationship with growth, even though there is a very high correlation between these institutional measures that supposedly measure similar factors. There exist a good number of literatures with respect to cross-country investigations on the effect of governance or institutions on investment or economic growth while few available on country specific. Thus the need for this study in Ghana with inclusion of variables of contract intensive money and effective governance index, proxied for institutional quality while other control variables includes; domestic investment, foreign direct investment and government expenditure.

2.4 Conceptual Framework and Hypothesis Testing

The rationale of this section is to develop a simple conceptual framework on the relationship between monetary policy, institutional quality and economic growth. This framework may be used as a guide by academicians and practitioners in understanding the mechanisms through which monetary policy from good quality institutions contributes to economic growth. It also elucidate how this impact may differ depending on how growth is conceptualized and applied on the field of growth studies. Note should be taken of the fact that a conceptual framework is a representation of an abstract idea. According to Chuba (2015), a framework can be seen as a complex mental formulation of experience.

They further elucidate by distinguishing it from a theoretical framework. They assert that, while theoretical framework is the theory on which the study is based, the conceptual framework deals with the operationalization of the theory. In other words, it represents the position of the researcher on the problem at hand and at the same time gives direction to the study. It may be entirely new, or an adoption of, or adaptation of, a model used in previous research with modification to fit the context of the inquiry (Chuba, 2015).

The framework developed in this study has three parts: monetary policy, control variables of monetary policy and economic growth. The in-depth literature survey on monetary policy and economic growth provides the necessary ingredients for the construction of the framework. First, the extant literature shows that monetary policy originates from four main sources – central bank rate, open market operations, cash reserves and institutional quality. The second component of the framework deals with the controlling variables of monetary policy and economic growth. These economists did not acknowledge the trade-off between economic output and inflation. Rather they were of the strong conviction that economic growth was determined by real factors like labour, capital stock, state of technology, availability of natural resources, saving habits of the populace among others (Twinoburyo & Odhiambo, 2018; Jhingan, 2005). The third component of the framework is economic growth. Part of the component is adopted from the growth literature (Ahmad et al. (2017)) on the use of GDP per capita as a measure of economic growth. Keynes (1936) refuted the assumption of constant velocity of money and hence the quantity theory of money and rather used the liquidity preference theory to link money to economic output growth.

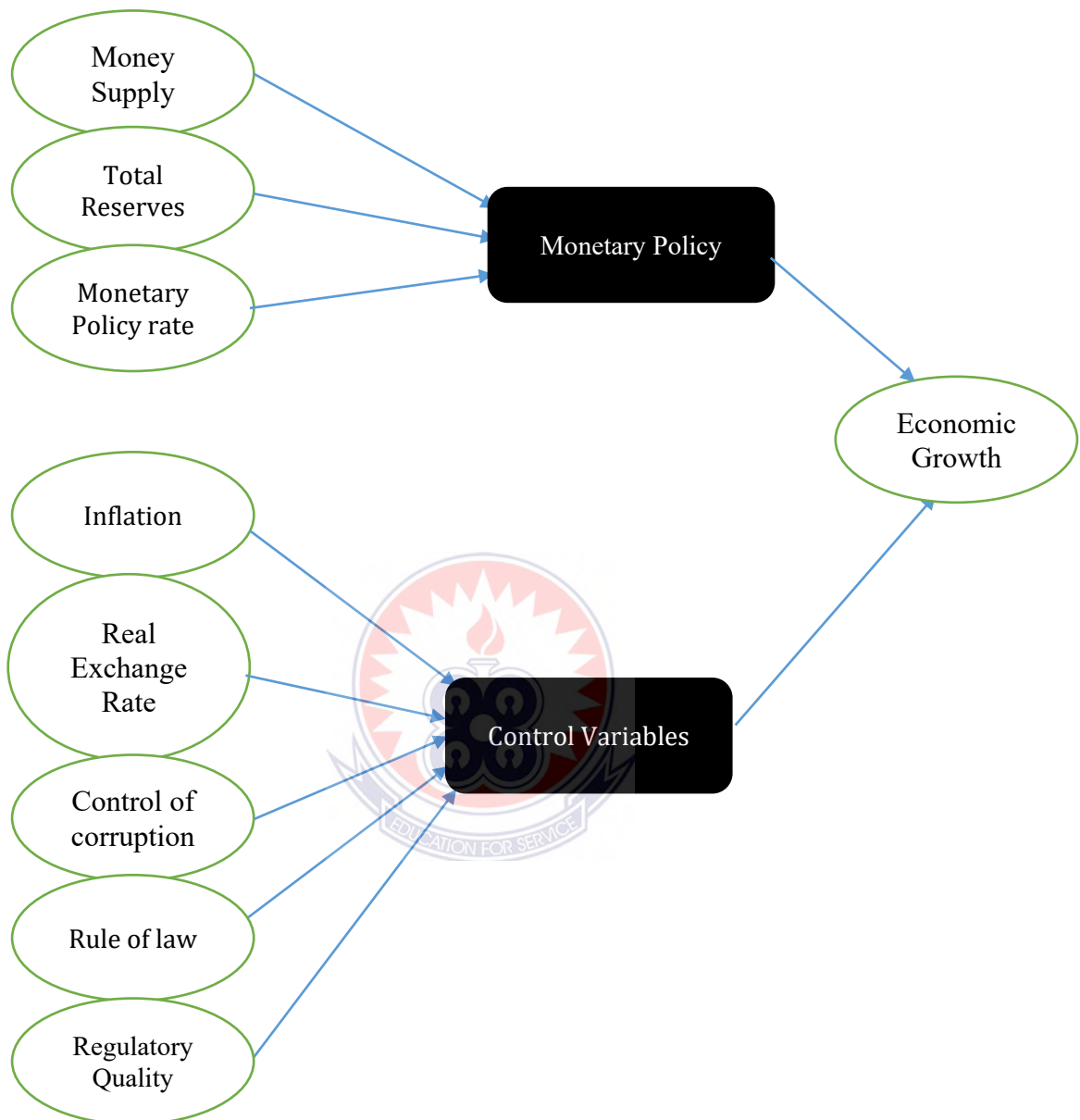
While Keynes accepted certain classical assumptions like the exogenous supply of

money by monetary authorities, he, through the liquidity preference theory argued that, demand for money was not exogenous but rather endogenous and a function of interest rate. By this argument, Keynes established an equilibrium in the money market where interest rates adjust to equate demand for money with the exogenous supply of money. It follows then that an increase in money supply will decrease interest rate to increase demand for money to establish an equilibrium in the money market. This decrease in interest rate has marginal efficiency on capital and investment within the economy which then leads to explosion in economic output and hence growth. Thus, to Keynes, money and decisions about money were not neutral in the real economy. Keynesianism acknowledges the trade off between output and inflation; as an increase in output will lead to an increase in aggregate demand which will ultimately lead to increases in price levels (Twinoburyo & Odhiambo, 2018; Keynes, 1936).

A distinctive feature of this framework is that it brings to the fore the strengths and shortcomings of each development outcome for policy makers to decide which of the outcomes of well-being should be given priority in the pursuit of a particular trajectory. It can be seen from figure 1, that monetary policy originating from good institutional quality could have a significant effect on the current economic growth of the country

Figure 2: Conceptual Framework

Independent Variables



The ‘institutions’ quality hypothesis’ contends that the institutional framework within which economic agents interact with each other in an economy affects economic development (Agalega & Antwi, 2012; Akosah, 2015; Imoisi, 2019). According to this view, what matters most are the ‘rules of the game’ in a society, which are defined by the prevailing explicit and implicit behavioural norms and their ability to create appropriate incentives for desirable economic behaviour (Tsoulfidis, 2010).

Based on the foregoing discussions, the following hypotheses have been formulated:

H1: That monetary policies and quality institutions have no significant impact on economic growth

H2: That monetary policies and quality institutions have significant impact on economic growth.



CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter explains the methodologies used for the study. The first section of the chapter reviews the research design used for the study; this is then followed by the data type and the respective sources. The model intended for the study is clearly specified and justified in the next section of the chapter. The variable measurement and expected a-priori signs are also discussed and finally, the estimation techniques used for the study are also outlined and explained.

3.1 Research Design

The study is purely time series and longitudinal in nature. The study adopted the causal research design and quantitative approach. Quantitative analysis and time series approach were used to achieve the main objectives. The study is also causal in nature and in view of this, the study used time series analysis and quantitative approach to achieve its objectives. The design and the approach is justified on the basis that the study aims to assess the causal effect of the regressors on the regressand thus, monetary policy and economic growth. The quantitative approach is necessary because the variables are purely measured in quantitative terms.

3.2 Data Type and Source

The study adopted secondary data in the analysis. The data was taken from the World Development Indicators (WDI) and the Bank of Ghana Website. The data comprises of annual time series from 1990 to 2017. The data taken for the study includes Gross Domestic product, Inflation Rate, Money Supply, Total Labour Force, Real Effective Exchange Rate, Gross Fixed Capital Formation and Monetary

Policy Rate. The main dependent variable in the study is the Gross Domestic product in Ghana. The independent variables in the study were the Monetary Policy Rate and Money Supply. Labour Force, Real Effective Exchange Rate, Gross Fixed Capital Formation, Credit to Private Sector and Foreign Reserves are all control variables in the study.

3.3 Model Specifications

For the purpose of the objective of the study, the model below is specified to establish the relationship between Monetary Policy Rate and Economic Growth in Ghana. The model below depicts the production function where economic growth depends on both factors of production and other control variables as seen in equation 1 below.

------(1)

------(2)

Taking log of both sides in the equation 2 above gives equation 3 below as;

------(3)

Where;

GDP = Gross Domestic Product

MPR = Monetary Policy Rate

L = Labour force

M2+ = Money Supply

K = Gross Fixed Capital Formation

ER = Exchange rate

CRP = Credit to Private Sector

RES = Foreign Reserves

CC = Control of Corruption

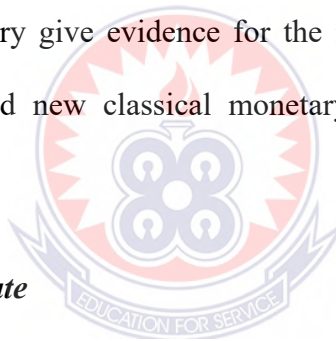
RL= Rule of Law

RQ = Regulatory Quality

3.4 Measurement of Variables

3.4.1 Economic growth

For the purpose of this study, change in Gross Domestic Product will serve as a proxy variable for Economic Growth in Ghana. The Gross Domestic Product according to the output approach refers to the total amount of products produced in the Ghanaian economy in a year. For this study, in arriving at the Economic Growth, the natural log of Gross Domestic Product was taken. The Gross Domestic Product variable is the main dependent variable in the model specified above. Keynes neoclassical theory give evidence for the importance of the variable in the study Kyenes (1950) and new classical monetary model as affirmed by Ufoeze (2018); Chuba (2015).



3.4.2 Monetary policy rate

The Monetary Policy Rate is the interest rate at which the Central Bank lends to the commercial banks. The monetary policy rate in this study is the main independent variable. This rate influences the supply of money in the economy at each point in time and also helps manage the inflation in Ghana. When the Monetary Policy Rate is reduced, the cost of funds borrowed from the Central Bank by Commercial Banks would also reduce and also lead to lower cost of funds borrowed by firms and individuals from Commercial Banks. Access to funds by firms and individuals at a lower cost means that, the economic units would be able to increase their economic activities which would in turn lead to a higher growth in Gross Domestic

Product, all other things being equal. In view of this, Monetary Policy Rate is expected to have a negative relationship with economic growth.

3.4.3 Money supply

Money supply refers to the quantum of local currency in circulation in the economy at each point in time. The management of the monetary policy rate also influences the money supply in the economy in the long run and also influences the growth of the economy in the long run as well. When the circulation of money in the economy is high, individuals and firms tend to engage in more productive economic activities which leads to higher growth in the Gross Domestic Product of the economy. In view of this, money supply is expected to have a positive relationship with economic growth. The variable was adopted from the monetary policy theory Chipote (2014).

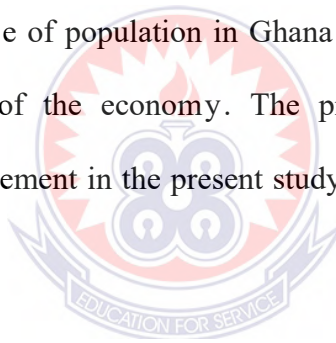
3.4.4 Exchange rate

The Real effective exchange rate serves as a proxy for exchange rate. Exchange rate refers to the price of a country's currency relative to other currencies. Exchange rate is also one of the key components on the monetary policy space. It influences decision made on the monetary policy rate and also goes a long way to impact on the growth of the Ghanaian economy. Since the Ghanaian economy heavily depends on imports and is also a small open economy, when exchange rates are high, imports become costly for the economy. This means that imported inputs of production would become expensive and would lead to a high cost of production. In the end, local producers who rely on imported inputs would likely cut back on production and this would lead to a decline in the growth of the Gross Domestic Product of the economy. In view of this, Exchange rate is expected to

have a negative relationship with economic growth. The use of the variable by Anowor & Okorie (2016) and Yildirim and Gokalp (2016) supports its usage in the study.

3.4.5 Labour force

The Labour force refers to the number of persons actively working or willing to work in the Ghanaian economy. The labour force is very important since it forms part of the inputs for production. Out of the four main factors of production, labour plays a very vital role. When the labour force of a country increases with a high employment rate, it is expected that, all other things being equal, the economy's production capacity would increase significantly. The labour force in this context is measured as a percentage of population in Ghana and as such will have a positive impact on the growth of the economy. The previous use in literature serve as justification for its involvement in the present study Nawz et al (2018); Ugur (2016); Imoisi (2019).



3.4.6 Capital

Capital is also one of the main variables used for production. In this study the Gross Fixed Capital Formation will serve as proxy for capital. Capital formation is an integral part of the growth of any economy. Capital, which is one of the factors of production, when its supply increases in an economy, is expected to lead to an increase in the country's production capacity. In view of this, capital is expected to have a positive relationship on economic growth. Use in extant literature give credence to its inclusion (Smith, 2014; Ugur, 2016).

3.4.7 Credit to private sector

Credit to Private Sector refers to financial resources that are extended to the private sector by some financial corporations in the form of loans, trade credits and other accounts receivables and purchases of non-equity securities that are repaid at a later period. They are normally given to establishments to either start-up their firms, improve upon their capital stock or boost production. Since this is seen as an investment, it goes a long way to increase aggregate expenditure of the economy, if managed in the right manner. Thus an increase in credit to the private sector increases economic output through an increase in private investment (I). In view of this, Credit to Private Sector is expected to have a positive relationship with economic growth. The inclusion is justified by its use in Twinoburyo & Odhiambo (2018); Jhingan (2005).

3.4.8 Foreign reserves

Foreign reserves refer to the assets that are held by the central bank of a country on reserve in foreign currencies. The reserves in Ghana will refer to the quantum of foreign currency such as US dollars, pounds, etc. which the Bank of Ghana has in its vault at each point in time. These reserves are normally used to manage the foreign exchange rate in the economy based on the demand and supply of foreign currency. These reserves are usually used to influence monetary policy and also to back liabilities. In view of this, more foreign reserves imply that the central bank can grow the Ghanaian economy since it will aid in trade purposes and also help manage external shocks. Foreign reserves affect economic growth through its impact on imports and export. A higher level of reserves result in the appreciation of the local currency against other trading currencies. This, all other things being equal, makes Ghanaian exports more expensive and hence may reduce the

country's receipts from exports and hence result in a decline in the growth of GDP. Conversely, a higher level of foreign reserves would assist a country to participate effectively in international trade which would, in the end, lead to an inflow of foreign exchange to increase the country's GDP growth. From the above, it is expected that foreign reserves would either have a positive or negative relationship with economic growth.

3.4.9 Institutional Quality

Institutional quality refers to the effectiveness nature of governmental institutions in play their mandatory role in making a country good for business activities. This variable is measured in the study using three indicators due to their availability of data and it is recommended for use in assessing the quality level of a country's institutions.

Corruption: This indicator shows how citizens of a country especially those in power amass wealth for themselves through illegal means. The study used the World Bank index of corruption as a proxy for a country's control of corruption (CORR). The index reflects perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests. The index ranges from -2.5 to 2.5, with greater values indicating a stronger control of corruption. Whether high rate of corruption aids or dwindles economic development is a subject of empirical question (Antoniou, Guney & Paudyal, 2006). Corruption reduces trust and interest of multinational companies as well as local firms therefore countries that are corruption prone are highly susceptible to low monetary policy efficacy which dwindles economic development. Since corruption involves individuals amassing wealth for themselves state funds that could be used for developmental projects would be squandered into the pocket of few elite classes and this would result in a lack of facilities that can

support business activities to produce more to advance economic growth. Taking bribes from businessmen before granting business operation permit scars and wet the appetite of investors this in return slows economic growth.

Regulatory Quality: Regulatory quality refers to government's ability to effectively set out legislate and implement policies and regulations aimed at improving the business environment and fostering entrepreneurship and investment. To assess a country's effectiveness in regulating activities in a country the study used the World Bank's regulatory quality index, which varies from -2.5 to 2.5, with greater values indicating a greater effectiveness in enacting and implementing legislations that enhance firms' and individuals' capabilities of doing business. Its usage by (Custodio, Ferreira & Laureano, 2013; Antoniou et al., 2006) give credence for its inclusion in the study. The study expects high regulatory effectiveness to impact positively on monetary policy and culminate in high economic growth within any economic landscape. On the other hand, countries with weak regulatory quality thus, the government is ineffective in undertaking its daily activities would impede monetary policy for achieving its target aim thereby slowing economic growth.

Rule of Law. The rule of law refers to the legal principle that the behavior of government for a country's institutions and officials as well as private entities is subject to the supremacy of law. To examine whether abidance by the rule of law affects economic growth in Ghana the study adopted the rule of law index developed by the World Bank (RL). This index reflects economic agents' perceptions of the quality of contract enforcement, property rights, the police, as well as justice (Diamond, 2004). The study predicts that high obedience to rule of law would have a positive reppling effect on economic growth as people would work within acceptable boundaries, obey tax rules among others these activities encourage economic growth.

3.5 Estimation Technique

3.5.1 Stationarity test

The Stationarity Test is used to test whether all the time series variables are non-stationary and possesses a unit root. This is vital for a measurably solid outcome. Granger and Newbold (1974) and Stock and Watson (1988) have clarified that one is probably going to touch base at a strange relapse utilizing factors that contain unit root when running relapses on such factors. Should factors display indication of non-stationarity, then a first contrast is directed to expel the unit root; however, this could have impact on the factors since its long run attributes could be lost (Chuba, 2015). The Dickey– Fuller (1979) test, test and Phillips and Perron (1988) test can be utilized to test if a variable contain unit root or not. In this investigation, the Augmented Dickey– Fuller (ADF) test was utilized to test for the presence of unit root. The ADF is given by the equation below (4);

$$\text{-----(4)}$$

3.5.2 Auto Regressive Distributive Lags (ARDL)

The ARDL approach can be used to produce much more reliable results as compared to the Johansen Co-integration test when the sample size is relatively small (Akosah, 2015), while the former technique requires the use of only large data samples to enable it be a prudent estimation technique. Another purpose behind the decision of the ARDL is that, for the previous system to be appropriate, the free factors must be coordinated in a similar request, yet this isn't vital for the ARDL approach since factors can be incorporated in various requests however not past request. This implies, the ARDL approach keeps away from the pre-testing issues related with standard co-incorporation, which necessitates that the factors as of now be grouped into I (1) or I (0) (Peseran et al., 2001). In addition, Adu-Gyamfi

(2019) stated that, whereas the Vector Autoregressive Model (VAR) model uses only endogenous variables, the ARDL approach is also applicable for both endogenous and exogenous variables together.

According to Chipote (2014), the ARDL model specification can be done after conducting the bounds test to determine whether there is cointegration or not and this guides in determining the model to specify for the work. The ARDL model works perfectly when the variables, after testing for unit root, are of only order zero [i.e. I (0)] and order one [i.e. I (1)]. If all variables are also stationary order one i.e. I (1) (i.e. stationary after the first difference). Any order for instance, order 2 or more will not work for this model specification. This however means that prior to this, the unit root test is a pre-requisite for the ARDL model. The model below is a general model specification of the ARDL test which includes both the long run and short run terms, that is when after conducting the bounds test and there exist cointegration. From equation (3) the general ARDL model is specified as;

----- (5)

From the equation (5) above, the ARDL model shows that the dependent variable is a function of the lag of the dependent variable in the short and long run and the lags of the independent variables in both the short and long run.

If there is no cointegration after performing the bounds test, then the model below in equation (6) for the short run cointegration will be specified otherwise the equation (5) is applicable for a long run cointegration.

----- (6)

To conduct the bounds test to confirm if there is cointegration, variables must be first of all be integrated at order 0 or 1 i.e. $I(0)$ or $I(1)$. Peseran et al. (2001) constructed a critical value of the number of independent variables with or without the trend and constant terms. The bounds test as mentioned confirms if there is a relationship or cointegration amongst the variables in the model. The critical values of the bounds test at both 90% and 95% confidence interval has both a lower and upper bound critical value. This however makes it possible to arrive at three possible outcomes; the F-statistics could be greater than the upper bound critical value, or F-statistics could be lower than the lower bound critical value or finally it could be between the lower and upper bound critical value. If the F-statistics is lower than the lower bound critical value then we fail to reject the Null hypothesis implying that there exist no cointegration in the model, but if the F-statistics is greater than the upper bound critical value then we reject the null hypothesis to confirm that there exist cointegration in the model. Finally, if the F-statistics in between the upper and lower bound critical values then the result is inconclusive until a diagnostic test, such as autocorrelation or heteroskedasticity test is conducted before we finally confirm the result as to whether there is cointegration or not. To confirm the cointegration, there should be no heteroscedasticity and autocorrelation in the model.

Finally, under the cointegration analysis, the model diagnostics test is reported to verify if the model chosen for the study has no heteroscedasticity using the white test, whether the error or the disturbance is normally distributed, if the functional form is also not affecting the model chosen and also if the model has no autocorrelation. The Cumulative Sum (CUSUM) and Cumulative Sum of Squares (CUSUMQ) graphs are presented to ascertain if the coefficients in the model are

stable over time and hence when there are structural changes and how it is likely to affect these coefficients.

3.5.3 Granger-causality test

This test is conducted to ascertain the direction of causation between two variables of interest in a study. This analysis was extended to the causal relationship between monetary policy rate and economic growth in Ghana. The Granger causality test developed by Kilian and Murphy (2013) was adopted to examine the direction of causality between the economic series. The Granger-causality test operates on the assumption that the series are stationary. The series would be differenced once to achieve stationarity; if it happens that they are non-stationary then the test can then be applicable (Gujarati, 2001). The traditional pairwise Granger causality test states that if the previous year's values of a variable (i.e. say Monetary Policy Rate) can be used to significantly predict the future value of another variable (i.e. say economic growth or GDP), then we can conclude that monetary policy rate granger causes economic growth. The test involved the estimation of the following regression:

------(7)

CHAPTER FOUR

RESULTS AND DISCUSSIONS

4.0 Introduction

This chapter focused on the presentation of the data and discussion of the results from the estimation conducted. The first section of the chapter focuses on the Descriptive Statistics of the variables and then proceeds to present the result of the stationarity test or unit root test using the Augmented Dickey Fuller Test as a prerequisite for the time series analysis. The next section presents the results on the co-integration test using the ARDL Bounds test. The Long and Short Run results are also presented and thoroughly discussed. Finally, the diagnostics test concluded in this chapter.

4.1 Descriptive Statistics

The descriptive statistics of the variables are shown in Table 1. In all, there were 28 observations for all the variables.

Table 1: Descriptive Statistics

	Mean	Median	Maximum	Minimum	Std. Dev.	Probability	Observations
CC	-0.18449	-0.09809	0.12813	-0.89188	0.292954	0.009253	33
CPS	10.24082	12.15	18.072	1.5423	5.823691	0.111718	43
FR	3.347767	3.1842	6.9568	1.0672	1.303844	0.005095	42
GDP	82.60014	8.763	589.09	0.01	143.1081	0	43
LGCF	21.64745	21.277	23.468	18.84	1.274507	0.460674	40
LLF	16.08672	16.111	16.461	15.668	0.241939	0.353805	32
MPR	6.530509	6.0041	14.768	0.5	3.382414	0.8937	43
MS	23.02933	23.64255	34.10823	11.30499	6.429519	0.349966	41
RER	278.6771	104.1	3054	68.18	561.518	0	42
RL	-0.17482	0.02	0.15	-4	0.780238	0	27

From Table 1, Real Effective Exchange Rate within the period under study was averagely 278.67. The Labour Force within the period of the study was averagely 16.08 whilst the Gross Fixed Capital Formation within the same period stood at about 21%. Credit to the Private Sector as a percentage of GDP stood averagely at 10.24% whilst Monetary Policy Rate on the average within the period was as high as 14.76%. The Gross Domestic Product of Ghana within the period also averagely stood at GH¢ 82 million and the Total Reserves also stood at an average of GH¢ 3.34 million.

4.2 Stationarity/Unit Root Test

The Table 2 below presents the results of the stationarity test for the variables used for the study both at level and after first difference.

Table 2: Results of Unit Root Test using the Augmented Dickey Fuller (ADF) Test

Variables	Level		First Difference	
	Constant	Constant & Trend	Constant	Constant & Trend
LNL	-5.871 ***	-4.094 ***	-5.898 ***	-9.145 ***
LNK	-2.551	-2.449	-4.828 ***	-4.756 ***
LNRES	-0.973	-1.864	-4.793 ***	-4.701 ***
LNMPR	-1.232	-1.575	-3.815 **	-3.719 **
LNER	-1.616	-3.620 **	-3.452 **	-3.372 **
LNCC	0.019*	0.5034	0.001***	0.006**
LNRL	0.006**	0.003**	0.000***	0.000***
LNRQ	0.158	0.3937	0.000***	0.004**
LNCRP	-1.534	-1.354	-6.040 ***	-6.152 ***
LN2M	-2.816	-0.494	-4.715 ***	-5.554 ***
LNGDP	-1.020	-1.664	-3.536 **	-3.699 **

Note: ***, **, and * represent significance at 1%, 5% and 10% respectively.

Source: stata output.

From the Table 2, the result of the stationarity test suggests that at level, only Labour was stationary or did not have unit root both with constant and also constant and trend. Therefore, at level, Labour did not have unit root or was stationary at order 0. Exchange rate, on the other hand, was only stationary at level with constant and trend hence also did not have unit root at level with constant and trend at order 0. With regards to the stationarity test after first difference, the results suggest that, all the variables used for the study were stationary after first difference with both constant only and also constant with trend. This implies that all the variables used for the study were stationary at order 1. Therefore, after first differencing, all the variables were stationary or did not have unit root.

4.3 ARDL Bounds Test

The Table 3 below presents the results of the co-integration test.

Table 3: ARDL Bounds Test Results for Co-integration Relationship

Fstatistics	Level of Significance	Lower Bound	Upper Bound
53.3751	5%	2.4690	3.9759
53.3751	10%	2.0222	3.3449

From Table 3 above, the F- statistics (i.e. 53.3751) is greater than the upper bound at both 5% and 10% significance level. The upper bound of the 5% and 10% respective as indicated are 3.9759 and 3.3449. This result confirms that there exist a long run co-integration or association in the study. We can conclude by this to explain that there exists a long run relationship between monetary policy rate and economic growth in Ghana within the period under study.

4.4 ARDL Long Run Estimates

The Table 4 below presents the result of the Long Run estimates of the study.

Table 4: Estimated ARDL Long Run Coefficients

Variable	Coefficient	Dependent: LNGDP Std. Error	T-Statistic	Prob.
LNL	1.6605	0.091187	18.2102	0.000 ***
LNK	-0.35085	0.13244	-2.6491	0.018 **
LNRES	-0.0018351	0.054258	-0.033821	0.973
LNMPR	-0.067696	0.065026	-1.0411	0.313
LNER	-0.049260	0.16359	-0.30112	0.767
LNCRP	-0.34552	0.10149	-3.4045	0.004 ***
LNM2	0.12611	0.039615	3.1833	0.006 ***

Note: ***, **, and * represent significance at 1%, 5% and 10% respectively.
Source: Author's construct.

From the Table 4, the p-value of the main variable for the study, MPR, was 0.313. This implies that in the long run, Monetary Policy Rate does not have a significant impact on the Economic Growth in Ghana. Also the coefficient of the Monetary Policy Rate is negative, which means that even though Monetary Policy Rate does not significantly impact on the Economic Growth of Ghana in the long run, its rise leads to a negative impact on Economic Growth. All other things being equal, a 1% increase in the Monetary Policy Rate by the Central Bank of Ghana will lead to a decline in the growth rate of Ghana by 0.07% in the long run.

The p-value of Labour in Table 4 is 0.000 and with a positive coefficient. This implies that, in the long run, Labour has a positive significant impact on economic growth in Ghana at a 1% significance level. This further indicates that whenever the labour force of the Ghanaian economy increases, we expect an increase in the Economic Growth in Ghana, all other things being equal. In view of this, all other

things being equal, a 1% increase in the Labour Force in Ghana will increase the Economic Growth of Ghana by 1.67% in the long run. The p-value of Money Supply in Table 4 is 0.006 and with a positive coefficient. This implies that in the long run Money Supply has a positive significant impact on economic growth in Ghana at a 1% significance level. This further indicates that whenever the Money Supply of the Ghanaian economy increase we expect an increase in the Economic Growth in Ghana, all other things being equal. Hence, all other things being equal, a 1% increase in the Money Supply in Ghana will increase the Economic Growth of Ghana by 0.13% in the long run.

The p-value of Capital in Table 4 is 0.018 and with a negative coefficient. This implies that in the long run Capital has a negative significant impact on economic growth in Ghana at a 5% significance level. This further indicates that whenever the Capital of the Ghanaian economy increases, we expect a decrease in the Economic Growth in Ghana, all other things being equal. In view of this, all other things being equal, a 1% increase in the Capital in Ghana will decrease the Economic Growth of Ghana by 0.35% in the long run.

The p-value of Credit to Private Sector in Table is 0.004 and with a negative coefficient. This implies that in the long run Credit to Private Sector has a negative significant impact on economic growth in Ghana at a 1% significance level. This further indicates that whenever the Credit to Private Sector of the Ghanaian economy increase, we expect a decrease in the Economic Growth in Ghana, all other things being equal. Hence, all other things being equal a 1% increase in the Credit to Private Sector in Ghana will decrease the Economic Growth of Ghana by 0.34% in the long run. The p-value of Total reserves in Table is 0.973 and with a

negative coefficient. This implies that in the long run Total reserves has a negative insignificant impact on economic growth in Ghana. This further indicates that whenever the Total reserves of the Ghanaian economy increase we expect a decrease in the Economic Growth in Ghana with all other things being equal. In spite of this, with all other things being equal a 1% increase in the Total reserves in Ghana will decrease the Economic Growth of Ghana by 0.001% in the long run. The p-value of Exchange Rate in Table is 0.973 and with a negative coefficient. This implies that in the long run Exchange Rate has a negative insignificant impact on economic growth in Ghana. This further indicates that whenever the Exchange Rate of the Ghanaian economy increase we expect a decrease in the Economic Growth in Ghana with all other things being equal. In spite of this, with all other things being equal a 1% increase in the Exchange Rate in Ghana will decrease the Economic Growth of Ghana by 0.05% in the long run.

4.5 ARDL Short Run Estimates

The Table 5 below presents the result of the short run estimates of the study.

Table 4.5: Estimated ARDL Short Run Coefficients and The Error Correction Estimate

Variable	Dependent variable: dLNGDP		T-Statistic	Prob.
	Coefficient	Std. Error		
dLNL	0.29459	0.089592	3.2881	0.004 ***
dLNK	-0.0033531	0.013477	-0.24880	0.806
dLNRES	-0.024740	0.011702	-2.1143	0.048 **
dLNMPR	-0.054779	0.019347	-2.8314	0.011 **
dLNER	-0.0087389	0.029041	-0.30092	0.767
dLNCRP	-0.061298	0.023952	-2.5592	0.019 **
dLNM2	0.022372	0.0092833	2.4099	0.026 **
ecm(-1)	-0.17740	0.056623	-3.1331	0.005 ***

Note: ***, **, and * represent significance at 1%, 5% and 10% respectively.

Source: computed by the author using Microfit 5.0 Package.

From the Table 5 above, the autonomous growth, that is the constant, was suppressed and hence was not used in the study. From the Table 5, the p-value of the main variable, GDP, was 0.011. This implies that in the short run Monetary Policy Rate has a significant impact on the Economic Growth in Ghana. Also the coefficient of the Monetary Policy Rate is negative, which means that Monetary Policy Rate has a negative significant impact on the Economic Growth of Ghana in the short Run; all other things being equal, a rise in the Monetary Policy Rate leads to a negative impact on Economic Growth at a 5% significance level. All other things being equal, a 1% increase in the Monetary Policy Rate by the Central Bank of Ghana will lead to a decline in the growth rate of Ghana by 0.05% in the short run.

The p-value of Exchange Rate in Table 5 is 0.767 and with a negative coefficient. This implies that in the short run Exchange Rate has a negative insignificant impact on economic growth in Ghana. This further indicates that whenever the Exchange Rate of the Ghanaian economy increase we expect a decrease in the Economic Growth in Ghana with all other things being equal. As a result, all other things being equal, a 1% increase in the Exchange Rate in Ghana will lead to a decrease in the Economic Growth of Ghana by 0.009% in the short run. The p-value of Capital in Table 5 is 0.806 and with a negative coefficient. This implies that, in the short run, Capital has a negative insignificant impact on economic growth in Ghana. This further indicates that whenever the Capital of the Ghanaian economy increase, we expect a decrease in the Economic Growth in Ghana, all other things being equal. Hence, all other things being equal, a 1% increase in the Capital in Ghana will lead to a decrease in the Economic Growth of Ghana by 0.003% in the short run. The p-value of Total Reserves in Table 5 is 0.048 and with a negative coefficient. This

implies that, in the short run, Total Reserves have a negative significant impact on economic growth in Ghana at 5% significance level. This further indicates that whenever the Total Reserves of the Ghanaian Economy increase, we expect a decrease in the Economic Growth in Ghana with all other things being equal. In view of this, all other things being equal, a 1% increase in the Total Reserves in Ghana will lead to a decrease in the Economic Growth of Ghana by 0.025% in the short run.

The p-value of Credit to Private Sector in Table 5 is 0.019 and with a negative coefficient. This implies that, in the short run, Credit to Private Sector has a negative significant impact on economic growth in Ghana at 5% significance level. This further indicates that whenever the Credit to Private Sector of the Ghanaian economy increase, we expect a decrease in the Economic Growth in Ghana with all other things being equal. In view of this, all other things being equal, a 1% increase in the Credit to Private Sector in Ghana will lead to a decrease in the Economic Growth of Ghana by 0.06% in the short run.

The p-value of Labour in Table 5 is 0.004 and with a positive coefficient. This implies that, in the short run, Labour has a positive significant impact on economic growth in Ghana at 1% significance level. This further indicates that whenever the Labour of the Ghanaian Economy increase, we expect an increase in the Economic Growth in Ghana, all other things being equal. Hence, all other things being equal, a 1% increase in the Labour in Ghana will lead to an increase in the Economic Growth of Ghana by 0.29% in the short run. The p-value of Money Supply in Table 5 is 0.026 and with a positive coefficient. This implies that, in the short run, Money Supply has a positive significant impact on economic growth in Ghana at 5%

significance level. This further indicates that whenever the Money Supply of the Ghanaian economy increase, we expect an increase in the Economic Growth in Ghana, all other things being equal. In view of this, all other things being equal a 1% increase in the Money Supply in Ghana will lead to an increase in the Economic Growth of Ghana by 0.02% in the short run. The result from the table on the Error Correction Model (ECM) shows that the error correction is highly statistically significant given that the coefficient and t-statistics is negative and also the p-value is below 1%. The result of the Error Correction Model indicates an adjustment to the equilibrium state after a shock. The lagged error term coefficient is negative (-0.17740), as required and is strongly significant at 1% level. It also suggests that about 0.18% of distortions created by shocks in the preceding year can be restored in the current year.

Table 4.6 Estimated ARDL Short Run Coefficients

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
D(MPR(-1))	0.172616	0.232631	0.742016	0.4695
D(CC)	-2.246653	1.242879	-1.807620	0.0908*
D(RL)	0.506051	0.296178	1.708606	0.1081
D(RQ)	-0.102192	0.087792	-1.164025	0.2626
D(LLF)	-70.50135	55.61552	-1.267656	0.2242
D(LGCF)	-0.860744	1.149219	-0.748982	0.4655
D(FR)	-0.141274	0.310551	-0.454913	0.6557
D(CPS)	-0.007000	0.134081	-0.052205	0.9591
D(RER)	-0.008269	0.026358	-0.313739	0.7580
C	1.876547	1.439757	1.303378	0.2121
R-squared	0.574010	Mean dependent var		0.052688
Adjusted R-squared	0.318416	S.D. dependent var		1.224753
S.E. of regression	1.011133	Akaike info criterion		3.149194
Sum squared resid	15.33584	Schwarz criterion		3.636744
Log likelihood	-29.36493	Hannan-Quinn criter.		3.284420
F-statistic	2.245787	Durbin-Watson stat		2.186650
Prob(F-statistic)	0.079858			

Author's Construct

4.6 Examining the Effect of Institutional Quality on Monetary Policy in Short Run.

Per table 4.6 above which shows the result of the estimation of the effect of the institutional quality on monetary policy proxied by monetary policy rate in the short run, the model recorded r-square of 0.57 which shows the total explanatory power of the regressors on the variation in the regressand was 57%. F-statistics that depict the significance of the entire model was of 0.09 which signify that the model is significant in measuring the intended effect.

In analysing the effect of institutional quality on monetary policy rate, institutional quality variables registered coefficient of -2.2, 0.5, and -1.0 demonstrating that institutional quality has significant at 10% inverse association with monetary policy. This result means that improvement in quality of institutions in Ghana result in rather negative effect on the kind of monetary policies implemented by state agencies in the previous year in the short run. Technically, this inverse relationship signify that monetary policy rate reduce in the short term when the bank of Ghana is well resourced, given the optimal level of authority and power to regulate the financial sector making it efficient in its operation. Being efficient means they are able to pursue policies that relieve businessmen and borrowers and indirectly consumers at large due to reduction in interest rate charge on credit granted by financial intermediaries. This support and satisfies the expectation of the neoclassical growth theory as advanced by Solow (1950) which assert that a desirable monetary policy is complimented with interest rate adjustment and affirmed by Smith (2014); Imoisi (2019); Ugur (2016). This result support the account of Nawaz et al (2020); Duncan (2013) who documented in their study that improving the quality of institutions leads to

better monetary policy resulting in tremendous reduction in inflation rate since most monetary policies are geared toward achieving minimal inflation. In accordance with the same dictum, Fiador et al (2016) adduced a similar evidence that improved institutions yield formulation of better policies that safeguard players in the financial sector in Ghana. This position was further affirmed by Kakai et al (2018) whose study unveiled the same result.

Nonetheless, this confirmed result is refuted by Ullah et al (2016) who in their empirical investigation provided evidence contrary to conventional notion that institutional quality enhance monetary policy, no evidence exist to support that since statistical estimation shows that strengthened institutions leads to worsening monetary policy in an economy. Labour force on the other hand as proxied by log of labour force showed a negative and insignificant association with monetary policy. This signify that the available workforce possessed by Ghana do not explain the kind of monetary policy implemented in Ghana. Growing labour force may reduce the level of monetary policy however, cannot predict the level of monetary policy rate. Gross capital formation recorded an inverse and significant relationship with monetary policy. Again, this result is in agreement with the exegesis of the neoclassical theory Solow (1950) and supported by Smith (2014) that when firms accumulate a considerable amount of capital they turn to use labour in their production of goods and services. This stand to reason that the quantum of domestic investment influence the type of monetary policy to implement. Economically, the rise in domestic investment induced the regulator of the economy to reduce interest rate, curb inflation to encourage growth in local investment in the short run equilibrium which all things being at par result in economic growth. Foreign reserve has inverse relation and significant at 1% with previous year's monetary policy in the short run. The

accumulated foreign earning by Ghana in the current year influences the monetary policy in the previous year. Deductively, reduction in interest rate in the current year encourage production for export which increases the foreign earning in the next accounting year. Moreso, this is in line with the prepositions of the neoclassical theory (Solow, 1950). Credit to private sector has negative and significant connection with monetary policy in the short run, implying that reduction of monetary policy rare in one year encourages businessmen to seek for credit facilities to expand their operation in the following year.

However, real effective exchange rate has negative and insignificant relationship with monetary policy in Ghana in the short run. This translates that soar in the cedi to the dollar rate leads to a inverse movement in monetary policy in the last year. Raising monetary policy in times of rising exchange rate discourage businessmen into importation from seeking credit from financial intermediaries and convert them into dollars in order to import in commercial quantities. This revelation sides with the pronouncement by the quantity theory of money that increasing monay supply leads to rise in price of same in similar proporsrtion (Tsoulfidis, 2010). As affirmed by Akosah (2015); Chuba (2015); Nwoko, Ihemeje & Anumadu (2016). With *ceteris paribus*, Ghana's monetary policy in the previous year during the short run would be 1.8 when remaining determinants remain 0.

Table 4.7 Estimated ARDL Long Run Coefficients

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
MPR(-1)	0.943178	0.029059	32.45701	0.0000
CC	-1.831880	0.507171	-3.611958	0.0005
CC(-1)	1.668088	0.516219	3.231356	0.0017
LLF	-1.024456	0.934566	-1.096184	0.2760
LGCF	-0.525835	0.399612	-1.315864	0.1916
LGCF(-1)	0.810365	0.384738	2.106275	0.0380
RER	-0.010226	0.005195	-1.968408	0.0522
FR	-0.238386	0.137076	-1.739078	0.0855
FR(-1)	0.228272	0.133371	1.711554	0.0905
CPS	-0.046962	0.030109	-1.559708	0.1224
RL	0.447444	0.111248	4.022053	0.0001
RL(-1)	-0.456475	0.111033	-4.111178	0.0001
RQ	-0.101487	0.037127	-2.733511	0.0076
RQ(-1)	0.115598	0.036922	3.130844	0.0024
C	12.14097	12.55201	0.967253	0.3361
R-squared	0.967658	Mean dependent var		4.431483
Adjusted R-squared	0.962513	S.D. dependent var		2.158719
S.E. of regression	0.417963	Akaike info criterion		1.227023
Sum squared resid	15.37300	Schwarz criterion		1.610721
Log likelihood	-48.19169	Hannan-Quinn criter.		1.382434
F-statistic	188.0660	Durbin-Watson stat		2.314569
Prob(F-statistic)	0.000000			

Source: Author's construct

4.7 Examining the Effect of Institutional Quality on Monetary Policy in the Long Run.

Similarly, examining the same effect of institutional quality on monetary policy using the Autoregressive Distributed Lag (ARDL) and Error Correction Model (ECM) in the long run in table 4.7 as shown above, the model recorded F-statistics value of 188

and associated p-value of 0.00 depicting that the model is very significant in measuring the intended effect of the regressors on the regressand. The causal variables exerted 96% explanatory power on the variations in the regressand as shown by the adjusted r-square which controls and normalizes the monotonic effect of additional regressors. This weighs above the expected threshold of 70%. The model is declared free of autocorrelation since the Durbin-Watson criterion registered a value of 2.06 which ranks above 1.5 benchmark. Standard error of the entire model was 2.4, premised on the discussed parameters in assessing the fitness of the model, the study declare the result from this estimation is very robust. Lag of monetary policy has positive connection with present values of monetary policy which stand to reason that current year's policy rate is able to explain prevailing level of monetary policy. Current year institutional quality has inverse and significant relationship with previous year's monetary policy nonetheless lag of control of corruption has negative and insignificant association with lag of monetary policy at the margin of 0.908. This result implies that strengthening institutions in a year increases monetary policy in that same year under review however, current year's institutional quality reduces lag of monetary policy.

This positive association between (MPR-1) and (CC-1, RL-1, RQ-1) can be attributed to excess political influence by ruling administration aiming at achieving a specific economic outlook as well as controlling the economy through a contractionary measure. This is ascribed and coincides with the assertion of the monetary policy theory as documented by Chipote (2014). The ascertained result is disagreement with the liquidity preference theory which state consumers's hold money due to their inability to foresee money supply and associated interest rate in the future as advanced by the initial work of Keynes (1936) and affirmed for application by the work of

Nwoko, Ihemeje & Anumadu (2016). The observed relationship is in agreement with the evidence adduced by Ullah et al (2018) that strengthened institutions leads to increase in monetary policy. Conversely, the same contradict the position of Fiador et al (2022) who posited that improvement in institutional quality leads to reduction in monetary policy rate. Moreover, the account as championed by the empirical apprehension of Kakar et al (2016); Nawaz et al (2018) that high quality institutions causes monetary policy to diminish at a marginal rate. Labour force in the long run has negative and insignificant link with monetary policy in Ghana, confirming the earlier result in the short run. Gross capital formation and lag of gross capital formation has statistically positive and negative association respectively with immediate past year's monetary policy. This means gross domestic investment recorded increases the same year's monetary policy rate in Ghana. It can be ascribed to the fact that such condition took place when the regulator seek to curb local investment which is less desirable of every government. Real effective exchange rate depicted a positive and negative RER(-1) relationship with MPR(-1) in the long run. This connote that in Ghana, the current year's cedi to dollar rate raises monetary policy rate just as recorded in the short run whilst lag of same reduces monetary policy rate probably to increase the appetite of credit seekers. Similarly, Foreign Reserve (FR) has an inverse and significant association with MPR(-1) nevertheless, lag of same showed a positive relationship. The result implies that amount of foreign earnings accumulated by Ghana cause an increase in monetary policy, this would occur when the cost incurred in producing for export outweigh its earning leading to rise in policy rate to discourage exporting companies from accessing credit to produce for export. In a similar vein, credit to private sector showcased a negative connection with MPR(-1) whilst its previous year's values are able to significantly explain MPR(-

1) at 4% in a positive direction connoting a soar in the amount of capital advanced to the private sector causes reduction in monetary policy rate. This condition become practical when the central government seek to expand the economy by reducing policy rate to entice businessmen to seek credit to expand their operations which facilitate economic growth in the long run. This account support the findings of Ahmad et al (2017); Twinoburyo and Odhiambo (2018) as well as coincedes with the exegesis of the Keynes (1936) theoretical framework on economic growth.

4.8 Diagnostics Test

The Table 6, below, presents the results of the diagnostics test for Autocorrelation, Functional Form, Heteroscedasticity and Normality.

Table 4.8: Results of The Model Diagnostics Test

Test Statistics	LM Version	F Version
Serial Correlation	CHSQ (1) = 2.1722[0.141]	F (1,15) = 1.3124[0.270]
Functional Form	CHSQ (1) = .79931[0.371]	F (1,15) = .45761[0.509]
Normality	CHSQ (2) = .20745[0.901]	Not applicable
Heteroscedasticity	CHSQ (1) = 1.4976[0.221]	F(1,25) = 1.4681[0.237]

Source: Author's estimate.

From the Table 6, the results of the diagnostics test show that the p-value of the Serial correlation is 0.141 which implies that it is higher than 10% hence indicating that there exist no Autocorrelation in the Study. The p-value of the Functional Form which is 0.371 also is greater than 10% indicating also that there is no functional form defect in the study. The Result of the Normality Test with p-value of 0.901 also shows that the error term is normally distributed hence no issues of normality violation. Finally, the p-value of the heteroscedasticity of 0.221 also indicates that

the study does not suffer from heteroscedasticity but rather exhibits homoscedasticity in the study.

4.9 Stability Test

The Figure 3 and 4 below present the stability test of the CUSUM and CUSUMSQ test.

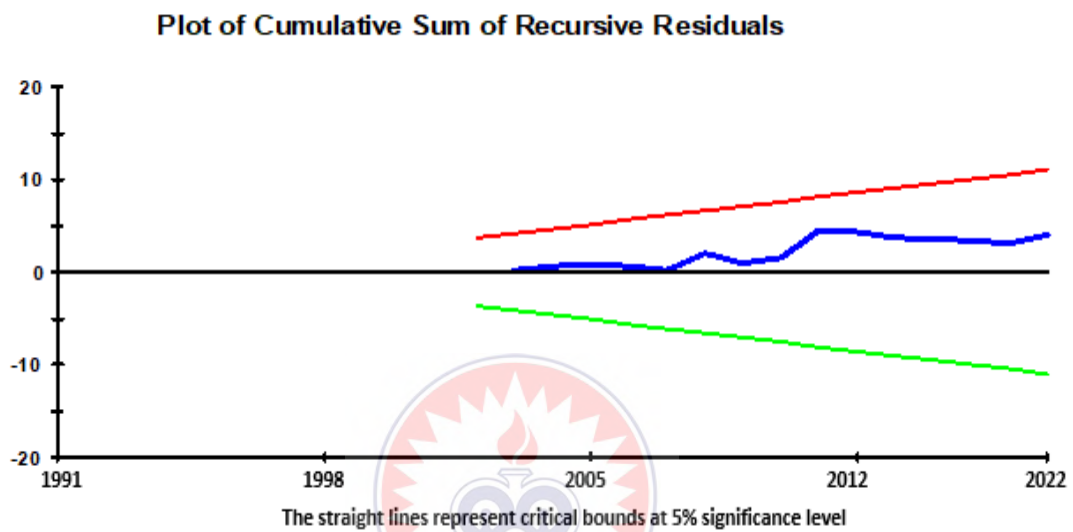


Figure 3: CUSUM Test

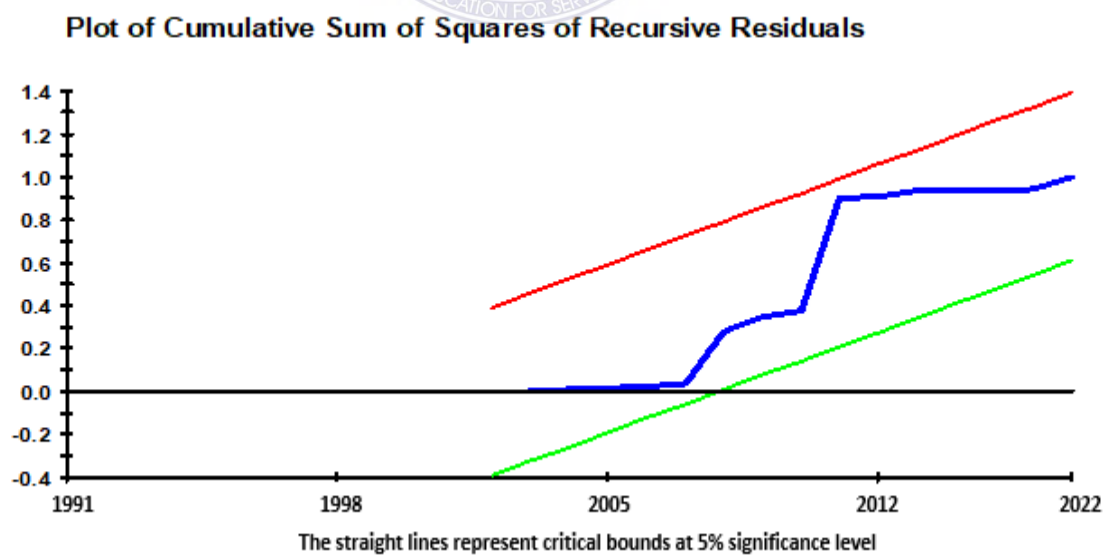


Figure 4: CUSUMQ Test

From the Figure 3 and 4 above, the results indicate that there exists stability in the study.

4.10 Granger Causality Test

The Table 7 presents the results of the granger causality test.

Table 4.9: Granger Causality Wald Tests

EQuation	Excluded	chi2	df	Prob
LNGDP	LNM2	1.8681	2	0.393
LNGDP	LNMPR	1.0563	2	0.590
LNGDP	ALL	5.1569	4	0.272
LNM2	LNGDP	2.592	2	0.274
LNM2	LNMPR	5.6781	2	0.058
LNM2	ALL	5.7614	4	0.218
LNMPR	LNGDP	37.207	2	0.009
LNMPR	LNM2	48.228	2	0.000
LNMPR	ALL	59.372	4	0.000
LNRL	LNMPR	4.3899	2	0.024
LNRQ	LNMPR	0.0591	2	0.970
LNCC	LNMPR	0.5929	2	0.958

Source: Author's construct

From the Table 7, using the two key Monetary Policy variables in the study (i.e. Money Supply and Monetary Policy Rate) in Ghana within the period of the study. The results indicate that Money Supply and Monetary Policy Rate do not granger cause Economic Growth. This is however due to its weak significance exhibited in the Probability results of 0.393 and 0.590 respectively. Also the results show that Economic Growth does not granger cause Money Supply within the period under study but Monetary Policy Rate granger causes Money Supply at 10% significance level. This is exhibited in their respective p-values of 0.274 and 0.058 respectively. Finally, the results also indicate that Money Supply and Economic Growth granger causes Monetary Policy Rate within the period under study at a 1% significance level. This is also evident in their p-values of 0.000 each. The causal effect in all cases are at laged 2 of the independent variable.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND POLICY

RECOMMENDATIONS

5.0 Introduction

In this chapter the summary, conclusions and policy recommendations are presented. The summary briefly highlights on the objectives of the study, how the study was carried out and the results of the study. The conclusions explain into details what the study found in respect of the objectives set for the study. Policy recommendations are discussed to give all necessary stakeholders of this study an insight into some expectations.

5.1 Summary of Findings

This study investigated the relationship between Monetary Policy, institutional quality and Economic Growth in Ghana. To put things in the right perspective, the study was concerned with the nature and extent of the long-run and short-run relationship between Monetary Policy and Economic Growth in Ghana. The study also examined the effect of institutional quality on monetary policy. In view of this, annual data was collected from the year 1980 to 2022 for the purpose of finding empirical evidence to achieve the objectives of the study. The study basically adopted the time series analysis to investigate into the main and specific objectives. Secondary data was used to conduct the study. The secondary data was on variables such as Gross Domestic Product, Monetary Policy Rate, Money Supply, Credit to Private Sector, Total Reserves, Capital and Labour and Exchange Rate. Data was taken from the World Development Indicators (WDI) and Bank of Ghana (BoG).

Due the nature of the objective, there was the need to do a stationarity test using the Augmented Dickey Fuller Test. This was done as a pre-requisite for time series analysis. After confirming the status of stationarity test of all the variables used in the study, then the main estimation technique was used to investigate the long and short run relationship. The main estimation technique used in the study was the Auto Regressive Distributive Lag (ARDL). This was used to examine the long and short run relationships of the Monetary Policy and Economic Growth in Ghana.

5.1.1 Influence of monetary policy on economic growth in Ghana in the long run

The results from the study indicated that, in the long run, there exist an association between Monetary Policy and the growth of the Ghanaian Economy. In view of this, Monetary policy can in the long run promote the growth of the Ghanaian Economy if the policy parameters are carefully decided. In the long run, Labour had a positive statistically significant impact on economic growth at a 1% level of significance. Capital in the long run also had a negative significant impact on economic growth at 5% level of significance. Credit to Private Sector also had a negative significant impact on economic growth in the long run at 5% level of significance in Ghana within the period of the study. Even though Monetary Policy Rate and Foreign Reserves had a negative impact on economic growth in Ghana in the long run their impact were not statistically significant.

5.1.2 Influence of monetary policy on economic growth in Ghana in the short run

In the short run, the empirical evidence suggests that, both Monetary Policy Rate and Money Supply had a significant impact on Economic Growth in Ghana. Whiles Monetary Policy Rate had a negative significant impact on Economic Growth in Ghana, Money Supply had a positive significant impact on Economic Growth within

the period under study. Labour in the short run had a positive significant impact on economic growth in Ghana at a 1% level of significance. Foreign Reserves, Monetary Policy Rate and Credit to Private Sector all had a negative significant impact on economic growth in Ghana in the short run. Even though Exchange Rate and Capital had a negative impact on economic growth in Ghana in the short run, their impact were not statistically significant.

Contrary to the classical view of money being a veil, the study confirmed that, in the long-run and the short-run, Money Supply will promote a significant growth in the Ghanaian economy. This implies that when Money Supply increases in the economy after the Monetary Policy Rate has been reduced, the economy will also experience a positive growth in the short run. The Granger-causality test results revealed that the lagged GDP and Money Supply granger causes Monetary Policy Rate. Whereas there was no other causal effect determined amongst the variables.

5.1.3 Effect of institutional quality on Monetary Policy

The result of the Autoregressive Distributed Lag (ARDL) and Error Correction Model (ECM) in examining the influence of institutional quality on monetary policy demonstrated a negative significant association both in the short and long long in Ghana at 1% significance level. Notwithstanding, the magnitude of the negative influence was severe in the short run than in the long run. The discovered result demonstrates that institutional quality benefit the economy as a whole since diminishing inflation and policy rate would enhance trade. With exception of rule of law which had positive effect.

5.1.4 Does monetary policy granger cause economic growth in Ghana or vice versa?

Our finding further reveals that the countries with low corruption, stable governments, efficient bureaucracy and good socio-economic conditions have a very low level of inflation rate. Central banks respond aggressively in these countries when inflation exceeds a threshold level inflation rate. The socio-economic condition index has a greater impact on the inflation threshold level as compared to other sub-indexes of institutional quality. The findings imply that the improvement in institutional quality enables the central banks to keep inflation at a low level.

The estimated tests reveal joint relationship among the variables. The findings of the estimated linear model shows that economic growth responds positively to monetary policy and institutional quality and is statistically significant at 1%, thus, suggesting that, economic growth is susceptible to changes in institutional quality while effective monetary policy exert positive and insignificant effect on economic growth. In addition, the results reveal that economic growth is engendered by the variables of monetary policy and economic growth. The study found that it takes a significant effort for monetary policy and institutional quality changes to equilibrate its effects on economic growth in the long-run horizon.

5.2 Conclusion

From the results of the study, the following can be concluded. The bounds test results indicated that there exists a long run relationship between Monetary Policy, Institutional quality and Economic Growth in Ghana within the period under study. This results indicates that in the long run there exist an association between Monetary Policy, Institutional quality and the growth of the Ghanaian Economy. In view of this, Monetary policy and institutional quality can in the long run promote

the growth of the Ghanaian Economy if the policy parameters are carefully decided.

From the study also, Monetary Policy Rate, the key variable for implementing monetary policy, was not statistically significant in influencing the growth on the Ghanaian economy in the long run. With a weak p-value, Monetary Policy Rate in the long run though negatively relates with the growth of the Ghanaian economy, its impact on the long run growth of the Economy was not in any way significant;

In the Short run, Monetary Policy Rate has a significant impact on the growth of the Ghanaian Economy. In the short run, the Monetary Policy Rate negatively influences the growth of the Economy. This implies that, when the Monetary Policy Rate is reviewed downwards, as has been in the case of Ghana for the past three years now, it is expected to promote the growth of the Economy in the short run.

From the above, it is the view of the researcher that, decision makers would have to concentrate on increasing the Money Supply in the economy whilst reducing the Monetary Policy Rate if their short term aim is to improve on the growth of the economy. However, for long term decision on economic growth, the priority of policy makers should be on Money Supply.

Institutional quality predict monetary policy both in the short and long run in Ghana. This result collaborate with some aspect of literature which assert that improving the quality level of a country's institutions relate inversely with monetary policy leading to formaulation of better monetary polices that enhances financial intermediation, safeguard businessmen among others. Invariantly, the study's findings deviates from the proponent who advocates that improving and strengthening instituiions lead to

increase in monetary policy rate. nFinally, the granger causality test also indicates that there exists only a unidirectional causality between Monetary Policy Rate and Economic Growth in Ghana. The study showed that Economic Growth Granger causes Monetary Policy Rate in Ghana within the period of the study.

5.3 Policy Recommendations

From the study, the relationship between the monetary policy, institutional quality and economic growth in Ghana was established and as indicated in the summary and the concluding aspect of the study, Monetary Policy has a long run association with the Growth of the Ghanaian Economy. The financial sector of any economy is the driving force of the growth of the Economy and since the study has confirmed the long run association in the study, it implies massive growth of the Ghanaian economy depends on the Financial sector and also monetary policy through the central Bank of Ghana. In view of this, the Central Bank being the sole regulator of the Banks can aid the Economic Growth in the country through promoting sound Monetary Policy and coming out with strategies to ensure the soundness of the financial sector.

This has already begun in the economy through the banking sector clean up exercise which commenced in 2018. The central bank has to ensure that all the recent directives which include the maintenance of the new minimum paid-up capital of GHS400 million by all commercial banks, the fit and proper directive, the corporate governance directive, the directive for voluntary winding-up of regulated financial institutions amongst others are properly monitored and implemented in order to promote the confidence level and trust that Ghanaians have in the banking systems. This would also ensure that all Monetary Policy announcements are not mere talks but will in the end have their expected impact to aid in the growth

process of the economy both in the short and long run. Moreso, the study implore government to strengthen local institutions by resourcing them to become more proactive and efficient whilst the regulator of the financial sector is admonished to take keen interest in formulating pragmatic monetary policies that would yield in economic advancement.



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APPENDIX A Research data

YEARS	RER	GCF	LGCF	CPS	FR	LF	LLF	MPR	CC	GDP	RL	RQ	MS
1980	665			2	3.13			9.4		0.01			18.55351
1981	1482			2	2.41			9.6		0.017			16.5651
1982	1851			2	4.17			9.557		0.019			17.1649
1983	3054	2.00E+08	18.8	2	4.83			9.676		0.042			11.30499
1984	484	3.00E+08	19.5	2	6.45			9.765		0.062			11.81331
1985	352	4.00E+08	19.9	3	6.96			9.876		0.083			13.6185
1986	223	5.00E+08	20.1	4	6.93			11		0.125			13.51454
1987	165	5.00E+08	20.1	3	3			10.3		0.181			14.20509
1988	152	6.00E+08	20.2	3	2.67			10.24		0.253			14.74606
1989	142	7.00E+08	20.4	6	3.71			10.48		0.344			16.91699
1990	142	9.00E+08	20.6	5	2.35	6.00E+06	15.67	14.77	-0.04	0.481			14.14209
1991	144	1.00E+09	20.8	4	4.43	7.00E+06	15.7	11.7	0.08	0.607			15.56278
1992	127	8.00E+08	20.5	5	2.5	7.00E+06	15.72	9.564	0.116	0.713			20.52587
1993	111	1.00E+09	21	5	2.72	7.00E+06	15.75	6.014	0.125	0.866			19.83546
1994	89.7	1.00E+09	21	5	3.92	7.00E+06	15.78	5.463	0.128	1.177			22.51313
1995	104	1.00E+09	21	5	4.26	7.00E+06	15.81	6.694	0.085	1.752			21.64299
1996	113	1.00E+09	21.1	6	4.4	8.00E+06	15.83	5.959	-0.01	2.532	-0.23	-0.3	20.59611
1997	120	2.00E+09	21.3	8	2.8	8.00E+06	15.86	6.563	-0.03	3.235	-0.23	-0.3	23.84196
1998	128	2.00E+09	21.3	9	1.44	8.00E+06	15.89	7.232	-0.23	3.968	-0.44	-0.2	22.85738
1999	118	2.00E+09	21.2	13	1.58	8.00E+06	15.92	5.344	-0.14	4.737	-0.44	-0.2	24.09283
2000	86	1.00E+09	20.9	14	1.07	8.00E+06	15.95	5.964	-0.09	6.25	0.08	0	28.16617
2001	93.3	1.00E+09	21.1	12	1.22	9.00E+06	15.98	5.122	-0.11	8.763	0.08	0	31.44533
2002	88.6	1.00E+09	20.9	12	2.17	9.00E+06	16.01	4.254	2E-04	11.26	0.02	-0.5	34.10823
2003	91	2.00E+09	21.3	12	4.05	9.00E+06	16.04	3.696	2E-04	15.19	0.01	-0.3	31.04593
2004	94.2	3.00E+09	21.6	13	3.74	1.00E+07	16.07	4.38	-0.8	18.26	-0.13	-0.4	32.72259
2005	104	3.00E+09	21.9	16	3.32	1.00E+07	16.1	4.649	-0.75	22.29	-0.13	-0.2	32.11003
2006	110	5.00E+09	22.3	11	3.21	1.00E+07	16.12	4.638	-0.73	26.47	0.06	-0.1	23.26417
2007	109	4.00E+09	22.1	14	2.53	1.00E+07	16.15	5.509	-0.68	31.84	0.04	-11	25.71681
2008	104	5.00E+09	22.3	13	1.9	1.00E+07	16.17	4.675	-0.71	40.9	-0.06	-11	27.46146
2009	94.8	4.00E+09	22.2	18	3.78	1.00E+07	16.2	0.645	-0.07	49.49	-4	-11	28.24702
2010	100	4.00E+09	22.2	17	4.25	1.00E+07	16.22	0.5	-0.01	62	-0.03	0.04	29.61919
2011	94.6	5.00E+09	22.3	17	3.41	1.00E+07	16.24	0.5	0.012	81.41	0	0.05	30.54901
2012	88.2	7.00E+09	22.7	18	2.9	1.00E+07	16.26	0.5	-0.03	102.1	0.02	0.08	30.36174

2013	88.5	2.00E+10	23.5	15	2.78	1.00E+07	16.28	0.5	-0.13	124.5	0.15	0.1	21.95276
2014	69.5	1.00E+10	23.4	17	3.17	1.00E+07	16.3	3.235	-0.1	158.7	0.06	0.13	23.64255
2015	68.2	1.00E+10	23.3	18	3.09	1.00E+07	16.32	4.235	-0.19	183.5	0.14	-0.1	25.67027
2016	78.3	1.00E+10	23.4	18	3.2	1.00E+07	16.35	5.632	-0.19	219.6	0.15	-0.1	26.28078
2017	77.7	1.00E+10	23.2	18	3.34	1.00E+07	16.37	5.877	-0.15	262.8	0.05	-0.3	25.48833
2018	76.6	1.00E+10	23.2	18	2.72	1.00E+07	16.4	6.004	-0.23	308.6	0.13	-0.2	25.12738
2019	73.5	2.00E+10	23.4	16	2.9	1.00E+07	16.42	6.249	-0.12	356.5	0.07	-0.1	26.39175
2020	74.6	1.00E+10	23.3	14	3.3	1.00E+07	16.44	6.461	-0.1	391.9	0.04	-0.2	30.81732
2021	74.3	1.00E+10	23.3	14	3.9	1.00E+07	16.46	7.276	-0.12	459.1	- 0.05	0.16	
2022		1.00E+10	23.4	13				11.12	-0.89	589.1	- 0.08	-0.1	

