



School of Management

The Impact of Monetary Policy on Stock Market Returns in Developing Markets, A Comparative Investigation of Nigerian and Ghanaian Stock Markets (1990 - 2010)

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Abstract

The global economic meltdown which affected the stock markets all over the world also had an adverse effect on less developing countries stock markets. As a result of the meltdown, investors lost confidence in the stock market. Monetary authorities in both Nigeria and Ghana had tried in several ways to restore investor confidence and hence one of the major tools that government uses to achieve macroeconomic objective is monetary policy. There became a need to investigate how monetary policy changes affect stock market returns in the Nigerian and Ghanaian stock exchange markets. This paper is based on comparative study of Nigerian and Ghanaian stock markets in order to ascertain how monetary policy targets namely interest rate and money supply (m2) affect stock market returns. We conducted a simple regression analysis test based on annual 20 year data (1990-2010). The result shows that monetary policy has more impact on stock market returns in the Ghanaian economy than the Nigerian economy, and as such could act as a market signal for investors in the Ghanaian stock exchange market. While the Nigerian stock exchange market is insensitive to change in monetary policy as such, a change in monetary policy would not act as a market signal for investors in the Nigerian stock exchange market.

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I Introduction

This introductory chapter gives insight into the theoretical background of capital market in Nigeria and Ghana, the historical background of capital market and monetary policy in Nigeria and Ghana, the role that Stock Market plays in socio economic development in any economy and the problems that the Nigerian and Ghanaian capital markets faced over the years. In this section, we outlined our problem statement, research objectives with relevant research questions, hypotheses, significance of the research and its delimitations.

I.1 Background of Study

Capital market provides the hub for any meaningful economic development of nations. Any nation that desires to build a vibrant and prosperous economy requires a successful and vibrant capital market. Capital market provides the platform for funds to be effectively mobilized and allocated to enable the business and public sectors, harness both the human and material resources for optimal utilization. Capital market is the axle on which the wheel of capitalism revolves. The mechanism of the capital market provides the boost for risk taking, innovation, job creation, profit and economic growth (Onyiuke, 2008).

Monetary policy is the process by which a central bank in a country influences the availability and cost of money/credit. The aim is to attain certain macroeconomic objectives, which are geared towards the growth and stability of the economy (Sellin, 2002). It could also be seen as a deliberate attempt to control the money supply and credit conditions for the purpose of achieving certain broad economic objectives. In most less developed countries monetary policy is tailored towards achieving two dual objectives, namely price stability and sustainable economic growth.

In the past several researchers have tried to establish a relationship between stock market and monetary policy tools; however, none of the past studies had considered the Nigerian and Ghanaian economies. Bernanke et al (2003) noted that an insignificant market reaction can be attributed to the effect of monetary policy on real rate of interest; rather the response of stock prices is driven by the impact of expected future excess returns and to some extent on the expected dividend.

Kashyap et al (1993) observed that contractionary monetary policy such as increase in reserve requirement ratio has strong impact on firms that relied heavily on borrowing to finance their operations, as banks reduce their overall supply of credit. Thorbecke et al (1997) showed that the response of stock return to monetary policy is large for small firms, hence they have high leverage. Small firms that are quoted on the stock markets

have direct credit response to monetary policy changes in heterogeneous fashion (Ehrmaan et al, 2004).

However, monetary policy actions have their most direct and immediate effect on the broad financial market, which stock market, is an integral part. So the link between monetary policy tools and stock market is very much important. Stock prices are the most closely watched asset prices in the economy and are viewed as being very sensitive to economic conditions. Stock prices have also been known to swing widely, leading to concern about possible bubbles or deviation of stock prices from fundamental values that have a negative impact on the economy.

There are several other factors that have impact on companies stock market return, other than monetary policy which affects monetary policy operational targets namely interest rate and money supply, such as technological innovation, political climate, level of economic development within a nation, global economic condition, government legislation, companies profit etc. These factors have impact on investor's confidence which affect stock prices returns. However, most of them cannot be quantified and could be outside the control of the government or cannot be altered in a short period of time to stabilize the stock market, when compared to monetary policies in Nigeria and Ghana which are reviewed quarterly to achieve short, medium and long term macroeconomic objectives.

The effectiveness of monetary policy which has direct impact on interest rate and money supply is depended on its ability to influence economic agents when implemented. These are directed towards achieving certain macroeconomic goals within a particular point in time. One of the major sectors in the economy that monetary policy implementation has direct impact on is the financial sector and equity market in particular.

Crowder (2006) pointed out that monetary policy can affect stock returns in two distinct ways. Firstly, monetary policy can alter the expected cash flow of a firm and thereby alter the returns of the firm stocks. This channel generally relies on the effect of monetary policy on aggregate economy. An expansionary monetary policy which has an operational target on interest rate reduction and money supply increase he noted will reduce the cost of fund which will increase the overall level of economic activity, which will in turn raise the earnings of firms in the economy. These cause stock prices to rise as well. While restrictive monetary policy will reduce the overall expected firm's profitability and stock returns.

It is believed that discount factors used by equity market participants are tied in a general way to the market rate of interest. When the Federal funds rate is the source of changes in many longer term interest rates, a restrictive monetary policy raises the

federal fund rate, which increases the discount rate in turn forces stock prices to decline.

Rigobon et al (2003) noted that monetary policy does not only have impact on stock returns, rather movement in stock markets can also have a significant impact on the macro economy and therefore likely to be an important factor in the determination of monetary policy. Such impact comes primarily through two channels. The first is that movement in stock prices influence aggregate consumption through the wealth channel, and the second is that stock prices affect the cost of business financing. Because of these two channels, stock market movement becomes an important determinant of monetary policy decisions.

Despite the importance of stock market movement on monetary policy decisions, there has not been significant evidence measuring the US federal fund rate reaction to the stock market. Moreover stock prices are never the main target of monetary policy in most countries as a result change in monetary policy as a result of stock market behavior might have a trade-off with other macroeconomic objectives of monetary policy such as price stability, GDP growth etc, which could be counterproductive

The Nigerian stock market was established in 1960, as originally known as the Lagos Stock Exchange market and was renamed Nigerian Stock Exchange (NSE) in 1977. The NSE market has six branches, namely Port-Harcourt, Lagos, Kano, Onitsha, Ibadan, and Kaduna. Nigerian stock market is one of the leading markets in the sub-Saharan Africa region, and has made notable strides in recent years with large market capitalization. While the Ghana Stock Exchange (GSE) was established in July 1989 as a private company limited by guarantee. It was given recognition as an authorized Stock Exchange in October 1990. The Council of the Exchange was inaugurated on November 12, 1990 and trading commenced on its floor the same day. The Exchange changed its status to a public company limited by guarantee in April 1994 with its head office in Accra, Ghana.

Emerging markets such as the Nigerian and Ghanaian stock exchange markets are characterized by high stock volatilities. Previously high stock volatilities between markets were associated with important events, which were peculiar to individual country's economy rather than a global economy. But the recent global economic meltdown has changed the situation (Reena et al, 1999).

The world economy is a whole, while individual countries economies are part of the whole, when a part is affected the whole is also affected. This statement supports the fact that the world economies are interdependent on each other. When one is affected the whole will also be affected. What started as a US domestic economic crises, resulted to a global problem as a result of this interdependence between world economies. Given the fact that in developing markets economic growth and

development to a large extent is being influenced by massive inflow of venture capital, equity/portfolio and other direct foreign investments (Sanusi, 2010), it was obvious that the Nigerian and Ghanaian economies could not be isolated from the happenings in the global financial system.

Hence both the Nigerian and Ghanaian economies are part of the whole; they experienced their own domestic crises during the global economic meltdown. These crises had an adverse effect on their capital markets. The Nigerian stock market capitalization which stood at about 13.5 trillion naira as at March 2008 declined to 4.6 trillion naira at the beginning of 2009. Even the NSE All-Share Index which is the measure of magnitude of stock price movement fell from 66,000 basis points to 22,000 basis point at the same period (Olisaemeka, 2009).

The Ghana Stock Exchange (GSE) has performed well in recent years. The market's benchmark index, the GSE All-Share Index, returned an all time high of 154.67% in 2003. The bullish run continued in 2004 and as a result the GSE All-Share Index gained an additional 91.33% returns. However, following bearish performance, the Index dipped by 29.85% in 2005 (Tullow Oil plc, 2011). The bearish trend of 2005 persisted in 2006, with a few of the listed equities showing signs of recovery, resulting in a marginal and modest gain of 4.97% in the Index. The recovery of the Ghanaian bourse continued in 2007 recording a year-on-year change of 31.84% at the end of the year. The recovery of the GSE accelerated in 2008 due to strong operating results of listed companies ending the year at 10,431.64 points, which represents a year-on-year change of 58.06% gain.

However, market prices started falling at the beginning of 2009, as a result of the global financial crises, profit taking by investors and the fact that they had not been supported by strong fundamentals. At the end of December 2009, the benchmark index had lost 46.58% compared to the gain in 2008. The year 2010 saw the market recover, returning 32.25% on the back of strong confidence in the global recovery, record earnings by banks and optimistic investors taking early positions before the pumping of Ghana's first crude oil (Tullow Oil plc, 2011).

Several factors have been identified as the cause of the capital market's poor performance in Nigeria. Some of the factors include the pull out of foreign investors as a result of the world cash crunch. This made most foreign investors dump more shares than the domestic market can absorb, which created excess supply.

The forced capitalization of Nigerian banks to the minimum deposit of 25 billion naira, forced most banks to raise money through the capital market. This was done through public offers in the primary market. This action created the situation whereby investors dumped their shares in secondary market, to invest in the primary market

public offers on a short-term speculative basis. This action sucked liquidity from secondary market (Olisaemeka, 2009).

The Ghanaian bourse took a severe battering in 2009 and continued its downward slide ending the year with its heaviest loss since its inception. The poor performance of the Ghanaian stock market during 2009 trading period can be attributed to a number of factors. Chief among them was the fact that a lot of foreign investors continued to dispose of their holdings on the Ghana Stock Exchange due to the global financial crises. Investors continued to be nervous about the impact of weakening economic fundamentals and this had led to a capital flight with some investors selling their equity stakes and buying money market instruments. Besides, with the relative high returns on vanilla government papers, the broader stock market continued the trend of declines. This was so because retail investors continued to channel their resources into money market investments. In addition to that, stock market investors also withdrew their funds from the capital market and invested in the US dollar, British pound sterling and euro because of the continuous depreciation of the Ghanaian cedi and fear of the stock market crashing driving the bourse down further (Liberty Capital Research Report, 2009).

Furthermore, the poor regulatory framework made it possible for private companies to have private placement of their shares at lower prices, while they seek listing on the stock market with expected higher values. This made most investors to dump shares on the secondary market and invested in this private placement for higher returns.

The short-term orientation indulged by the investors squeezed the secondary market of liquidity. Eventually most of the private companies are never quoted till date. This created problems for investors, leading to the cash crunch in the Nigerian capital market (Olisaemeka, 2009).

Most banks were involved in this trading by fronting stock brokering firms and granting them marginal loan facilities. It is estimated that banks financed 65% of stock market transactions in Nigeria as a result of their short term treasury hunting sprees in the capital market. Such actions overheated the system and then backfired. It became difficult for the banks to exit, because there were no major investors to check them out. Other causes of the capital market meltdown were the inability of the Nigerian federal government to bail the banks out, the structural deficiencies of the Nigerian stock exchange market, regulatory inconsistencies and pronouncements.

These problems resulted to investors lost of confidence in the Nigerian capital market and economy in general. It created the situation whereby most investors prefer to convert their wealth to foreign currencies held in domiciliary accounts. This also exerted pressure on the foreign exchange rate, which resulted in the depreciation of the naira.

However, one of the positive impacts of the Global Economy Meltdown on Nigerian investors is the lesson learnt on the need for portfolio diversification. Prior to the crisis, investors only see stock market as a place to make quick financial returns as such they ignored other investment opportunities, which are less risky such as government bonds, real estate investment etc (Olisaemeka, 2009). This stressed the need for portfolio diversification which is born out of investment risk minimization which gives a safer investment bundle (Smartpro Investing, 2007).

The Ghanaian money market maintained its upward momentum right from the first quarter of 2009, a further indication of the loss of investor confidence in the equity market, with institutional and retail investors diverting funds to high return government securities.

1.2 Problem Motivation

Stock market performance to a large extent is determined by the overall performance of the economy both in the external and domestic sector. The recent global crises exerted much influence in the external sector, as such the stock market was severely affected (Sere-Ejembi, 2008).

Global economic crises led to investors lost of confidence in stock markets in developing economies, most importantly in both the Nigerian and Ghanaian stock exchange markets. During the crises there was continuous drop of All-Share Index (ASI) as well as the volume of traded securities at the Nigeria stock exchange. The Nigerian Stock Exchange market capitalization which was 13.0 trillion naira in the September of 2008 fell to 7.2 trillion naira at the end of first quarter of 2009 (Sanusi, 2010)

The global financial crises affected most markets. Ghana's stock market, though not spared, proved resilient and recorded significant positive results in all three key indicators – index, market capitalization and trade volumes in 2008. The GSE All-Share Index ended the year 2008 with a gain of 58% which was among the best worldwide. Total market capitalization recorded an increase of 44% ending the year 2008 at GH¢17.9 billion. Market turnover as measured by the volume of shares traded saw a 185% increase reaching 531 million shares in 2008. Nonetheless, it was clear toward the end of 2008 that a market correction was imminent as some stocks had started re-pricing (Ghana Stock Exchange Annual Report, 2008).

However, Ghanaian stock exchange market prices started falling at the beginning of 2009, as a result of the global financial crises and profit taking by investors. At the end of December 2009, the benchmark index, GSE All-Share Index, had lost 46.58%

compared to the gain in 2008. The year 2010 saw a slow recovery from the financial crises which negatively affected most stock markets. The consistent decline in the rate of inflation, the stability of the Ghanaian cedi and renewed increasing international interest in the Ghanaian economy helped in no small measure in the improvement in the Ghanaian market indicators (Ghana Stock Exchange Annual Report, 2010).

Before the global financial crises, the market capitalization of the Nigerian Stock Exchange increased 5.3 times between 2004 and 2007, and market capitalization of banks stock increased at 7 times during the same period. This set the stage for financial sector burble particularly on bank stocks (Sanusi, 2010). This rapid rise in asset prices in bank stocks makes their banking sector shares a treasure hunting sector. Despite the fact that the rise in asset prices was not commensurable with the improvement in the real sector, which such performance was suppose to mirror. This occurs because commercial banks were manipulating their books by colluding with one another to artificially enhance their financial position and therefore stock prices. Many investors fell into the trap by believing that stock market was a place to make quick return on investment, as a result of lack of investors' and consumers' sophistication and poor corporate governance by directors of the banks, and NSE even the Central Bank of Nigeria (CBN).

Banks were allowed to take advantage of consumers and investors, many were new and unaware of the risk they were taking by investing in already saturated market and since Nigeria does not have a tradition of consumer protection, investors were taken advantage of.

There became need for the government to restore investors' confidence in the stock market. Hence monetary policy is the major tool by which the government alters macro-economic aggregates in order to achieve its broad macro-economic goal in the economy. It becomes very important to examine the relationship between stock market and monetary policy instruments.

During the global financial crises, the government through the CBN adopted several monetary policy measures, which were mainly expansionary monetary policy to stimulate the economy. Such measures included the reduction of minimum rediscount rate (MRR) from 10.25% to 9.75% and later 6.0% in July 2009, reduction in cash reserve requirement (CRR) from 4.0% to 3% and 1% and Liquidity ratio from 40% to 30% and then 25% respectively. The CBN went further to extend their margin loan facilities from 180days to 360days to commercial banks (Sanusi, 2010).

In the case of Ghana, the monetary policy framework has been geared towards single inflation targeting since 2001. The Bank of Ghana's monetary policy objective is to ensure price stability, low inflation, and subject to that, to support the government's economic objectives including those for growth and employment. The central bank,

the Bank of Ghana (BoG) uses the prime rate, now the policy rate, as the key policy rate to set the stance of monetary policy in Ghana. It is a signaling rate that sets the tone for monetary policy stance. In order to stimulate the economy, the BoG kept reducing the prime rate consistently from 18.5% in March 2009 to 18% in January 2010. The central bank also abolished both the first and second reserve ratios for all Ghanaian banks during the period under review in order to boost economic activities. These freed up funds that were hitherto locked up with the central bank for the lending activities of the commercial banks (Bank of Ghana Monetary Policy Committee Press Release, 2009).

All these measures were geared towards stimulating the economy in order to boost aggregate demand. There is need to know if these monetary policy measures had any impact on the stock market, hence these monetary policy tools have interest rate and money supply as operational target, there became need to examine these monetary policy instruments relationship with stock market returns.

1.3 Purpose of Study

The main objective of this paper is to investigate the relationship between inter-bank lending rate (r_0), money supply (m_2) and stock market returns (R_t) in the Nigerian and Ghanaian economies and the statistical significance of such relationship. The result from this paper will enable the government in both countries to determine, how best to stimulate the stock market using monetary policy tools. This becomes necessary so as to ascertain if monetary policy can be used to stimulate stock markets in Nigeria and Ghana so as to restore investor confidence. When these relationships are established, investors will use the trend to make their own investment decision, instead of relying mostly on stock brokers whom most times represents issuing companies' interest and are more interested in making sales and getting their commissions, rather than investors' interest. The study will further compare the two stock markets, so as to ascertain which of them that monetary policy exert much influence in its stock returns.

1.4 Research Questions

What type of relationship exists between monetary policies instruments namely, money supply (m_2), inter-bank lending interest rate (r_0) and stock market returns (R_t) in the Nigerian and Ghanaian capital markets?

Can changes in monetary policy act as a market signal/indicator for investors in the Nigerian and Ghanaian stock exchange markets?

Which of these stock markets does monetary policy exert much influence on its stock returns?

1.5 Research Hypothesis

Regression Equation: $R_t = b_0 + b_1r_0 + b_2m_2 + e$

Hypothesis 1

HN1: Interbank lending interest rate (r_0) has no significant positive relationship with stock market return (R_t) in the Nigerian and Ghanaian stock exchange markets.

Hypothesis 2

HN2: Money supply (m_2) has no significant positive relationship with stock market return (R_t) in the Nigerian and Ghanaian stock markets.

Hypothesis 3

HN3: Changes in monetary policy tools cannot act as a market signal for investors in the Nigerian and Ghanaian stock exchange markets.

Hypothesis 4

HN4: Monetary policy tools exert much influence on stock returns in Nigerian Market than Ghanaian market.

1.6 Significance and Method of Study

In the past several researchers have tried to establish a relationship between stock market and monetary policy tools. However, none of the past studies had considered the Nigerian and the Ghanaian economies. Bernanke et al (2003) noted that an insignificant market reaction can be attributed to the effect of monetary policy on real rate of interest, rather than the response of stock prices being driven by the impact of expected future excess returns and to some extent on the expected dividend. Also, Kashyap et al (1993) observed that tight monetary policy such as increase in reserve requirement ratio has strong impact on firms that relied heavily on borrowing to finance their operations, as banks reduce their overall supply of credit; this affects investment expansion which directly affects stock values.

Over the years investors in the developing stock markets had relied on individual company performance, in speculating its share investment return rather than portfolio investment which in most cases depends on other factors outside their control which led to wrong investment decisions. Past studies on this subject area concentrated mainly on developed world economies such as the US economy. A similar case study

using US economy by Crowder (2006) pointed out that monetary policy can affect stock returns in two distinct ways. Firstly, monetary policy can alter the expected cash flow of a firm and thereby alter the returns of the firm stocks. This channel generally relies on the effect of monetary policy on aggregate economy. An expansionary monetary policy which has an operational target on interest rate reduction and money supply increase, he noted will reduce the cost of fund which will increase the overall level of economic activity, which will in turn raise the earnings of firms in the economy. These cause stock prices to rise as well. While restrictive monetary policy will reduce the overall expected firm's profitability and stock returns.

However, this paper tends to ascertain if this monetary policy measures results to the same effect in the developing economies such as Nigeria and Ghana, hence no previous studies had considered these economies. When we establish the type of relationship that exists between these variables and the significance of the relationship, we can conclusively say that a change in monetary policy could be used as a market signal for investors in the Nigerian and Ghanaian stock markets. If that happens, then investors can rely on a change in monetary policy formulation to make right and informed investment decisions on stock markets. We will also ascertain between the two markets under study which one of them that monetary policy exerts much influence on its stock return.

We will use secondary data collection method, where we will rely on Central Bank of Nigeria (CBN), Nigerian Stock Exchange (NSE) statistical bulletin, Bank of Ghana Monetary Policy Committee Press Release, Bank of Ghana Statistical Bulletin, Bank of Ghana Weekly Treasury Securities Publication, Bank of Ghana Annual Report, Ghana Stock Exchange Official Price List and the Ghana Stock Exchange Annual Report. We will employ both quantitative and qualitative analytical methods. Pearson Correlation coefficient analysis will be employed to establish the relationship between the dependent (stock returns) and independent variables namely money supply (M₂) and interest rate (inter-bank lending rate). Ordinary least square (OLS) regression analysis will be employed to determine how much influence the independent variables exert on the dependent variable with R-square, and F-test to show the statistical significance of the model.

1.7 Delimitations

This research specifically concentrated on the Nigerian stock market annual All-Share indexes between 1990 and 2010; and Ghanaian All-Share indexes between 1993 and 2010 since Ghana stock exchange market was established in 1989, but started trading in November 1990. We measured the annual percentage change which represents the annual market returns which is nominal return and monetary policy instruments which is interest rate and money supply. The interest rate that is used in this analysis

is inter-bank lending rate which is nominal interest rate and money supply (m2) annual growth rate. The reliability and validity of the results is much depended on the data collected hence it is of secondary source.

2 Theoretical Frameworks

In this chapter, we presented relevant theories related to this study; we started with introduction of monetary policy instruments, and reviewed several papers that are relevant to the subject under study and finally the historical background of monetary policy, its transformational phases and stock markets in Nigeria and Ghana.

2.1 Introduction

Monetary policy is the process by which a central bank in a country influences the availability and cost of money/credit. The aim is to attain certain macroeconomic objectives, which are geared towards the growth and stability of the economy (Sellin, 2002). It could also be seen as a deliberate attempt to control the money supply and credit conditions for the purpose of achieving certain broad economic objectives. In most less developed countries monetary policy is tailored towards achieving two dual objectives, namely price stability and sustainable economic growth.

Monetary policy directly influences the value and cost of credit with the level of economic activity. Macroeconomic aggregates such as output, employment and price in turn affect the stance of monetary policy through several other ways, such as interest rate, credit rate and exchange rate. The goals of monetary policies are always align with macro-economic goals in a country. Hence, central banks do not have a direct control over these goals, they choose monetary policy targets which they use to achieve monetary policy goals (Ibeabuchi, 2007).

2.2 Monetary Policy and Stock Return Review

Several researchers over the years have tried to investigate the impact that monetary policy on stock returns and their findings yielded conflicting results. While some findings revealed that such impact is quite insignificant, others see monetary policy and other macroeconomic variables as major determinants in stock market returns.

The effectiveness of monetary policy depends on its ability to alter the behaviors of economic agents (Crowder, 2006). Monetary policy is directed towards macroeconomic variables such as Gross Domestic Product (GDP), price stability (Inflation), Exchange Rate Stability etc. Monetary policy that is available in most countries does not only directly affects interest rate and money supply which are the intermediate targets. However, they are tailored towards altering economic behaviors via macroeconomic variables which are its final goal. One sector that monetary policy affects significantly is the financial sector which equity market is an integral part.

Ehrmaan et al (2004) explains that the relationship between monetary policy and equity prices is not still very much understood. However, he pointed out that one of the main issues that arises when measuring the effect of monetary policy on equity market is the correct identification of monetary policy. Most researchers use interest rate as a measure of monetary policy, but a change in interest rate might happen at the same time with a change in business cycle condition and other economic variables. This means that such impact might not be noticed.

Thorbecke (1997) explains that common factors contribute major portion of changes in stock market return. His findings buttress the fact that the major channel of monetary policy transmission on stock market returns is through the impact of bank loans. Small firms bear greater burden than large firms from changes in monetary policy, because they are more likely to be constrained in their effort to access credit.

The relationship between monetary policy and stock returns is complicated by the distinction between actions that the market already anticipated and those it has not (Crowder, 2006). He further explained that markets are characterized by rational agents. Only unexpected monetary policy action will affect equity returns. But the expected changes will have already been embedded in the current equity prices. His findings reveal that monetary policy shocks lead to immediate and opposite movement in equity return, but the exogenous equity return on innovation does not have an immediate effect on the policy variable, but eventually leads to a change in federal fund rate in the same direction .

Kashyap et al (1993) supports the position of Thorbecke (1997) where he observed that contractionary monetary policy has strong impact on firms that relied heavily on borrowing to finance their operations. As banks reduce their overall supply of credit, such firms find it difficult to expand their investment horizon, which will hinder growth and consequently stock prices.

Hag-Sheng (2005) examines the asymmetric effect of monetary policy on stock market returns which supported the position of Kashyap et al (1993) and Thorbecke (1997) on the effect of monetary policy on stock market return. Hag-Sheng (2005) investigated the impact of monetary policy on stock market returns with the use of Markov-Switching Model; he used different monetary policy tools such as money supply (m2), discount rate and federal fund rate. His result showed that when monetary policy is measured by these tools, a contractionary monetary policy reduces stock returns in both bull and bear markets. However, it is more significant in bear market regime. Thus the tightening monetary policy may depress stock returns in certain ways. An example is that it lowers stock returns directly and makes the return more likely to shift to low return which is the bear market regime.

But Bernanke et al (2003) had a contrary view from that of Kashyap (1993) and Thorbecke (1997). When he observed that an insignificant market reaction can be attributed to the effect of monetary policy on real rate of interest. Rather the response to stock prices is driven by the impact of expected future excess return and to some extent on the expected dividend.

Erhmaan et al (2004) pointed out that differentiation of the response of stock prices to changes in monetary policy is the elasticity of demand of a firm's product. Firms that produce goods that are interest sensitive have their future earnings being affected by a change in monetary policy.

However, Bernanke & Blinder (1992) showed that monetary policy and other macro economic variables affect the real sectors in the economy thus equity market. They showed that innovation in funds rate over a period of time forecast unemployment, industrial production, gross domestic product and other macroeconomic variables. They also used IS-LM model to express that if bonds and bank loans are imperfect substitute, then an open market operations that decrease reserve will also decrease bank loans, which will affect equity and thus stock market.

Roberto Rigobon & Brian Stack (2003) noted that monetary policy does not only have impact of stock returns, rather movement in stock markets can also have a significant impact on macro economy and therefore likely to be an important factor in the determination of monetary policy. Such impact comes primarily through two channels, the first is that movement in stock prices influence aggregate consumption through the wealth channel, and the second is that stock prices affect the cost of business financing. Because of these two channels, stock market movement becomes an important determinant of monetary policy decisions. Despite the importance of stock market movement on monetary policy decisions, there has not been significant evidence measuring the US federal fund rate reaction to the stock market.

However, Martin Sola et al (2007) argued that it is difficult to estimate the monetary policy reaction, due to the simultaneous response of the stock market to monetary policy reaction. Because it is quite difficult to discover any monetary policy instrument that would affect stock returns, without being correlated with interest rate movement, the simultaneous determination of interest rate and stock returns.

2.3 Monetary Policy

Monetary policy has both operational and intermediate targets, the operational targets of a monetary policy is an economic variable which the Central Bank want to control and indeed can control to a very large extent on a day-to-day basis through the use of monetary policy instruments. While the intermediate target is also an economic variable by which the Central Bank can control with reasonable time lag and with

relative degree of precision and which is relatively stable or at least predictable relationship with the monetary policy goals. The examples of monetary policy intermediate targets are money supply, interest rate, exchange rate etc.

The efficient conduct of monetary policy is one of the major responsibilities of a country's central bank, which it tends to pursue in order to affect other macroeconomic outcomes which tend to achieve both external and internal stability. However, monetary policy is usually confronted with the problem of managing excess liquidity, rapid expansion in credit as well as excess foreign exchange and capital inflows. Developing economies are usually confronted with liquidity shortage and inflationary pressure which is as a result of overheating of the economy, effective monetary policy tends to curb these problems.

Monetary policy directly influences the value and cost of credit with the level of economic activity, while macroeconomic aggregates such as output, employment and price in turn affect the stance of monetary policy through several other ways such as interest rate, credit rate and exchange rate. The goals of monetary policies are the same as macro-economic goals in a country, and since the central bank does not have a direct control over these goals, they choose targets which it uses to achieve the goals.

2.3.1 Monetary Policy Tools

Monetary policy tools are those instruments that central bank in a country manipulates, to control monetary policy targets in order to achieve the monetary policy objectives. There are three different monetary policy tools namely:

- Open Market Operation (OMO)
- Discount Rate
- Reserve Requirement Ratio

Open Market Operation (OMO)

Open market operation occurs when the central bank alters monetary base, by buying or selling of financial securities in the open market. Each country conducts its OMO in different forms. Ireland (2006) identified that US OMO takes place in two ways. The first is that Federal Reserve Bank buys US government securities in the open market, to increase the monetary base. Secondly, securities are sold by the US Federal Reserve Bank in the open market to decrease the monetary base. Open Market Operation has permanent effect on monetary base and sometimes it is used as a temporary solution by which the Federal Reserve Bank engages in different types of transactions. Some of these transactions are Repurchase Agreement (REPO) and Matched Sales Purchase Transaction (Reverse REPO).

Open market operations alter monetary base with the money supply, because the Central Bank sells these securities to either the commercial banks or individuals. When commercial banks buy securities, it reduces their cash reserve. And when individuals buy directly, they make use of their chequing accounts which reduces commercial banks cash reserve also. In summary, the central bank uses OMO to alter monetary base, banks cash reserve, deposit lending and money supply (Begg et al, 1997).

Discount Rate

Discount rate is the interest rate that the Central Bank charges when commercial banks want to borrow money. By setting the discount rate at a static level in excess of the general level of interest, the bank can induce commercial banks voluntarily to hold additional cash reserve. Hence bank deposit is a lower multiple of bank cash reserve, the money multiplier is reduced and the money supply is lowered for any given level of monetary base.

A higher discount rate makes discount borrowing less attractive to banks. This will therefore reduce the volume of discount loans, while a lower discount rate makes borrowing more attractive to banks, which increases the volume of discount loans. However, the discount rate does not have major influence on monetary base which is money supply. But it has more impact on stock market because it is used to inject liquidity into the financial system.

Reserve Requirement Ratio

Reserve requirement rate is the minimum ratio of cash reserve to deposit that the Central Bank requires commercial banks to hold. If the reserve requirement ratio is in force, banks can hold more than the required cash reserve, but they cannot hold less. When cash falls below the required amount they must immediately borrow cash from the central bank to restore their required reserve ratio (Begg et al, 1997).

When the Central Bank increases the reserve requirement ratio, its intention is to restrict the commercial banks to create fewer deposits and to undertake less lending than otherwise they would have wished to. In essence the reserve requirement ratio acts like a tax on banks, forcing them to hold higher fraction of their total asset as banks reserve and lower fraction as loans earning high interest rates (Begg et al, 1997). One of the major disadvantages of using reserve requirement ratio as an effective monetary policy tool is that, in most countries reserve requirement ratio is adjusted by act of parliament which mostly takes time.

2.3.2 Monetary Policy Targets

These are the intermediate targets by which the central bank tends to pursue with effective implementation of monetary policy tools in order to achieve broad monetary policy objectives. Examples of monetary policy targets are money supply, interest rate and exchange rate stability.

Money Supply

Money supply has several meanings, which are depended on the degree of liquidity chosen to define an asset as money. All the definitions of money supply buttress the fact that money deposit at commercial banks, savings and loan association, credit union and mutual savings at banks are integral part of money supply.

Thomas Pally (1993) defined money supply as the total amount of liquid or near liquid asset in the economy. Money supply is measured with monetary aggregates which use four different criteria to categorize money supply from narrowest to the broadest view namely M0, M1, M2 and M3. M0 represents the sum of currency in circulation plus bank reserve with the central bank, while M1 represents M0 plus current chequing account plus deposit account transferable by cheque, M2 represents M1 plus savings account and non interest bearing deposit. Finally, M3 represents M2 plus all private sector deposit and certificate of deposit plus foreign exchange deposit with banks.

The central bank uses several different instruments in order to manipulate excess reserve in the banking system and thus the level of money supply in the economy at any point in time. Some of those instruments are Reserve Requirement Ratio, Discount Rate and Open Market Operation.

Pollin (1991) observed that there are several new theories over the years which have been developed to challenge the Keynesian neoclassical theory, which states that money supply grows strictly through central bank initiatives. This is through the process of exogenous financial market pressure. The new theories he pointed out are of the view that endogenous factors within the financial market are the basic determinants in the variation in money supply growth and credit availability.

Interest Rate

Borrowing and lending in the financial market to a large extent depend on the market rate of interest where demand and supply forces play significant role. There are several definitions of interest rate but each of the definitions centered on the single fact that it is the cost of borrowing money. Investopedia world defines interest rate as the amount charged, expressed as a percentage of the principal by a lender to a borrower for the use of asset (Berko, 2009). An interest rate is often expressed as an annual percentage of

the principal. Interest rates are often expressed in effective annual rate (EAR) basis, which is the total amount of interest that will be earned at the end of one year.

However, banks also quote in terms of Annual Percentage Rates (APR) which is the amount of simple interest earned in one year without compounding. Because of the absence of compounding in APR its quotes is typically less than the actual interest earned. In order to calculate the actual interest earned an APR is converted to EAR.

Several theories have been developed to explain the term structure of interest rate and the resulting yield curves, such as the expectancy theory, liquidity preference theory, preferred habit hypothesis theory and market segmentation theory (Fabozzi et al, 2009).

2.4 Overview of Central Bank of Nigeria (CBN) Monetary Policy Framework

To control inflationary pressure over the years the CBN has focused on targeting monetary aggregates. During the 1960s through the beginning of the 1980s the CBN relied mainly on direct control measures rather than using market instruments. Some of the direct measures they adopted were reserve requirements, fixing of interest rate, sectoral credit allocation etc. This regulation hampered and affected the development of both the money and capital markets.

The adoption of indirect market instruments such as the interest rate deregulation and open market operation (OMO) improved the resources allocation efficiency in both capital and money markets. However, the deregulation of interest rate by CBN has a tremendous effect on the monetary policy transmission mechanism, as well as an effective control of monetary policy. This mechanism involves the instruments to control the supply of cost of settlement balances, the interest rate at which bank balances are supplied and the operating targets which are macro-economic goals. Because there is a relationship between the CBN policy rate and other money market interest, exchange rate, bank lending rate and asset pricing, this has a direct impact on aggregate demand and price stability.

There was a large deviation between Minimum Rediscount Rate (MRR) and short term interest rate, which caused high risk and uncertainty and weakened monetary policy transmission mechanism before the introduction of Monetary Policy Rate (MPR) in 2006, which is an indication of inefficiency in inter-bank market (Egbuna, 2008).

Monetary policy in Nigeria has undergone three major phases namely, the era of application of direct control, the era of application of market instrument which is the indirect control and finally the era of intense reform of strategy and institution. However, the dual objectives of monetary policy implementation which is price stability and economic growth are still maintained. There are other macroeconomic objectives that monetary policy tends to achieved such as full employment, stable long

term interest and real interest rate. However, in pursuing these objectives the monetary authorities are aware of the tradeoffs among these macroeconomic objectives, for instance in trying to achieve full employment the economy must tolerate higher inflationary pressure.

Central Bank of Nigeria adopts two techniques of monetary policy control which are called the monetary policy instrument which are divided into two parts namely direct and indirect instrument. Direct instruments of monetary policy include approaches like interest rate regulation, selective credit control and moral suasion. These approaches have direct impact on the economic aggregates (Egbuna, 2008).

While indirect monetary policy includes those market weapons that the CBN uses to influence money supply in the economy at the same time achieved broad macroeconomic objectives. This includes Open Market Operation (OMO) which entails the trading of government securities with the objective of controlling money supply which will influence the bank deposit rate and lending rate. Another indirect instrument is the discount rate which is the price paid by owner of a security to CBN for converting the securities into cash. The essence of this is to influence the cost at which commercial banks borrows from CBN. Finally, the reserve requirement, which is designed to protect customers deposit by ensuring some minimum level of bank liquidity. It is expressed as a percentage of customers deposit and it predetermines the maximum amount of credit that can be created by the banking system.

Monetary policy has undergone different transformational stages in Nigeria although its objective remains the same. Before the bank consolidation which was done in 2005, these transformations include the shift from the use of direct monetary policy control to indirect control monetary control measures and the shift from short-term monetary framework to a two-year medium-term framework.

Before the introduction of Structural Adjustment Program (SAP) in the 1980s, the direct monetary control measures were mainly used, which were cash reserve requirement, credit ceilings, sector credit allocation, imposition of special deposit and administrative fixing of interest rates. This was due to the underdeveloped nature of both the Nigerian money and capital markets. These direct measures created inefficiencies and distortions in resource allocation and utilization in the domestic economy, which ushered in the period of indirect credit control which was after the implementation of the structural adjustment program (Egbuna, 2008).

During this era otherwise known as Post-SAP Era, in order to foster the era of efficient resource allocation of funds in both the capital and money markets, the indirect monetary policy was implemented which was anchored with other market instruments in monetary policy management. The two major periods of short-term monetary policy framework was between 1986-2001 during which, Open Market Operations (OMO)

was conducted using Treasury Bills which was the major monetary policy instrument as at that time. OMO was complimented with other instruments which include Cash Reserve Requirement (CRR), Liquidity Ratio (LR), Discount Window Operations etc.

Despite the implementation of this market instrument, most of the financial targets were not achieved rather it was improved as compared to the previous era. Between 2002 and 2005 was the era of two-year medium term monetary policy framework with the objectives of freeing monetary policy from the inconsistencies and minimize over reactions due to temporary shocks. Under this framework, monetary policy guidelines are open to half-yearly review that is depended on the developments in financial market in other to attain medium-to long-term goals. These goals were mainly macroeconomic goals of single inflationary digits and stable exchange rate of naira. However, OMO and other monetary policy tools employed in the post SAP era are also used during this era mostly as compared to other tools.

The main focal point of monetary policy during this era was financial sectors reformation, which led to bank consolidation with a minimum deposit of 25 billion naira with Nigeria Deposit Insurance Company (NDIC). This was intended to minimize the macro economic instability that is caused by frequent banking sector distress. Because of the flexibility of this framework, there was an increase in Direct Private Foreign Investment in Nigeria's economy as a result of the recapitalization of banks in Nigeria. And virtually all the banks are listed on the Nigeria Stock Exchange, with capital market becoming more liquid and more capitalized. The banks now have access to funds to finance big investments which will generate into economic growth and development (Egbuna, 2008).

The present era is the post consolidation era, whereby the main objectives of monetary policy are maintained, and CBN adopted new strategies of achieving these goals and maintain sound financial systems. These strategies include gradual run-down of CBN holdings of TBs, zero tolerance on ways and means, aggressive liquidity mop-up operations, frequent OMO sales supported by discount windows operations, unremunerated reserve requirements, increased coordination between the Bank and the fiscal authorities, restructuring of debt instruments into longer tenor debts and increased deregulation of foreign exchange and occasional foreign exchange swap.

The Central Bank of Nigeria (CBN) has three targets that it uses monetary policy to achieve, which are namely operational target, intermediate target and ultimate target. CBN manipulates the operating target which is the reserve money which has substantial direct control to influence the intermediate target which is broad money supply which impacts on the final objective of monetary policy, such as inflation, full employment etc (Egbuna, 2008).

The CBN uses a nominal anchor which is the technique of fixing a nominal variable in an economy with the view of achieving macroeconomic goals (Egbuna, 2008). There are two types of nominal anchor used by CBN namely quantity based nominal anchor and price-based nominal anchor. The quantity based nominal anchor targets money (money supply), while the price-based nominal anchor targets exchange rate or interest rate. In other to use this monetary policy of nominal anchor to achieve the desired result, the two variants may not be controlled at the same time. For instance, the price-based nominal anchor variable of exchange rate and interest rate cannot be pegged at the same time, that is, when one is controlled the other is allowed to be determined by market forces. The Central Bank of Nigeria adopts the International Monetary Fund (IMF) financial programming framework which is updated frequently based on the economic development. CBN reviews economic development in Nigeria over a period of time and uses it to forecast the future trend. The monetary policy formulation is formulated based on the anticipated future trend.

2.5 Overview of Bank of Ghana (BoG) Monetary Policy Framework

The Bank of Ghana (BoG) has undergone three major monetary policy transformational changes since its inception in 1957 till date, during which it adopted three monetary regimes, which are direct controls, indirect monetary targeting, and inflation targeting under different governments (Bawumia, 2010). Financial sector development and reforms have also taken place alongside the monetary policy regimes. These include regulatory and legal reforms, capital market and money market reforms, banking reforms, currency redenomination reforms, payment system reform, rural banking reforms, and accessing the international capital markets (Bawumia, 2010).

According to Bawumia (2010), Direct Controls refer to the one-to-one correspondence between the instrument (such as a credit ceiling) and the policy objective (such as a specific amount of domestic credit outstanding). Direct instruments operate by setting or limiting either prices (interest rates) or quantities (amounts of credit outstanding) through regulations. The most common direct instruments are interest rate controls, credit ceilings, and directed lending (lending at the behest of the authorities, rather than for commercial reasons), and capital controls. In addition, there were restrictions on market entry into the financial sector, and government ownership or domination of banks (Bawumia, 2010).

After independence in 1957, economic policies in Ghana generally followed the dominant paradigm in development economics of the time. The case for adopting an import-substitution interventionist strategy of development was persuasive and many developing countries embraced it. Economic policies of this era emphasized controls over interest rates, exchange rates, commodity prices, state ownership of enterprises and import substitution as the vehicles for economic development with social equity (Bawumia, 2010).

The Bank of Ghana in 1963 was empowered to impose reserve requirements on total deposits as an instrument of monetary control. Furthermore, there was an implicit monetary growth target of a maximum of 15 percent set for the Bank of Ghana. With its new powers, BoG's formal monetary policy started with the introduction of credit control regulations in April 1964. This ushered in the era of monetary policy through direct controls that was to last through the early 1980s. Under this monetary policy regime, credit was controlled and directed to government's priority areas. There was the desire to direct credit away from trade (mainly imports of consumer goods) finance towards the "productive" sectors (Bawumia, 2010).

Specifically, the credit control regulations of 1964 stipulated inter alia that Banks were required to:

- Hold 100 percent foreign currency cover with the Bank of Ghana for sight balances due to banks abroad.
- Hold 48 percent of their deposit liabilities in the form of liquid reserves between March and August and 54 percent between September and February, which is the main cocoa season.
- Maintain a cash ratio of 8 percent.
- Obtain approval from the Bank of Ghana Credit Control Committee for individual loans exceeding ₵10,000 for purposes other than agriculture and industry.

Importers of consumer goods were required to deposit with banks a minimum down payment of 15 percent with the Bank of Ghana. This policy was meant to discourage the import of "non-essential" consumer goods.

The credit control regulations proved to be ineffective because they were flouted by the Government itself, which put pressure on the banks (which were government-owned) to grant loans to state enterprises which were running at losses.

During this period, the interest rate tool was dormant, remaining fixed at 4.5 percent between 1961 and 1965 even though inflation rose from 6.2 percent to 22.7 percent over the same period. However, inflation was zero in 1958. Real interest rates therefore turned negative between 1961 and 1966 with the incentives for borrowers and disincentives for savers. The demand for credit was consequently high.

In January 1966, against the background of increasing inflation and declining foreign exchange reserves, the Bank of Ghana decided to bring the interest rate tool into play. There was an increase in the Bank discount rate from 4.5 percent to 7.0 percent and commercial banks were asked to reflect this in their lending rates. This was an acknowledgement that the policy of trying to maintain artificially low interest rates to supposedly help the productive sectors of the economy had failed.

However, the end of the Bretton Woods system by 1971 unleashed two decades of financial globalization, encouraged by the deregulation and the liberalization of financial and other markets. The dominant view and ideology was that of the efficiency of free markets and the inefficiency of the state. The World Bank and the IMF both headquartered in Washington DC, became the poster boys for this free market ideology.

In the 1983 Budget Statement, the government indicated the shifting of Ghana away from the socialist economic philosophy with its direct monetary control towards the capitalist free market philosophy. The control of inflation therefore began taking centre stage on the agenda of the central bank. Control of the money supply (Monetary Targeting) was to be undertaken through indirect monetary instruments like open market operations, reserve requirements, and central bank lending facilities.

The Bank of Ghana's strategy for inflation management under the indirect monetary instruments regime was based on the monetarist view that inflation is mainly a monetary phenomenon. This means that to control inflation you have to control the growth of the money supply in the economy (Bawumia, 2010). Since the central bank cannot control the money supply directly, it uses a number of instruments to do so indirectly. The indirect monetary instruments that have been used include reserve requirements, open market operations (OMO), repurchase agreements (REPOS), and rediscount facilities. These instruments are used to impact base money (the operating target) which in turn impacts broad money (the intermediate target) and finally prices (the final target).

The performance of the Ghanaian economy in the 1984-2000 era can broadly be divided into two periods; 1984-1991 which was characterized by relative macroeconomic stability and the 1992-2000 period which was marked by relative macroeconomic instability.

Given the background of macroeconomic instability during 1992-2000, the immediate focus of the new government was to stabilize the economy. A fiscal and monetary policy framework was put together in 2001 to engineer a switch from a high inflation, interest rate and exchange rate depreciation regime to a low inflation and interest rate regime with exchange rate stability. The assessment was that monetary targeting had not yielded the desired results judging from the frequent divergence of actual monetary growth from target and thus the non-achievement of the ultimate goal of policy. So the Bank of Ghana, in line with its new mandate to maintain a primary focus on price stability, has been practicing and implementing inflation targeting as its main monetary policy objective. Inflation targeting is a framework for the conduct of monetary policy, in which the central bank uses its instruments in order to drive inflation near a pre-announced target.

The Bank which prior to 2001 had no operational autonomy began asserting its instrument independence in counteracting unusual movements in the money supply and prices by using any of the instruments of control to maintain and promote a balanced growth of the economy (Bank of Ghana, 2008).

Monetary policy instruments, particularly the prime rate, were effectively used to influence inflationary expectations and sterilization of excess liquidity. The rate of growth of the monetary aggregates declined significantly from 2003 levels, leading to sustained declined in interest rates and a build-up in foreign exchange reserves. Year-on-year growth in reserve money declined by 6.8 percentage points from a growth rate of 45.6 percent in June 2002 to 38.8 percent in June 2003. Also, the growth of broad money (M2) fell from a growth rate of 44.5 percent in June 2002 to around 43.0 percent in May 2003. However, foreign exchange growth increased by about 10 percent from US\$418 million at the end of December 2002 to US\$462 million by the end of May 2003 (NTHC Research, 2005).

Reserve money grew at 18.8 percent compared with 33.4 percent in 2003. Net Foreign Assets (NFA) of the Bank of Ghana, which benefited from improved inflows from official loans and grants and cocoa export receipts continued to be the main source of growth in reserve money. Currency outside banks went up by 15.2 percent compared with 35.7 percent in 2003, as a result of Bank of Ghana's open market operations (OMO) and the slower pace of purchases of the 2004/2005 cocoa crop. Broad money (M+) rose by 26.0 percent on year-on-year basis, significantly lower than the 37.8 percent recorded at end-December 2003.

Finally, of all the monetary policy regimes implemented since independence the inflation targeting regime (and the accompanying fiscal framework) has yielded the best performance thus far in terms of the key macroeconomic indicators. The Ghanaian economy was also more resilient to external shocks under the inflation targeting regime (2001-to date) than under the monetary targeting regime (1983-2001) and the direct controls regime (1957-1983). The Bank of Ghana's inflation targeting regime as implemented has been very supportive of economic growth.

2.6 Stock Market Risk and Return

According to Bodie et al (2009) casual observation and formal research both suggest that investment risk is as important to investors as expected return. While we have theories about the relationship between risk and expected return that will prevail in a rational capital market there is no theory about the level of risk we should find in the market place. Richard P et al (1999) noted that investors hold stocks because of two different reasons, first is the anticipated dividend that they expects to earn within the holding period and secondly, the expected capital gain when the stock is sold.

Stock market returns are the returns an investor generates out of the stock market, which could be dividend, paid to shareholders or the returns the investor earned in the secondary market by buying shares at a lower price and selling at a higher price. Stock market returns are not fixed assured however, they are subject to market risk. The stock market returns are variable in nature, which could be positive or negative because prices of the asset of an investment fluctuates in response to news about the fortunes of corporations and other macroeconomic effects on interest rate (Richard et al, 1999). These effects are not homogenous and may change from investor to investor depending on the amount of risk one is prepared to take and the quality of his stock analysis. When a manager makes an investment decision or an investor purchases a security, they have some views as to the risk involved and the likely return the investment will earn.

There are two different types of risk namely systematic risk and specific risk which is also known as unsystematic risk. Specific risks are those variability in return due to factors that are unique to the individual firm. For instance, they are risks that are associated to a single asset or small group of assets. Some examples of specific risks are industrial related problems, problems of Research and Development etc (Richard et al, 1999).

The best way that investors minimize specific risk is through portfolio diversification, because as more securities held in a portfolio increases, the overall variability measured by standard deviation diminishes very sharply (Rose, 2005). This happens because each security has its own specific risk, where the surprise of one stock is unrelated to the surprise of another stock. So by investing a small amount of these stocks that has an unsystematic risk, the weighted average of the specific risk will be close to zero in large portfolios.

Richard P et al (1999) supported these view when he noted that large portfolios have no specific risk because when more securities are added, the specific risk is diversified away. This implies that the market portfolio is perfectly correlated with the single factor which is an efficient portfolio, that lies on the security market line and when the market portfolio is the factor, the beta of the portfolio is 1.

However, systematic risk are those variability in return due to the dependence of factors that influence the return on all securities traded in the market or it could be defined as such risk that affects a large number of assets each to a greater or lesser degree. Richard P et al (1999) defined systematic risk as the impact of movement in the macro-economy which causes reactions in the security market.

Ross A (2005) identified three types of systematic risk that has influence in the stock market, namely inflation, gross national product and interest rate. He also noted that every stock has beta that is associated with these types of risk. The magnitude of the

systematic risk beta describes how great an impact a systematic risk has on stock return. Systematic risk captured by variation on the factors that affects stock returns is not reduced by diversification. An example of such a systematic risk is the impact of the recent global economic meltdown on the stock market, and another example is the impact of inflation on the whole economy. The effect of systematic risk on stock is measured by the beta coefficient, which tells how much stock responds to systematic risk.

The beta values of securities fall into three categories, namely defensive, neutral and aggressive. An aggressive security has a beta that is greater than 1, which means that its returns move proportional than the market as a whole. Stocks with high beta are highly desirable in an emerging market, but defensive share returns tends to understate those of the whole market because it offers more protection against falling market. Finally, neutral stocks are those that have beta value of almost 1 which runs parallel to those on the market portfolio (Brealey et al, 2006).

Furthermore, the return of a stock or its variability is usually measured by standard deviation and to quantify the difference in variability, we can estimate the standard deviation of a probability distribution. An asset return indicates the percentage increase in the value of an investment initially in such security. When an investment is risky, there are different returns it may earn as the probability of each of any possible return occurring could be calculated by a probability distribution. Given the probability return of an investment, the expected return is calculated as a weighted average of the possible return, where the weight corresponds to the probabilities.

However, the two common measures of risk of a probability distribution are its variance and standard deviation. While variance is the common measure of risk, they do not however differentiate between upside and downward risk, which makes other measures such as semi-variance and expected tail loss as effective measures of upside and downward risk. If an investment return is riskless, it means that it never deviated from the mean; its variance will be zero. Variance increases with the magnitude of the deviation from the mean. Standard deviation of a return is also referred to as a return volatility. If one could observe the probability distribution that investors anticipated for different securities it becomes possible to compute the expected return and volatilities and explore the relationship between them. Some of the ways of estimating and comparing risk and return is by extrapolating from historical data because past returns normally mirror future returns in a stable economic environment.

An investor would not choose to hold a portfolio that is more volatile unless it is expected to earn a higher return, which means that a positive relationship between risk and return must exist. Investments with higher volatilities tend to have higher average returns than the ones with low volatility, which means that risky investment must offer investors higher average return to compensate for the extra risk they are taking hence

investors are risk averse (Robert, 1991). Investments in large portfolio are in conformity with this principle, which states that expected return should rise proportionately with volatility, but when it comes to individual stocks, it does not necessarily hold. Large portfolios have lower volatilities because most of the individual stocks in the portfolios do not move in the same direction, but individual large stocks have higher volatility, but there is no clear relationship between volatility and return.

Richard P et al (1999) observed that if financial managers want to achieve corporate goals, they required a well developed financial market where transfer of wealth from lenders and borrowers are efficient in both pricing and operational cost.

In this market which is known as efficient market a trader can purchase securities and sell back with profit without incurring any risk because of the arbitrage opportunity. Market efficiency evolves from the notion of perfect competition which assumes that there is free and perfect information about the market, investors are rational and no tax or transaction cost is incurred.

The weak form of Efficient Market Hypothesis (EMH) assumes that all present share prices fully reflect all the information contained in past price movement. This means that if this level of efficiency holds, there is no value in trying to predict future price movement by analyzing past trends. The semi strong form of market efficiency states that current price trend does not only reflect past price movement but rather all publicly available information. Finally, the strong form of efficient market hypothesis states that current market prices reflect all relevant information even when privately held (Richard et al, 1999).

According to Berk et al (2007) based on the research that is carried out between US stock, large stock such as S&P 500, corporate stocks, Bonds, and Treasury Bills between 1926 to 2004, they observed that while volatilities are quite measures of risk when evaluating a large portfolios, it does not adequately explain the returns of individual securities.

There are different divergent views of the source of stock price movement such as the random walk hypothesis theory, fundamentalist view, technicalist view, macro economist hypothesis view. But all of the different views agreed to the fact that macro economic factors play a significant role in stock price movement.

3 Methodology

In this section, we presented our choice of study methods, data collection and analysis. We explained the theories behind the chosen method, reasons why we chose a particular method and how we intend to use it to achieve our study objective.

3.1 Introduction

In this section we presented our choice of methods with reason that supports the methods chosen. We employed both inductive and deductive research approaches. Deductive approach was used when testing the hypothesis and making decision on accepting or rejecting the hypothesis, which was based on the logic of the statistical inference, while conclusion was reached based on the result with inductive reasoning.

The reliability and validity of any investigation is depended on the choice of a proper data collection and analytical methods, which are depended on the problem being investigated (Saunders et al, 2007). This study is a regression and correlation type of descriptive research which attempts to establish the relationship between stock market returns and monetary policy instruments (inter-bank lending interest rate and money supply (M2)). The study therefore employs a times series analysis to examine the effect of interest rate and money supply on stock market returns.

There are different types of investigation which are classified based on what the researcher already knows about the problem statement before investigation. In a field where knowledge and theories have already been developed, most times the researcher test the hypothesis, which is exactly the approach we adopted here.

In an investigation that hypothesis are tested, it is very important that enough knowledge exist, hence that the assumption of the reality will be deduced from the theory that is already known (Saunders et al, 2007). We adopted partly a descriptive investigation hence there may be other ways for investigating the relationship between these monetary policy instruments and stock market return. However, a descriptive study is characterized by the fact that there already exists much knowledge in this problem area (Saunders et al, 2007). However, the difference is that we are exploring a new case study which had not been investigated before.

3.2 Data Collection Method and Source

Sound research to a large extent is depended on the method of data collection which is guided by the intended analytical method. There are two methods of data acquisition,

namely quantitative and qualitative methods, and it is very important to choose a method which is quite suitable for the problem statement. For this research we employed a quantitative method which is based on longitudinal approach that is secondary data collection method.

Hence a quantitative investigation is a way of transforming information to number and quantities from which a statistical analysis is done (Saunders et al, 2007). We used all share price index, which represent stock market returns, money supply growth rate as well as inter-bank lending rate which are all historical data. This quantitative method aims at describing results from measurement.

Because a regression and correlation methods are used, the time series of the data is very important, since the longer the time the more accurate the forecast becomes. The data collected did not appear on the same format. For instance, the interbank lending rates are changed quarterly by CBN and BoG, money supply appears in annual raw format, while the stock market return which is extracted from Nigerian Stock Exchange All-Share price index and the Ghana Stock Exchange All-Share price index annual reviews published monthly. The time series that we adopted is 20 years from 1990 to 2010 for Nigeria. However, since the Ghanaian stock exchange market only started in 1991 and started operations in October 1992, so we were able to get its stock market All-Share Index from 1992. The data collected for this research work is published in 2009 CBN statistical bulletin and Bank of Ghana Annual Reports.

3.3 Data Standardization

We used secondary data collection method, although all the data that we collected came from the same source, they appeared in different format, some in percentage format and others in raw format, there became need for the standardization of the data so that to ensure consistency and comparability between the variables.

Monetary policies in Nigeria and Ghana are formulated quarterly, which implies that the inter-bank lending rate which is one of the variables that we used in this study likely changes four times within a year, and since we are looking at the annual data, we take a yearly average to represent the annual rate which is on percentage format.

However, money supply appears in annual and raw format, which also calls for standardization. We used an annual percentage change in growth rate starting from the year before our base year which is 1989, so the annual percentage change represents the annual growth rate for that year.

Finally, all-share price index which represents stock market performance is published monthly and daily by the Nigerian Stock Exchange and the Ghanaian Stock Exchange

markets respectively in raw forms in billions of naira and millions of Ghana cedi respectively. To get the annual returns, the first step that we took was to take the yearly average, and then from the previous year before the base year of 1990, we calculated the annual percentage change which represents the annual returns.

3.4 Choice of Data Analysis Method

We presented the standardized data in a percentage format and used PSAW statistics software version 18 to estimate an ordinary least square (OLS) regression analysis which tries to establish the relationship between inter-bank lending interest rate and money supply (m2) which are the independent variables with the dependent variable being stock market returns. And in other to show the statistical significance of the relationship between the variables and the regression model we used ANOVA to measure the t-test and f-test respectively. We used product moment Pearson correlation coefficient to determine the predictor characteristics and causal relationship between the variables.

This correlation test measures the linear relationship between two or more variables. Usually, a correlation co-efficient of 0.5 or more is deemed to be well correlated while correlation co-efficient less than 0.5 is considered not correlated. The correlation analysis serves two important purposes. First, it shows interaction of dependent variables with the independent variables, and secondly, it assesses the presence of multicollinearity between independent variables.

3.5 Choice of Research Variables

Independent variables: The independent variables used for this research are interbank lending interest rate and money supply (m2). These are chosen because they are the intermediate monetary policy instruments, which the CBN and BoG manipulate with the use of monetary policy tools such as OMO, reserve requirement ratio and discount rate to achieve monetary policy goals. We chose interbank lending interest rate because it is the major determinant of other market rates of interest, and money supply (m2) is chosen because that is what the Nigerian and Ghanaian central banks manipulate in other to achieve monetary policy goals.

Dependent variable the dependent variable we used is stock market return, which shows how well the stock market performed overtime. We chose this variable because the return shows shareholders gain or loss over the period.

3.6 Research Validity and Reliability

Validity: Validity of results is very important in every research because it shows the extent to which a concept, conclusion or measurement is well founded to the existing

theories in the real world (Saunders et al, 2007). There are two dimensions of validity, namely internal and external validity. Internal validity is strengthened by increasing the control variables, while external validity is represented by research findings and can be applied to the real world problem. The construct validity for this study was estimated to deduce hypothesis from theories that are relevant to the problem statement (Saunders et al, 2007), where the data collected and standardized are sources of evidence of the validity of the study. A link is also established with the problem statement, research objective, research hypothesis, theoretical review as well as research findings. This link reduced the risk of measuring unconnected variables.

However, there is an aspect of this thesis result that is not in conformity with past theories, which is the relationship between stock market return and interest rate, where most past researchers found to be negative, but our results showed a positive relationship in both countries under investigation. The question is, does that make the thesis not valid? We defended our findings based on the fact that economic variants in the countries we are investigating are quite different from others studied in the past, and has well documented evidence that backed this argument up in section six.

Reliability: Reliability is something that is important to consider in all investigations. Saunders et al (2007) defines reliability as the consistency of a measure of a concept. Reliability is an essential prerequisite for validity. There is a high possibility of getting a reliable measure, which is not valid. This may not apply the other way around because a valid measure must also be reliable. For a study to be reliable the source or measuring instrument must show a similar result independent of who conducts the research (Saunders et al, 2007).

The reliability of this research is based on the fact that the data used was published by capital market regulatory institutions, which are the Nigerian Stock Exchange Commission, Central Bank of Nigeria, Bank of Ghana and Ghana Stock Exchange. In addition to that, they are publicly available, which implies that if another person decides to investigate the same problem using the same time horizon, used variables and standardized procedure, s/he is expected to arrive at the same result.

However, there was a problem because the data were not standardized, as such it appeared in different formats, so we standardized the data before using the PSAW software to run the regression and correlation analysis. And in other to minimize error, we tested the statistical significance of the relationships between the dependent and independent variables and the entire model with t-test and f-test respectively. As results of these points mentioned here, we consider the thesis result reliable.

3.7 Multicollinearity

Multicollinearity occurs when two or more independent variables are strongly correlated on the same direction, as a result of that the standard error estimate is increased which results to decrease of result reliability. The existence of multicollinearity in a model leads to lack of statistical significance of individual variable thus the overall model might be statistically significant which is very common in models with small sample sizes. However, the result of this analysis did not show that multicollinearity exist, hence the relationship between the explanatory variables are positive but not strongly correlated.

4 Data Presentation and Results

In this section, we presented the empirical data as well as the research model, and used the PSAW statistics software version 18 to get the statistical result of ordinary least square regression analysis which tends to establish the relationship between the dependent and independent variables, and also partial correlation to establish if there is a correlation between the dependent variable and each of the independent variables.

4.1 Data Presentation

The soundness of any research work to a large extent is depended on the reliability of its empirical data (Saunders et al, 2007). We presented the statistical data from Central Bank of Nigeria (CBN) monthly statistical bulletin, annual all-share index stock returns percentage change; interest rate and money supply were retrieved from the CBN statistical bulletin. The interest rate and money supply in Ghana is retrieved from Ghanaian central bank, while the stock market return data is retrieved from Ghana Stock Exchange annual reports.

Table 4.1: YTD, Interest Rate and Money Supply from Nigeria (1990-2009)

Year	YTD % change (Rt)	Interest rate (Interbank lending rate) r_0	Money Supply (yearly % change) b_1
1990	34.4	18.60	31.4
1991	37.9	14.32	21.5
1992	26.7	16.10	32.2
1993	24.6	16.66	34.9
1994	34.9	13.60	25.6
1995	53.4	12.61	15.7
1996	34.4	11.69	14.6
1997	18.7	4.80	13.8
1998	-21.7	5.49	18.2
1999	-12.2	5.33	24.9
2000	17.3	5.29	32.4
2001	27.7	5.49	21.2
2002	19.5	4.15	17.7
2003	24.8	4.11	19.4
2004	37.2	4.19	12.3
2005	-8.7	3.83	19.6
2006	18.5	3.14	30.1
2007	46.9	3.54	30.7
2008	-0.78	3.21	36.6
2009	-123.8	2.89	12.80

Sources: CBN Statistical Bulletin Special Edition 2008 Vol. Sea1 published 30/10/2009