CHRISTIAN SERVICE UNIVERSITY COLLEGE

INVESTIGATING THE EFFECT OF INFLATION RATE AND INTEREST RATE ON STOCK PERFORMANCE IN GHANA (2008-2017)

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BY

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JUNE, 2018

DECLARATION

Candidate's Declaration

I hereby declare that this dissertation is the result of my own original research and that no part of it has been presented for another degree in this university or elsewhere.

Candidate's Signature …….. Date ……

Eric Frimpong
(Student)

Supervisor's Declaration

I hereby declare that the preparation and presentation of the dissertation were supervised in accordance with the guidelines on supervision of dissertation laid down by the Christian Service University College.

Supervisor's Signature …….. Date ……

Dr. Sulemana Mahawiya
(Supervisor)

ABSTRACT

The performance of the stock market has been empirically established as an important element for economic growth. In Ghana variations in macroeconomic indicators affect the performance of stocks. Moreover the mechanisms have not been widely studied. The study seeks to address whether macroeconomic indicators have significant influence on the stock market returns within the specified period. The study in using the stock returns as a proxy for the stock performance seeks to use causal research design to examine the effect of inflation rate and the interest rate on stock performance between the period 2008 and 2017. Within this time frame, in plotting the graph at the preliminary stages to establish the relationships between the proxy and the other two main variables (interest and inflation rates) annual data was used as a result of the minute changes in the monthly data but in running the regression monthly data was used in order to have enough data points. This study used time series data and secondary data from the world development indicators of the World Bank. A dynamic OLS regression technique was employed in analysing the data. The study established that, interest rate have a positive and statistically significant effect on stock performance. Per the results, a negative and statistically significant effect of inflation on stock performance is observed. Again, a positive effect of GDP on stock performance which is also statistically insignificant was established. Furthermore, exchange rate exhibited a positive and statistically significant effect on stock performance. The study therefore recommends that, the Central Bank must strive to maintain the interest rate, exchange rate and inflation rate at low levels to improve stock performance. High inflation rates erode investments especially real interest rates. The outcome of the study concluded that, within the ten year period, interest rate and stock performance had a positive relationship whiles inflation rate and stock performance had a negative relationship.

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My first and foremost gratitude goes to God Almighty for seeing and guiding me through this project work. My sincere appreciation also goes to my supervisor, Dr Sulemana Mahawiya. Your guidance and support was very instrumental in the successful completion of this work.

DEDICATION

This dissertation is first of all dedicated to my dear mother Madam Ama Agyeiwaa whose vision and financial support has made this dream a reality. Finally to my lovely wife Ms. Mavis Osei Asibey and my newly born baby boy Okatakyie Kwadwo Frimpong who were my source of strength when the going got though. I say God bless you bountifully.

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CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Stock markets promote savings and investments by providing an avenue for portfolio diversification to both individuals and corporate investors. These markets fuel economic growth through diversification, mobilizing and pooling of savings from different parties and availing them to companies for optimal utilization. Stock markets, as Olweny and Kimani (2011) observed, encourage investors with surplus funds to invest them in additional financial instruments that better matches their liquidity preference and risk appetite. In that situation , better savings mobilization increases the savings rate, thereby stimulating investments and subsequently earning investment income to the other owners of those funds.

1.1.1 The Ghana Stock Market Performance

The stock market is a market that deals with the exchange of shares of publicly quoted companies, government, corporate and municipal bonds among other instruments for money. The establishment of a stock exchange in Ghana was recommended by the Pearl Report of the Commonwealth Development Finance Company Limited in 1969. The Ghana Stock Exchange (GSE) was established in July 10, 1989 as a private company limited by guarantee under the Companies code of 1963 and officially launched in 1991, and is now one of the most active markets in Africa with currently 43 listed companies and a market capitalization of GH52.69 billion as at December 31, 2016 whiles the GSE Composite index had increased by 6.35 percent since January 1, 2017 making it one of the vibrant stock market in Africa. As a capital market institution, GSE plays an important role in the economic development of Ghana. Long-term investments

are made liquid since securities can be transferred amongst the participating public. The Stock market makes it possible for the economy to ensure long-term commitments in real capital (Ologunde et al., 2006). The stock market has also enabled companies to engage local participation in their shares ownership, thereby giving the Ghanaian a chance to own shares of reputable companies.

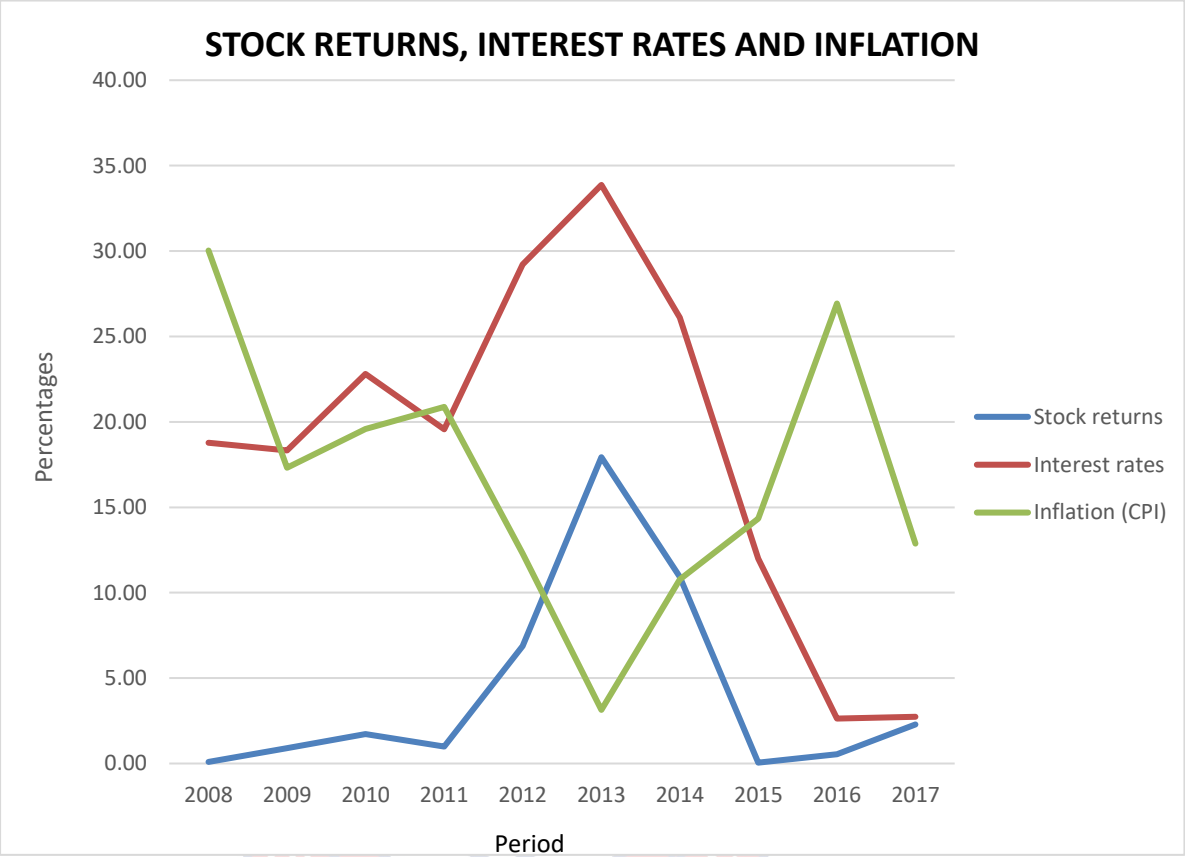

Fig.1 Relationship between Stock Performance, inflation rate and Interest rate of Ghana (2008 to 2017)

Considering Fig. 1, the stock performance of the Ghanaian economy from 2008 to 2017, the average stock returns was 4.23% as compared to the average stock returns of 5.20% and 7.10% for South Africa and Nigeria respectively. This scenario clearly indicates that Ghana's stock performance is poor. A critical analysis of Fig 1 indicates that the stock performance of Ghana was at its best in the year 2013 which recorded an

average return of 17.93%. In the same year, interest rate also reached its all time high with an average of 33.87%. While both interest rate and stock returns are recording their high rate, inflation is at its lowest. However, the lowest rate of interest was recorded in 2016 at a rate of 2.63% while the GSE had its all time low in 2008 with a rate of 0.09%. It must also be emphasized that from the beginning of the period under study, the Ghanaian economy experienced some high interest rate figures rose to 33.87% and thereafter fell to 26.10%, 12%, and 2.74% in 2014, 2015 and 2017 respectively. Within that same period, the GSE market experience similar trend. It can be observed that, there is some level of relationship between interest rate and GSE returns hence, this study seeks to make quantitative analysis to unravel the extent to which they relate using the stock returns as a proxy for stock performance.

From the graphical presentation on the relationship between stock returns and inflation rate of the period under study, in 2008, the economy recorded its all time high average rate of 30.03% and saw a quantum drop to 17.32% but thereafter rose again in 2010 and 2011 to 19.58%, 20.87 respectively. Also, while inflation rate is recording its all time high of in 2008, the stock returns had recorded one of its lowest of 0.09%. Therefore in conclusion, based on the analysis above, there seems to be a negative relationship between inflation and stock returns meaning that as inflation reduces, stock returns increases and vice versa. This conclusion however is drawn based on pictorial evidence so this study sought to empirically examine the relationship between these two variables.

The general knowledge for the relationship between interest rate and stock market returns is that interest rates and stock returns are negatively related. Higher interest rate due to strict monetary policy has consequences of negative effect on the stock market returns. This is so because higher interest rate reduces the value of equity as indicated

by the dividend discount model and therefore, makes fixed-income securities more attractive as an alternative to holding stocks. This affects the profit margin of the firm as it raises the cost of doing business and reduces the prosperity of investors to borrow and invest in stocks. On the contrary, lower interest rates due to expansionary monetary policy also improve stock market.

A decline in interest rate can also lead to an increase in the present value of future dividends. The relationship between exchange rate and stock market performance exist as a result of changes in foreign investment. The changing spot exchange rates facilitate the conversion of rates of return on foreign investment in stocks from one currency to another currency. When rate of return in an appreciating currency are translated into a depreciating currency, the adjusted rates of return increase and vice versa. Increasing foreign investments in a country's stock market causes the local currency to appreciate relative to the related foreign currency by increasing the foreign currency inflows. In turn, it makes the local currency to appreciate against a related foreign currency, the depictions of such relationships between stock and foreign currency markets have likely flows of bidirectional causality. The expectation is that international fund managers will re-adjust their stock market investment decision when depreciation and uncertainty adversely affect stock performance.

Based on the graphical analysis, the stock performance of Ghana seems to move unevenly, therefore this study sought to examine whether changes in inflation rate and interest rate have a bearing on the movement of the stock performance within the period of study.

There are various factors that influence the performance of the stock market. These include the rate of economic growth, monetary policies, political issues, fiscal policies, exchange rates etc.

1.2 Problem Statement

There is no doubt that, the stock market fulfills a central function in the economy, bringing together savers and Investors (providers of capital) on the one hand with companies and the state (borrowers) on the other. Without this mediator, the capital providers and borrowers would have to negotiate directly, which would generate heavy search and information costs. Whereas companies and the state often require large sums of long-term capital, most of the savers and investors want to provide small amounts for relatively shorter time periods. The stock market makes possible an optimal and efficient reconcilement of interests between these groups. Savers and investors can buy and sell securities on the exchange at any time, without directly affecting the companies (Dyer and Blair, 2014).

Emerging stock markets, like the GSE have been identified as being remotely integrated with the global capital markets. As a consequence, it has been argued that local macroeconomic variables rather than world risk factors are the primary source of equity return variation in these markets. Several macroeconomic and financial variables that influence the stock market have been documented with variables such as GDP, price level, industrial production rate, interest rate, exchange rate, current account balance, unemployment rate, fiscal balance being cited (Masila, 2010).

In particular, the relationship between interest rates and the performance of the stock exchange has been the subject of research by scores of researchers especially in the developed economies. Corrado & Jordan (2002) conclude that the relationship between

stock market index and interest rate is that they are negatively correlated. When the interest rate is low, the stock market index will increase and vice versa.

Kasman, Vardar & Tunc (2011) argue that the rationale for a relationship between interest rates and stock market return is that stock prices and interest rates are negatively correlated. A higher interest rate ensuing from contractionary monetary policy usually affects stock market return negatively as investors tend to borrow less, limiting their ability to invest in the securities market and vice-versa. Kibet (2011) found out that there is a bidirectional causal relationship between exchange rate and share price that is, negative causality exists in both directions. Nyamute (1998) concluded that there exist a positive relationship between stock prices and exchange rates. Another study in the same area by Chirchir (2012), found that there exists an insignificant negative relationship between share prices and interest rates.

It is argued that inflation and stock prices are inversely related (Jaffe and Mandelker 1976; Bodie 1976; Nelson 1976; Fama and Schwert 1977). This is contrary to prior expectation by the Fisher hypothesis of a one to one increasing relationship between stock returns and inflation. Further empirical test on the response of stock returns to inflation in the 1980's by Fama (1981), Gertler and Grinols (1982), and Solnik (1983), amongst others yielded similar results of negative relationship.

After evaluating these conflicting results and considering the techniques used in similar works done in Ghana, The study seeks to unravel the effect of only two macroeconomic variables such as interest rates, inflation rate on stock performance in Ghana with GDP and exchange rate acting as control variables using the OLS technique in estimating the unknown parameters in the regression model unlike in the similar works in Ghana.

1.3 Research Objectives

The main objective of the study is to examine the effects of exchange rate changes on stock market returns in Ghana. The specific objective of the study includes;

i). To determine the effect of interest rate on stock market performance.

ii). To explore the influence of inflation rate on stock market performance.

1.4 Research Questions

i). Does interest rate affect stock market performance?

ii). Does inflation influence stock market performance?

1.5 Research Hypothesis

In an attempt to achieve the set objectives and also find answers to the above questions the study sought to test the following hypothesis.

Hypothesis 1

H_0: There is no statistically significant relationship between inflation rate and stock performance in Ghana.

H_1: There is a statistically significant relationship between inflation rate and stock performance in Ghana.

Hypothesis 2

H_0: There is no statistically significant relationship between interest rates and stock performance in Ghana.

H_1: There is a statistically significant relationship between interest rates and stock performance in Ghana.

1.6 Limitation of the Study

There are various indicators that affect the stock performance but the researcher considered minority of the macroeconomic indicators which includes Interest Rates, Inflation Rates, Exchange Rates, GDP Growth Rate.

As a result of availability of data as well as time and space, the researcher considered a time span from 2008 to 2017. Some relevant macroeconomic variables were ignored due to availability of data.

1.7 Significance of the Study

For the part of policymakers and regulators, the findings are expected to draw attention to them on the need to ensure strict adherence to policies that would promote improvement in the performance of the share index. The outcome of this research enables the government and its agencies to be aware of the challenges facing the listed companies in stabilizing their performance.

The findings of this study assist the potential investors to better understand and analyze the changes resulting from exchange rates fluctuations and their effects on stock market returns. The study adds invaluable improvement on the existing theory and knowledge

on the changes that listed companies are going through in relation to exchange rate fluctuations.

The findings of the study contribute to the knowledge and existing literature in the field under investigation and provide a base for further research for students and other researchers conducting similar studies in other related fields. This study will serve as a rich source of literature to other researchers, and the limitation of this study may be built on by others studying on the same topic. It is also hoped that the output of this research would confirm or refute the existing knowledge about the impact of the exchange rate on the stock market returns, especially on the Ghana Stock Market performance.

1.8 Organization of the Study

The study consists of five chapters. Chapter one comprises the background of the study, statement of the problem, objectives of the study, significance of the study, and the organization of the study. Chapter two presents a review of the relevant literature on exchange rate changes in the stock market that will form the theoretical framework for the study. Chapter three gives a detail research methodology. It describes the sources of data and empirical design. Chapter four reports the empirical results. It covers data presentation, analysis and discussion. Here secondary data obtained using various means outlined in the methodology is organized into a meaningful data format, analysed and discussed in order to draw conclusions. Chapter five presents the findings from the data analysis and offers conclusions and recommendations.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter discusses other studies that have been conducted in the area of study. The areas covered include the theoretical framework empirical literature and summary.

2.2 Theoretical Review

There are different theories in this area of study. The study is greatly interested in theories that identify its relationship between stock returns, interest rates and inflation. Highlighted below are some of such theories which include;

2.2.1 Inflation Illusion Hypothesis

Modigliani and Cohn (1979) money illusion hypothesis requires equity returns to decline in periods of inflation because investors use nominal rates of return to discount real future cash flows. In a landmark paper, "Inflation, Rational Valuation and the Market," they argued that investors fundamentally undervalued stocks in the 1970s because of two important cognitive errors: 1) they use nominal interest rates to discount real cash flows; and 2) they did not take into account the capital gain that accrues to equity holders of firms with fixed rate debt liabilities. The authors maintain that, "One should capitalize the current level of adjusted profits at the very same real rate that prevailed before the inflation, even though the nominal interest rate will have increased".

Modigliani and Cohn (1979) claim that stock market investors (but not bond market investors) are subject to inflation illusion. Stock market investors fail to understand the effect of inflation on nominal dividend growth rates and extrapolate historical nominal

growth rates even in period of changing inflation. Thus when inflation rises, bond market participants increase nominal interest rates which are used by stock market participants to discount unchanged expectations of future nominal dividends. The dividend-price ratio moves with the nominal bond yield because stock market investors irrationally fail to adjust the nominal growth rate to match the nominal discount rate. From the perspective of a rational investor, this implies that stock prices are undervalued when inflation is high, and may become overvalued when inflation falls. The dividend yield that emerges from the interaction of national and irrational investors is positively correlated with inflation and the long term nominal interest rate.

2.2.2 The Proxy Hypothesis

Fama (1965) comes up with a proxy hypothesis further explaining the negative relationship between stock prices and inflation. The negative relationship reflects the deterrious effects of inflation on the real economic activity. As evidenced during the rapid inflation years of 1970's, the US stock price levels thus indicating that equities in the industrialized economies have failed to maintain their value during periods of high inflation.

Fama (1981) further argues that the relationship between high rates of inflation and future real economic growth rates is negative. He claims that the negative stock return and inflation relation is spurious as a result of a negative relation between inflation and real activity. By contrast, there is a positive relationship between stock returns and anticipated growth rates of real economic activity. As inflation accelerates, investors anticipate slower and more volatile economic growth and require a higher risk premium.

Investor expectations of more volatile macro-economic performance help to shape their perceptions of long term earnings growth. Fama et al (1983) concluded that there is a negative relationships between the stock returns and inflation and refer to this as the 'proxy effect'. They explained the proxy effect in the sense that a reduction in the economic activity negatively affects the future corporate profits and stock prices. Fama, argues that the proxy effect vanishes when real economic activity does not fail because of inflation.

2.2.3 Efficient Market Hypothesis

The efficient market hypothesis as postulated by Fama (1970) asserts that it would be impossible consistently to outperform the market in an environment characterized by many competing investors, each with similar objectives and equal access to the same information. An efficient market is capable of quickly digesting new information on the economy, an industry, or the value of an enterprise and accurately reflecting it in securities prices. In such markets participants can expect to earn no more, nor less, than a fair return for the risks undertaken.

The weak form of the efficient market hypothesis describes a market in which historical price data are efficiently digested and, therefore, are useless for predicting subsequent stock price changes. This is distinguished from a semi-strong form under which all publicly available information is assumed to be fully discounted in current securities prices. Finally, the strong form describes a market in which not even those with privileged information can obtain superior investment results (Fama, 1970).

Das (2005) notes that policy makers should feel free to conduct national macroeconomic policies without the fear of influencing capital formation and the stock trade process. Moreover, economic theory suggests that stock prices should reflect

expectations about future corporate performance, and corporate profits generally reflect the level of economic activities. If stock prices accurately reflect the underlying fundamentals such as the rate of interest rates, then the stock prices should be employed as leading indicators of future economic activities, and not the other way around. Therefore, the causal relations and dynamic interactions among macroeconomic variables and stock prices are important in the formulation of the nation's macroeconomic policy.

Fama and Schwert (1977) argue that for the effect of macroeconomic variables such as interest rate on stock prices, the efficient market hypothesis suggests that competition among the profit-maximizing investors in an efficient market will ensure that all the relevant information currently known about changes in macroeconomic variables are fully reflected in current stock prices, so that investors will not be able to earn abnormal profit through prediction of the future stock market movements.

2.2.4 Arbitrage Pricing Theory

An asset pricing model based on the idea that an asset's returns can be predicted using the relationship between that same asset and many common risk factors. Created in 1976 by Ross, this theory predicts a relationship between the returns of a portfolio and the returns of a single asset through a linear combination of many independent macro-economic variables.

Ross identified the following macro-economic factors as significant in explaining security returns, surprises in inflation, surprises in gross national product as indicated by an industrial production index, surprises in investor confidence due to changes in default premium in corporate bonds, surprise shifts in the yield curve.

As a practical matter, indices or spot or futures market prices may be used in place of macro-economic factors, which are reported at low frequency (e.g. monthly) and often with significant estimation errors. Market indices are sometimes derived by means of factor analysis. More direct "indices" that might be used are: short term interest rates, the difference in long-term and short-term interest rates, a diversified stock index, oil prices, gold or other precious metal prices, Currency exchange rates.

2.3 Empirical Literature Review

Studies have been conducted on the relationships between interest rates, inflation and stock market returns both in Ghana and internationally. This section provides a review of these studies.

2.3.1 International Evidence

Jefferis and Okeahalam (2000) examine the effect of macroeconomic factors on stock markets in South Africa, Zimbabwe, and Botswana. They found that stock prices have a positive long-run relationship with real GDP, and real exchange rate in South Africa and Zimbabwe and a short-run relationship with exchange rate and interest rates in Botswana. Stock prices are also negatively related to interest rates in South Africa. Mok (1993) by ARIMA approach and verified by Granger causality test examined the causality of daily interest rate, exchange rate and stock prices in Hong Kong for the period 1986 to 1991. The result concluded that the HIBOR (Hong Kong Interbank offered rate) and the price indices are independent series. As a further extension to the study the relationship between exchange rate and stock price was examined, the research concluded that those series are independent.

Chen and Jin (2004) conducted a multivariate analysis on twenty portfolios of the New York Stock Exchange (NYSE) using a set of economic variables. Chen and Jin (2004)

applied conditional mean encompassing test for model specification with the assumption that it is robust to heteroscedasticity. The specific economic variables that were included in the model were term structure of interest rates, the change in expected inflation, contemporaneous unexpected inflation, and monthly growth rate in industrial production, lags of the above six economic variables. The dependent variable was the lag of excess rate of returns. The authors concluded that the conditional excess rates of returns are explained by lagged expected inflation, lagged unexpected premium for default, lagged unexpected change in term structure, a seasonal dummy, and lagged market returns.

Khan & Yousuf (2013) found a positive long-term relationship exists between interest rates and the stock market but their study contradicts findings by Barakat et al. (2015) which showed a negative long-term relationship. Adel (2004) confirms the existence of a long run relationship between stock prices and variables like exchange rates and interest rates.

The study by Chen and Jin (2004) is similar to our study to the extent that both studies attempt to establish the determinants of stock returns. However, the two studies differ because the current study focuses on a developing economy and the economic variables in developing economies may affect stock returns differently. In addition, the current study uses a panel data analysis and in particular a random effect generalized least squares (GLS) while the study by Chen and Jin (2004) used a simple multivariate regression analysis.

Abugri (2006) performed a study to determine whether selected macroeconomic indicators like exchange rates, interest rates, industrial production and money supply in four Latin American countries significantly explain market returns. His research results

indicated that the global factors are consistently significant in explaining returns in all the markets. The country macroeconomic variables are found to impact the markets at varying significance and magnitudes.

Robert (2008) while conducting a study on the effect of macroeconomic variables on stock market returns for four emerging economies of Brazil, Russia, India and China affirmed that there was no significant relationship between present and past market returns with macroeconomic variables, suggesting that the markets of Brazil, Russia, India and China exhibit weak form of market efficiency. Also, no significant relationship was found between respective exchange rate and oil price on the stock market index prices of the four countries studied.

Bai and Green (2008) used data from 13 emerging stock markets (ESM's) for the period 1984 to 2004 to investigate the determinants of cross sectional stock returns variations in emerging markets. The random effects regression was used in the analysis.

According to the results, the exchange rate changes had a negative relationship with country effects. An increase in exchange rate changes by 1 unit led to a decline in stock returns by 52.8%. Inflation had a positive association with country effects with a 1 unit in inflation leading to a 1.8% rise in stock returns. A 1 unit increase in activities of financial intermediary led to 0.6% decrease in stock returns. The activity of the stock market appeared to be positively related to stock returns and a one-unit increase in it led to 2.2% increase in stock returns.

Koubi (2008) studied the determinants of financial development and stock returns using a sample of 49 countries for the period 1980 to 1999. The study found that both high transactions and legal uncertainty have a negative effect on stock market stability. The effect of transaction costs was economically more significant (about twice the size of

the effect of the latter). Finally, while exchange rate and general economic volatility also destabilized stock returns, capital controls and the degree of openness had little influence.

Jiranyakul (2009) did a study on the relationship between macro-economic variables and the Thai stock market Index. The study used quarterly data covering the period 1993 q1 and 2007q4. The study adopted Multivariate Time series regression analysis using unit roots tests; co-integration test using a two-step Engle and Granger (EG) co-integration test; and the Johansen Co-integration test. Additionally, a vector error correction method was used to determine the relationship between the long run and short run relationships between macro variables and stock returns. The results revealed that the variables are cointegrated, and this implied that there exists a long-run relationship between the stock market index and a set of four macroeconomic variables. Additionally, real GDP, money supply, and nominal effective exchange rate had a significant positive impact on the stock market index. The price level had an insignificantly negative impact.

Using large sample evidence, Artmann, Fitner and Kempf (2010) studied the determinants of stock market returns in the German market. The sample considered in the study consisted of 955 German stocks for the period 1963 to 2006.

The study adopted the Fama and French 3 factor model, the Alternative 3 factor model and the Cahart four factor models. The results obtained using Fama and French 3 factor model revealed a significant positive relation between average returns and book-to-market equity, earnings-to-price, and momentum.

Siddiqui (2010) modeled uncertainties and investments as determinants of stock returns in Pakistan insurance firms. This study was based on unbalanced panel data for the

period 1996 to 2008, obtained from a sample of 13 insurance firms listed at the Karachi Stock Exchange. The methodology used in the analysis included Engle-Granger causality tests and panel data fixed and random effects regression. Panel data results indicated that there exists a statistically significant positive effect of uncertainty on returns both in the short and the long runs. Wang, et al. (2010) investigated the factors that determined stock returns in the 1987 and 2008 US stock market meltdowns using multivariate regression analysis. The study focused on the contribution of technical insolvency risk and the bankruptcy risk to stock returns. The results indicated that stocks with higher betas, larger market capitalization, and greater return volatility lost more value in both meltdowns. They also found that the market-to-book ratio was a significant determinant of stock returns in the 2008 meltdown but not in the 1987 meltdown. Additionally, stock illiquidity was found to be a significant determinant of stock returns in the 1987 meltdown but not in the 2008 meltdown.

From 1994-2011, another study was conducted in Pakistan by Akbar, Ali and Khan (2012), they applied VECM to examine the relationship between the treasury bills rate and stock market in the short run. They established that treasury bills rate had a positive relationship with stock returns in the short run. This implied that investments in the stock market continued in the short run even when the treasury bill rate was upward trend. A possible explanation for this trend may be that investors in Pakistan viewed the treasury bill rate as a risk free and demanded for higher rate of return.

Nganga and Wanyoike (2017), undertook a study on the effect of interest rate controls on stock performance. Their findings exhibited a negative relationship between interest rate controls and performance of stocks in the market. Meaning, higher interest rate reduces stock market performance.

According to Hsing (2004), adopted a structural VAR model that allows for the simultaneous determination of several endogenous variables such as output, real interest rate, and stock market index. The study found a negative relationship between stock prices and interest rate.

Using quarterly data for the period 1998 to 2009, Eita (2011) investigated the factors that determine stock market prices in Namibia. The results indicated that the main determinants of stock prices were economic activity, exchange rate, inflation, interest rate, money supply. A positive relationship was found between stock market prices, money supply, and economic activity. An increase in inflation led to a decrease in stock market prices. Similarly, a rise in interest rates led to a decline in stock prices.

Nyamute (1998) studied the relationship between stock prices and other financial variables like money supply, interest rates, inflation rates and exchange rates in Kenya. He found a positive relationship between stock prices and exchange rates. However, his research performed data analysis on non-stationary series which may adversely affect the validity of the results. Also, Sifunjo and Mwasaru (2012) analyzed the casual relationship between NSE stock prices and foreign exchange rate using monthly data from November 1993 to May 1999. Johansen consideration procedure and error correction model were used for analysis. The empirical results indicate that in Kenya, nominal exchange rate of shillings per dollar Granger causes stock price. The study also found out a unidirectional causality from exchange rates to stock prices. Therefore, the movements in exchange rates exert significant influence on stock price determination in Kenya.

A panel data methodology on pooled data was adopted by Al-Nasser and Jackson (2012) for fifteen (15) Latin American countries from 1978-2003 to empirically

examine the long run connection between inflation and financial sector performance. The study focused entirely on the banking sector as well as the stock markets of the financial sector, they established that there was a negative and statistically significant relationship between banking sector development measures and the level of inflation after controlling other economic factors that may be associated with financial development. Again, they established that inflation was negatively correlated with market capitalization and domestic value traded. This indicated that higher inflation rates depress stock market development in Latin American countries. These results implied that macroeconomic stability should be a primary objective for monetary policy since high inflation is shown to be economically costly (in the form of reduced economic growth rates and the international competitiveness of a country).

In addition, Waweru (2012) carried out analysis of the determinants of stock price volatility at Nairobi Securities Exchange. From the findings, the coefficients on Interest rate were -34.818, exchange rate was -119.475 and the coefficient for inflation was 32.204. These findings mean that a unit change in inflation rate leads to an increase in stock price. In addition a unit change in Interest rates leads to a decrease in stock price, while a unit change in exchange rate results to a decrease in stock price.

An examination of the relationship between stock market capitalization and interest rate was conducted by Ologunde (2006) in Nigeria employing regression technique and time series data obtained from Central Bank of Nigeria (CBN) and Nigeria Stock Exchange. The empirical result showed the prevailing interest rate exerts positive influence on stock market capitalization.

According to Hamrita and Trifi (2011) stock market returns provide useful signals regarding the future state of the economy, including the economic and financial status.

Specifically, stock market returns drive the allocation of resources across sectors of the economy.

Empirical research captures a number of macroeconomic and financial variables that affect stock market performance without an agreement on how appropriate they are as regressors. Macroeconomic variables that have received attention in these studies are the price level, inflation, exchange rate, GDP, the rate of unemployment, the balance of payments, fiscal balance among others. (See Campbell & Yogo, 2003).

A study done by Kimani and Mutuku (2013) to investigate the impact of inflation, Central Depository System (CDS) and other macroeconomic variables (including deposit rate, gross domestic product terms of trade and the net effective exchange rate) on the Nairobi stock market performance using quarterly data from the Central Bank of Kenya (CBK) and the Nairobi Stock Exchange (NSE) for the period December 1998 to June 2010. The Unit root test based on the formal ADF test procedure revealed that the set of variables was a I (1) process while the Johansen-Juselius VAR based cointegration test procedure revealed more than 4 cointegrating relationships. Consequently, an error correction model was estimated revealing that 27 percent of the departure from equilibrium is cleared quarterly. The cointegrating model indeed showed that there is a negative relationship between inflation and stock market performance in Kenya. In addition the CDS was shown to have a positive and significant impact on the stock market performance.

2.3.2 Local Evidence

Mireku, Sarkodie and Poku (2013) used a vector correction model (VECM) approach and made use of monthly data to cover the period April 1991 to August 2010 to investigate the effect of macroeconomic variables on stock prices in Ghana. The co integration and VECN indicated the existence of a long-run inverse relationship between exchange rate and interest rate with stock prices. Mireku et al. reported a direct relationship between inflation and stock prices. Coleman and Tettey (2008) while examining the impact of macroeconomic variables on Ghana Stock Exchange using quarterly data for the period 1991 to 2005 concluded that market lending rates from deposit money banks have adverse effect on stock market performance. The study also found inflation to be negatively related to stock market performance and this effect takes time because of the presence of a lag period.

According to Mensah et al. (2012), in 2004 inflation realized was 15.2 %, the Net Domestic Financing/GDP ratio ended at 4.9%, and broad money supply grew by 50%. The inconsistencies and volatilities of these economic indicators had a serious impact on the Ghana Stock Exchange.

2.4 Summary of Literature Review

The linkage between stock market returns and inflation if any has drawn the attention of researchers and practitioners alike. The foundation of the discourse is the Fisher (1930) equity stocks proclamation. According to the generalized Fisher (1930) hypothesis, equity may serve as a hedge against inflation. If this holds, then investors could sell their financial assets in exchange for real assets when expected inflation is pronounced. In such a situation, stock prices in nominal terms should fully reflect expected inflation and the relationship between these two variables should be positively correlated. This argument of stock market serving as a hedge against inflation may also

imply that investors are fully compensated for the rise in the general price level through corresponding increases in nominal stock market returns and thus, the real returns remain unaltered. The appropriate direction of the relationship or the neutrality between inflation and stock market returns relationship have equally generated a large body of evidence in the empirical literature and until now consensus have not been met.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the methods used in carrying out the study. The chapter or discusses the data source, various research designs, description of variables and data analysis technique.

3.2 Research Design

The descriptive design was used in this research. The descriptive research design is suitable for the need to describe the interrelationship between interest rates, and inflation rates on stock performance in Ghana. Its purpose was to portray the state of affairs as it is. A research design helps researchers to lay out the research questions, methodologies, implementation procedures, and data collection and analysis for the conduct of a research project. Generally there are three research designs: quantitative design, qualitative design, and mixed methods design Mugenda and Mugenda (2003). In this study the researcher used the quantitative research design which includes the descriptive research design. The study described the major variables associated with stock performance in Ghana.

3.3 Data Collection Source

The use and justification for the choice of data collection technique is very imperative in any research. The main source of data for this study was collected through secondary data. In an attempt to investigate the effect of inflation rates, and interest rates on stock performance in Ghana, secondary data was obtained from the website of the World Development Indicators by the World Bank and database of the Ghana stock exchange. The data included the information on annual stock exchange returns which was used as

a proxy for the performance of the stocks, inflation rates, interest rates, exchange rates, GDP.

3.4 Description of Variables

3.4.1 Interest Rate

From most of the literature discussed in the previous chapter, an increase in interest rate will result in an increase in the opportunity cost of holding money. This may lead to investors holding interest-bearing securities for shares thus stock prices will fall. This is because Treasury bill is seen as an opportunity cost for holding shares, this study used Treasury bill rate as a measure of interest rate. High treasury bill rates encourage investors to purchase more government instruments (Adam and Tweneboah, 2008). Treasury bills are considered the most actively traded money market instrument and have maturity days of 91 and 182 days. These bills tend to compete with stocks and bonds for the attention of potential investors. Therefore, the expected relationship between stock prices and treasury bill rates is a significant negative. Khan and Yousuf (2013) found a positive long-term relationship exists between interest rates and the stock market but their study contradicts findings by Amara et al (2013) which showed a negative long-term relationship. Adel (2004) confirms the existence of a long run relationship between stock price s and variables like exchange rates and interest rates.

Kelen (2000) examined the relationship between interest rates and stock market performance in three developing markets. The countries are Zimbabwe, South Africa and Botswana. In these countries, high rates on interest were perceived to have a pronounced damage for the stock market and its prices. The author, therefore, established that there exists a negative relationship between the two variables under

consideration. This implies that as the interest rates go higher it can lead to the deterioration of stock markets.

A similar research was conducted by Spyrou (2001) in Greece. The author's conclusion was not dissimilar to that of previous ones. Hsing (2004) employed a different method to carry out the relation concerning the variables in question. His method was based on the VAR. The results of his research also confirmed that the rates on interest have a negative influence on the returns on stock.

3.4.2 Exchange Rate

The exchange rate is the price of one country's currency expressed in another country's currency. In other words, it is the rate at which one currency can be exchanged for another. Ghana as a developing economy is still considered an import oriented nation. Therefore, the depreciation of the local currency, the Ghana cedi will lead to an increase in the cost of production and greatly reduce the cash flows to the import-dominated industries. Studies by Zia and Rahman (2011) and Muhammad and Rasheed (2011) confirmed the absence of both the short run and the long run relationship between stock prices and exchange rate. Jamil and Ullah (2013) support the findings of no long-term relationship between exchange rates and stock prices. Menike (2006), Sekmen (2011) and Khan and Yousuf (2013) contradicted the preceding studies by providing evidence of a negative long-run relationship while Muktadir Al-Mukit (2012) a positive long-term relationship.

Granger causality findings indicated that there was a unidirectional relationship moving from exchange rates to stock market returns and variables were co-integrated as such as one percent increase in exchange rate contributes 1.04 percent decrease in market index. An increase in stock market returns caused a decline in exchange rates. However,

Muktadir Al-Mukit (2012) confirmed the existence of unidirectional causality from market index to exchange rate and form interest rate to a market index. The exchange rate is therefore expected to have a negative influence on the performance of stocks hence the need to be considered in the study.

3.4.3 Inflation Rate

Inflation is refers to the persistent increase in the prices of goods and services in a country. Inflation results in high standard of living as it reduces the purchasing power of the currencies as goods and services become more expensive. This results in low demand for goods and services which in effect lowers investments and as such productivity in general. In the U.S. market, for example, the historical proof is noisy, but it does show a correlation to high inflation and lower returns for the overall market in most periods. When stocks are divided into growth and value categories, the evidence is clearer that value stocks perform better in high inflation periods and growth stocks perform better during low inflation. One way investors predict expected inflation is to analyze the commodity markets, although the tendency is to think that if commodity prices are rising, stocks should rise since companies "produce" commodities. However, high commodity prices often squeeze profits, which in turn reduce stock returns (Chaves & Silva, 2018). This study expects a negative or positive effect of inflation on stock performance. This study used year on year inflation rates for the period under study.

3.4.4 Gross Domestic Product

Gross domestic product (GDP) is a monetary measure of the value of all final goods and services produced in a period (quarterly or yearly). Nominal GDP estimates are commonly used to determine the economic performance of a whole country or region and to make international comparisons. The GDP measures the value of economic

activity within a country like Ghana. It is therefore defined as the total value of final goods and services produced within an economy during a specified period of time. Annual GDP data on Ghana was acquired from the World Bank by the researcher. The choice for this variable is based on the influence on the general level of economic activities in the Ghanaian economy in terms of economic growth.

3.4.5 Measures of Stock Performance

Stock performance is the measurement of a stock's ability to increase or decrease the wealth of its shareholders. The performance is typically measured by its fluctuations in price. When stock price increases, the stock shows good performance. Conversely, a decrease in price is a poor performance. Based on existing literature, studies on stock performance used proxies to exhibit the performance of stocks in different countries. However, Charles Bannor (2014) in measuring the effect of Macroeconomic Variables on Stock Market Returns in Ghana employed GSE All Share index a statistical concept as a measure of stock market returns to enable him make predictions about the performance of the GSE. Osei Okyere Joseph (2016) examined the impact of interest rate on the Ghana stock exchange and also used the All Share Index as a measure of the stock market returns. Anokye and Tweneboah (2008) examined the role of macroeconomic indicators on stock returns in Ghana. They chose stock returns as the dependent variable using the Databank stock index as proxy to stock market returns.

In this study, the researcher used stock returns as a measure of stock performance and the rationale behind this choice is that, it gives a better and clearer picture to shareholders and prospective investors as to the performance of investments on the stock market.

3.4.6 Model Specification

The model specification of this study is as follows.

$$STOCKRTN = \beta_0 + \beta_1 INFRT_t + \beta_2 INTRT_t + \beta_3 EXRT_t + \beta_4 GDPGrRT_t + \varepsilon_t \quad \ldots\ldots (1)$$

Where;

β_0 = Constant

STOCKRTN = Stock Return

INFRT = Inflation Rate

INTRT = Interest Rate

EXRT = Exchange Rate

GDPGrRT = Gross Domestic Product Growth Rate

All the macroeconomic variables are measured in percentages (%). $\beta_{1.....}\beta_4$ = measures of the level of sensitivity of each independent variable to the dependent variables. The error term(ε_t) is defined as the residual error of the regression and assumed to be independent and identically distributed.

The study considered inflation rate, interest rate, exchange rate and gross domestic product (GDP) as independent variables while stock return was used as the dependent variable.

There is the need to modify the static model (Equation 1) and the reason being that the static model assumes a contemporaneous effect on the dependent variable. The static model is therefore modified as stated below.

$$STOCKRTN = \beta_0 + \beta_1 \Delta INFRT_t + \beta_2 \Delta INTRT_t + \beta_3 \Delta EXRT_t + \beta_4 \Delta GDPGrRT_t + \varepsilon_t \quad \ldots\ldots (2)$$

Equation (2) is estimated using Ordinary Least Square (OLS) technique. However, for the technique to be robust the following assumptions are made.

(i) The mean of the error is zero $E\ (\varepsilon_t\ ) = 0$

(ii) $COV\ (\varepsilon_t\ \varepsilon_{t-1}\ )$ = 0, that is there no autocorrelation.

(iii) $Var\ (\varepsilon_t\ ) = \boldsymbol{\sigma^2}$, Which means constant variance indicating the absence of heteroscedasticity

(iv) $COV\ (X_1\ , X_2)$ = 0, no multicollinearity.

(v) $\varepsilon_t\ \sim N\ (0, \sigma^2)$

3.5 Diagnostic Test

Based on the assumptions, the following diagnostic tests were carried.

3.5.1 Autocorrelation Test

This test serial correlation between the errors i.e $COV\ (\varepsilon_t\ \varepsilon_{t-1}\ )$ = 0, that is there is no autocorrelation. Here Breausch-Pagan test was used

3.5.2 Multicollinearity Test

Multicollinearity exists if there are relationships between the independent variables of the model. In a situation where this relationship is severe then there is an exact multicollinearity implying that one variable completely explains another variable. Therefore the study used Variance inflation factor (VIF) in order to ensure there is no multicollinearity. In this study a VIF figure below suggested that multicollinearity is absent.

3.5.3 Stability Test

$CUSUM/CUSUM^2$ is used to test for stability of the model and if the graph lies in the band it signifies there is stability in the model.

3.5.4 Heteroscedasticity

Heteroscedasticity occurs when the variance of the error is not constant thus where;

$$\text{Var}\,(u_i) = \sigma_i^2 \quad \ldots\ldots (3)$$

However, homoscedasticity is where the variance is constant, thus where

$$\text{Var}\,(u_i) = \sigma^2 \quad \ldots\ldots (4)$$

The presence of heteroscedasticity makes OLS result unbiased. This simply means that the standard errors could be inappropriate and thus any inference made could be wrong. In this study Breusch –Pagan test was used to test for heteroscedasticity.

PRESENTATION OF DATA, ANALYSIS AND DISCUSSIONS

4.1 Introduction

This chapter describes the analysis of data and discussion of the research findings. The data is analyzed to describe the effect of inflation rates and interest rates on stock performance in Ghana. The study employed the use of time series generated monthly from Ghana from 2008-2017. The data was gotten from the World Bank's World Development Indicators and Ghana Stock Exchange (2008-2018), Quarterly Digest of Statistics of the Bank of Ghana and the Ghana Statistical Services Department, to analyze these data series, the dynamic OLS was employed. The dynamic OLS is used to examine and investigate the linkage between inflation, interest rates and stock performance.

4.2 Descriptive Statistics

Descriptive statistics are carried out to enable the researcher understand the nature and pattern of data. The summary statistics used in this study consist of the mean, standard deviation, minimum and maximum. The mean represents the measurement of central tendency which represents the average of a variable for the period under study. The standard deviation on the other hand measures how an observation deviates from the mean or expected value. A high standard deviation shows how volatile a variable is or how widely spread out the values are in large range around the mean. A smaller standard deviation figure on the other hand shows how close the figures are to the mean. Kurtois measures the peakness and flatness of the distribution of the series.

Interest rate from the fig. 4.1 below recorded an average of 4.23 and a standard deviation of 30.89. Stock performance assumed a poor performance within the period

under review comparing the figures of the maximum and minimum which are 30.03 and 6.32 respectively.

A variable of interest; inflation recorded a mean and standard deviation of 28.056 and 26.480 respectively, making it more volatile and uncertain than stock performance. It also recorded maximum and minimum values of 122.875 and 8.727. The huge standard deviation confirms the volatile nature of inflation in Ghana within the period under review. A comparison between the mean, minimum, maximum and standard deviation portrays that the observations for inflation are more skewed towards the minimum than the maximum making estimation difficult.

Table 4.1 Descriptive Statistics

	STKRT	INTRT	INFRT	GDPGrRT	EXRT
Mean	4.2300	18.602	28.056	6.1781	4.2348
Median	70.554	137.81	18.641	0.4615	30.02
Maximum	30.03	122.87	122.87	23.10	30.03
Minimum	6.320	14.94	8.727	6.92	0.000
Std. Dev.	30.891	17.858	26.480	4.7777	7.547
Skewness	-0.400	3.084	2.533	0.975	2.351
Kurtosis	2.117	16.044	9.175	2.776	4.651
Jarque-Bera	2.014	5.457	90.391	5.457	5.254
Probability	0.365	0.065	0.000	0.065	0.072
Observations	120	120	120	120	120

Source; Author's construct, 2018

Where:

STKRT – Stock Return

INTRT – Interest Rate

INFRT -- Inflation Rate

GDPGrRT – Gross Domestic Product Growth Rate

EXRT – Exchange Rate

Again, a variable of interest; interest rate recorded an average of 18.602 and a standard deviation of 17.858 showing volatility and uncertainty in interest rate in Ghana. A possible cause could be the presence of outliers hence making inference and predictability of the mean wrong and difficult respectively. Thus, interest rates for the most of the years are more skewed towards the minimum than the maximum.

Other control variables like exchange rate recorded a mean and standard deviation of 4.2348 and 7.547 respectively. It also recorded a minimum of 0.000 and a maximum of 30.03 GDP growth rate indicated a mean and standard deviation of 6.1781 and 4.7777 respectively whilst it maximum and minimum was 32.10 and 6.92 respectively.

4.3 Diagnostic Test

Some diagnostic tests were done as already mentioned in chapter 3 section 3.4 and are discussed below.

Diagnostic tests carried out included the autocorrelation test, heteroscedasticity test, normality test, stability test and multicollinearity test. These results are shown in the table below.

From table 4.3, autocorrelation test was conducted using the Breusch-Godfrey test. Since the probability value is 0.000 which is less than 5% the null hypothesis of no autocorrelation is rejected. Hence it can be concluded than there is autocorrelation.

Table 4.2 Diagnostic Test Results

Type of test	Method	P-value	Remarks

Normality distributed	Jacque-Bera	0.0000	Normally
Autocorrelation	Breusch Godfrey	0.0000	Autocorrelation
Heteroscedasticity	Breusch-Pagan	0.00005	Heteroscedasticity
Multicollinearity Multicollinearity	VIF	VIFs<1	No
Stability	Cusum/cusum^2	Stable	Stable

Again, the Breusch-Pagan-Godfrey test ascertained probability value of 0.00005 which is less than 5% and thus, the null hypothesis of homoscedasticity is rejected. The variance inflation factors were also below ten (10), hence the absence of multicollinearity. The test results are shown in the appendix**.** Based on the presence of heteroscedasticity and autocorrelation, the study solved the problem by using transformed data and as well as a dynamic model.

4.4 Analysis of Results

Table 4.4 below describes the connection the dependent variable of stock performance in relation to interest rate, inflation rate, Gross Domestic Product (GDP) and exchange rate as the independent variables. The table indicates an adjusted R-square of 30.4% indicating that the variations in stock performance are as a result of interest rate, inflation rate, GDP and exchange rate. Moreover the R square is 32.7%.

Dependent Variable: STOCK_RETURNS Date: 05/10/19
Time: 22:55

Method: Least Squares Sample: 2008M01
2017M12

Included observations: 120

Table 4.3 Results of Stock Performance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INTEREST_RATES	0.091426818	0.03403279	2.686433212	0.008291952
INFLATION__CPI_	-0.217595159	0.050035416	-4.348822812	2.97E-05
GDP	0.029412134	0.123340962	0.23846201	0.811947177
EXCHANGE_RATE	0.011692786	0.004442524	2.632014328	0.009653067
C	4.73952326	1.532391602	3.092893	0.002488133
R-squared	0.327510728	Mean	dependent var	4.234324202
Adjusted R-squared	0.304119797	S.D.	dependent var	7.547335326
S.E. of regression	6.295944439	Akaike	info criterion	6.558462158
Sum squared resid	4558.475384	Schwarz	criterion	6.674607647
Log likelihood	-388.5077295	Hannan-Quinn	criter.	6.605629377
F-statistic	14.00161136	Durbin-Watson	stat	0.451522719
Prob (F-statistic)				2.45E-09

From the results above, interest rate which is one of the main variable of interest shows a coefficient of 0.091 and a P value of 0.008. These values portray a positive and statistical significant relationship existing between variables. This means stock performance is responsive and sensitive, in other words an increase in interest rate has the potential of stimulating stock performance in Ghana over the period under study. It can also be said that an increase in interest rate will equally attract an improvement in stock performance. The results suggest that a 1% increase in interest rate will lead to a corresponding 0.091% increase in stock performance.

This result did not corroborate with the general knowledge of a negative relationship between stock performance and interest rate. This goes with the assertion that a higher interest rate reduces the value of equity as indicated by the dividend discount model and as a result makes fixed-income securities more attractive as an alternative to holding stocks. This reduces the profit margin of businesses and raises the cost of doing business and again discouraging firms and individuals from borrowing and investing in stocks. However lower interest rates as a result of expansionary monetary policy also improve stock market, again a lower interest rate also lead to an increase in the present value of future dividends.

Studies from Khan and Yousuf (2004) corroborate with the result which established a positive relationship between interest rate and stock market. Ologunde (2016) in Nigeria using regression technique and time series in examining the relationship between stock market capitalization and interest rate. On the other hand, Barakat et al. (2015), and Nyamute and Wanyoike (2017) studied the relationship between interest rate controls and stock performance established a contradiction which showed a negative relationship between the two variables.

Furthermore, the effect of inflation rate had a coefficient value of -0.217 and a P value of 2.97. Per the result, a negative and statistically significant effect of inflation on stock performance is observed. This means that inflation rate has a negative and statistically significant effect on stock performance. This indicates that stock performance is responsive or sensitive to variations in inflation rates. The results suggest that a 1% increase in inflation may lead to a less than 1% decrease in stock performance.

The effect of variations of inflation on stock performance will not change the portfolio of stock performance due to its significant nature. Inflation is statistically significant

because the probability value is 0.00027% which is less than 5%. This is in line with theoretically expected sign of negative.

The outcome is in confirmations of the theories of inflation illusion hypothesis and the proxy hypothesis propounded by Modigliani and Cohn (1979) and Fama (1965) respectively.

The inflation illusion hypothesis theory states that equity returns are required to decrease in periods of inflation. In an inflationary environment, values on the return on equity will not be able to compensate for the risk taken in denying one from immediate consumption of their money. This is because money and for that matter investments loose it value over time when inflations are high, return on equity is devalued and is unable to measure up to the risk taken for postponing immediate consumption of funds. This becomes a disincentive to prospective and potential investors from borrowing money to invest in stocks.

The theory also says that equity return will decline in periods of inflation because investors use nominal rates to discount real future cash flows. However in a landmark paper, "Inflation, Rational Valuation and the Market", it was argued that investors fundamentally undervalued stocks in the 1970s because they used interest rates to discount real cash flows and did not take into account the capital gain that accrues to equity holders with fixed rate debt liabilities. The author was with the view that one should capitalize the current level of adjusted profits at the very same real rate that existed before the inflation even though the nominal interest rate will be increased.

The proxy hypothesis theory is also with the view that the negative stock return and inflation is spurious as a result of a negative relation between inflation and real activity. However a critique of his theory is that there is a positive relationship between stock

returns and anticipated growth rates of real economic activity. As inflation accelerates, investors anticipate slower and more volatile economic growth and require a higher risk premium.

Gross domestic product has a coefficient value of 0.03 and a P value of 0.811. This implies a positive a positive effect of GDP on stock performance which is also statistically insignificant. This is due to the fact that the P value is more than 5%. This signifies that stock performance is not responsive to GDP. The result indicates that a 10% increase in GDP may leased to about 29% increase in stock performance. The reason for such a result may be attributed to threshold effect. This means for GDP to have a statistically significant positive effect on stock performance, the economy's performance must reach certain threshold level. This shows that the Ghanaian economy has not reached such threshold to have a significant effect of GDP on stock performance.

Finally, exchange rate also has a coefficient value of 0.0116 and a P value of 0.0096 which exhibit a positive and statistically significant effect on stock performance. A 1% change in exchange rate may result in about 0.011% increase in stock.

4.5 Conclusion

The study revealed that the most important significant variable explaining stock returns are exchange rate and interest rate. However, inflation rate and GDP results were significant.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Overview of the Study

This study sought to investigate the effect of interest rate and inflation rate on stock performance in Ghana based on information on these variables between the periods 2008 to 2017. The results of the effect of these two economic variables on stock performance in Ghana according to different researchers have been diverse. Hence, in order to add up to the existing knowledge this study employed a dynamic OLS model as a tool for analyzing the effect of interest rate and inflation rate on stock performance. A summary of the findings is found in section 5.2 below.

5.2 Summary of Findings

Based on the results of the study, interest rate, a variable of interest had a positively significant relation with stock performance. This means that within the period of study, an increase in interest rate had the potential of improving stock performance in Ghana. However, inflation rate the other variable of interest recorded negative relationship with stock performance, and this relationship was statistically insignificant. This means that within the period of study variations in inflation rate may be irresponsive or insensitive to stock performance.

Also the other control variables exchange rate showed a positive and statistically significant effect on the stock performance while GDP had a positive effect on stock performance but statistically insignificant.

The R-squared and adjusted R-squared from the model was 32.75% and 30.42% respectively. These therefore suggest that per the model, 30.42% of the variations in stock performance are explained by interest rate, inflation rate, gross domestic product and exchange rate.

Based on the findings above, the following recommendations were made;

5.3 Conclusion

The outcome of the study indicates that within the 10-year period of study, interest rate and stock performance had a positive relationship. This is in line with studies such as Ologunde (2016) and Khan and Yousuf (2004). Hence, within the period, as interest rate increases, stock performance improves.

Also, the findings from the study showed that within the 10-year period, when the rate of inflation falls, stock performance improves. Hence these two variables from the study had a negative relationship within the period analyzed. This finding confirms the theories of inflation illusion hypothesis and the proxy hypothesis propounded by Modigliani and Cohn (1979) and Fama (1965) respectively.

5.4 Policy Recommendations

The Inflation rate plays an important role in determining the economic growth and market performance in Ghana such that there exist a negative relationship between inflation rate and stock performance. The Central Bank should endeavor to reduce the inflation rate as a way of promoting economic growth and stock performance. High inflation rates erode investments especially real interest rates.

Government policy makers should develop strategies for attaining optimum levels of broad money growth which do not encourage undesirable consequences like inflation. The Central Bank should continue to reduce the interest rates charged on loans as this has a positive relationship with market returns.

In addition, the positive relationship between interest rate and stock performance is not consistent with the literature on finance, development and growth. Government policy

makers should develop policies that manage the interest rates at acceptable levels that encourage borrowing for private investments. This should be attained through legislation and availing cheaper sources of deposits for lenders. Stock performance is synonymous with economic growth.

Finally, since movements in exchange rates exert significant influence on stock performance in Ghana. Policy makers must strive to maintain exchange rates at low levels against major foreign currencies to improve stock performance.

5.5 Areas for Further Research

Further investigations could be conducted on this topic in a country specific case but perhaps using a different methodology. VAR methodology could be applied to this topic to establish how the lagged variables influence stock performance. In addition, mixed methodologies could be employed including use of primary data.

Moreover, study can also be done to determine the effect of lending interest rates on stock performance in Ghana but using longer periods like twenty years or twenty-five years. This will ensure that the results can be better generalized since the period is longer. The data obtained can also be adjusted to remove temporary fluctuations in the stock performance of Ghana and as a result affecting the findings.

Finally, study can also be done to determine the effect of interest rates on stock performance and incorporating other control variables which affects stock performance. The variables can be goods prices, money supply, real activity, exchange rates, foreign direct investment, political risks, oil prices and trade sector.

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