UNIVERSITY OF EDUCATION, WINNEBA

INVESTIGATING THE EFFECT OF EXCHANGE RATE CHANGES ON STOCK MARKET RETURNS IN GHANA: A CASE STUDY OF GHANA STOCK EXCHANGE (2007-2015)

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A Dissertation in the Department of Management Studies Education, Faculty of Business Education, submitted to the School of Graduate Studies, University of Education, Winneba, in partial fulfilment of the requirements for award of the Master of Business Administration (Finance) degree

AUGUST, 2017

DECLARATION

STUDENT'S DECLARATION

I, OSEI AGYEMANG RITA, declare that this dissertation, with the exception of quotations and references contained in published works which have all been identified and duly acknowledged, is entirely my own original work, and it has not been submitted, either in part or whole, for another degree elsewhere.

SIGNATURE: ……..……..

DATE: ……

SUPERVISOR'S DECLARATION

I hereby declare that the preparation and presentation of this work was supervised in accordance with the guidelines for supervision of dissertation as laid down by the University of Education, Winneba.

NAME OF SUPERVISOR: DR. YUSSIF HADDRAT

SIGNATURE: ……..……..

DATE: ……

ACKNOWLEDGEMENTS

I truly thank God for the knowledge and strength he gave me to accomplish this work successfully and for the wealth of families and friends. My sincere appreciation goes to my supervisor Mr Haddrat Yussif for his massive contribution and most importantly his patience up to this stage of submission of the thesis.

DEDICATION

I dedicate this work to my supervisor, friends and above all the almighty God

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LIST OF ABBREVIATIONS

ADF	Augmented Dickey-Fuller
EXR	Exchange Rate
GASI	Ghana Stock Exchange All-Share Index
GHC	Ghana Cedi
GSE	Ghana Stock Exchange
KPSS	Kwiatkowski, Philips, Schmidt and Shin
PP	Phillips-Perron
TBR	Treasury Bill Rate
USD	United States Dollar
VAR	Vector Autoregressive
VECM	Vector Error Correction Model

ABSTRACT

This study was based on the effect of exchange rate changes on stock market returns. It could be seen that exchange rate from the previous years have been increasing at a faster rate, in the same way stock market returns has also been unstable. It was therefore to determine the relationship between exchange rate and stock market. The study made use of monthly data of Ghana stock exchange All-share index and exchange rate variable from January 2007 through December 2015; to examine the extent to which exchange rate variable influence the stock market returns both in the short run and long run with the following test Johansen Juselius (JJ) co-integration test, Vector Error Correction Model(VECM). The study establishes that there is long-run relationship between stock market returns and exchange rate .It was also found that in the short- run, there is a negative relationship between the stock market returns and the exchange rate. The results provide some insights into the effects of exchange rate on the stock market index in Ghana. This can help the policy makers and investors in decision on planning and portfolio investment. It is also recommended that investors consider inflation and foreign direct investment and its performance.

CHAPTER ONE

INTRODUCTION

1.0 Background

Stock exchanges are entity which provides dealing amenities for stash negotiator and dealer, to buy and sell stocks and other securities. The objective of this study is to investigate the effect of exchange rate changes on stock market returns in Ghana. The performance of the stock market can reflect the overall performance of a country's economy. Stock market index in a particular sector can reflect the performance of a particular sector. For example, when cocoa-related companies are making huge profits, the plantation index will tend to go up. A positively growing economy will be reflected by a stable stock market.

From the African Economic Outlook (2016), the Ghanaian economy grew at an average 3.7 percent, down from 4 percent in 2014. The real gross domestic product (GDP) was below 4 percent back in 2010, with a mere 3.4 percent, before rising to a high of 14.0 percent in 2011. The economic growth is expected to recover modestly to 5.8 percent in 2016 and 8.7 percent in 2017. The forecasted recovery in economic growth in 2016/2017 depends on fiscal consolidation measures remaining on track, quick resolution of the power crisis, two new oil wells coming on-stream and improved cocoa harvest and gold production (African Economic Outlook, 2016).

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 on the Pearl

report by Commonwealth Development Finance company limited in 1969 (Gce.com.gh, 2017). Ghana Stock Exchange (GSE) was incorporated in 1989 as a private company limited and officially launched in 1991, and is now one of the most active markets in Africa. As a capital market institution, GSE plays an important role on the economic development in Ghana. It helps mobilize domestic savings thereby bringing about re-allocation of financial resources from dormant to active agents. Long-term investments are made liquid since securities can be transferred among participating public. The exchange has also enabled companies to engage local participation in their shares ownership, thereby giving the Ghanaian a chance to own shares of reputable companies.

Past empirical literature have indicated the financial variables and macroeconomic variables that influence stock market (Lane, 2002; Campbell &Yogo, 2003; Jansen & Moreira, 2004). Macroeconomic variables include GDP, interest rate, price level, balance of payments, exchange rate, fiscal balance, inflation and unemployment rate. Little evidence is available to conform the effects of some of these variables on the stock exchange market of Ghana. This is the motivation of this study, to conduct an analysis of the effect of exchange rate on the stock market returns.

There are various factors that influence the performance of the stock market. These include economic growth, monetary policies, political issues, fiscal policies, exchange rates and international aspects. However, the stock price of a company include the company's profitability, sales, balance sheet, new product launching among others. The exchange rate considered as determinants of performance of the stock market in this study.

The general knowledge for the correlation between interest rate and stock market returns is that interest rates and stock prices are negatively related. Higher interest rate due to strict monetary policy has consequences of negative effects 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 firm as it raises the cost of doing business and reduce 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 present value of future dividends. The correlation between exchange rate and stock market returns exist as a result of changes in foreign investments. The changing spot exchange rates facilitate the conversion of rates of return on foreign investment in stocks from one currency to another currency. When rates of return in anappreciating 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 with respect to related foreign currency by increasing the foreign currency inflows. Conversely, sales of a country's stock by foreign investors cause foreign capital outflows. In turn, it makes local currency to depreciate 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 returns.

1.1 Problem Statement

The exchange rate has been increasing at a relative faster rate since the adoption of flexible exchange rate regime in the 1980s. For example, in 2010 it was GH ₵1.4865 to 1USD, the exchange rate with GH₵1.9055 to 1USD in 2012. Again in 2015 GH ₵3.82 was exchange for 1USD.

On the other hand, stock market returns in Ghana has also been unstable .for example in 2010 it was 32.25%, this declined to 23.81% in 2012 and in 2015 there was a further decline of -11.7%.

From the analysis, it is obvious that the exchange rate between Ghana Cedi and the GSE is not stable, it appears that there is some relationship between exchange rate and stock market returns in Ghana.

Few studies have investigated the relationship between exchange rate and stock market returns. Enyaah (2011) investigated the effects of interest rate and exchange rate changes on stock market returns in Ghana, he used previous data from January 2000 through December 2010 and concluded that there is long run relationship between the exchange rate and stock market returns using the VECM and Johansen Multivariate cointegration test.

However, the exchange rate in Ghana continues to be unstable for example in 2017 July it was 4.42282. Therefore, there is the need for further studies to examine the relationship between exchange rate and stock market returns so that the results could be compared to that of Enyaah (2011)

1.2 Objectives of the Study

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 the following

i). To examine the trends in exchange rate in Ghana

ii). To examine the short – run effects of exchange rate changes on stock market returns.

iii). To examine the long-run effects of exchange rate changes on stock market returns.

1.3 Research Questions

The study seeks to find answers to the following questions:

i). What are the short-run and long-run effects of changing exchange rates on the Ghana Stock Exchange market returns?

ii). Are investors affected by the volatility of exchange rate and interest rate?

iii). Should investors be concerned about other macroeconomic indicators?

1.4 Significance of the Study

The findings of this study will assist the potential investors to better understand and analyze the changes resulting from exchange rates fluctuations and there effects on stock market returns. It will also improve on the existing theory and knowledge on the changes that listed companies are going through in relation to exchange rate fluctuations.

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 study will also enable the government and its agencies to be aware of the challenges facing the listed companies in stabilizing their performance.

The findings of the study will 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 exchange rate on the stock market returns, especially on the Ghana Stock Market performance.

1.5 Organization of the Study

The study is organized into five chapters. Chapter One which is the introduction comprises of 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 discusses the literature review related to exchange rate changes on stock market returns. Chapter

Three elaborates on the manner in which research methodology is designed and conducted. Chapter Four reports the empirical results. It covers data presentation, analysis and interpretation and finally Chapter Five presents summary, conclusions and recommendations from the study.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter considers and critically evaluates researches and other literature related to the topic under study. It will dwell on the review of empirical studies that investigates the relationship between stock prices, exchange rate and other macroeconomic variables. Researchers to a large extent focus on studying the interactions between the financial and macroeconomic variables on stock market in different countries with different econometric technique. However this study seeks to analyze the relationship between stock market prices, exchange rate, and other macroeconomic variables.

2.1 stock market Prices

The stock market refers to the collection of markets and exchanges where the issuing and trading of equities (stocks of publicly held companies), bonds and other sorts of securities takes place either through formal exchanges or over the counter markets. Stock market, also known as the equity market, is one of the most vital components of a free market economy as it provides companies with access to capital in exchange for giving investors a slice of ownership.

Stock exchanges allows businesses access to capital and the opportunity to enhance their visibility and public image. Savvy businesses can harness the power of stock exchanges to grow and enhance their companies. While significant financial and regulatory costs are associated with being listed on a stock exchange, the benefits far outnumber the disadvantages. These include;

i). Access to capital- A 2012 National Small Business Association survey revealed that one of the major impediments to business growth was lack of affordable capital. Firms listed on the stock exchange can quickly raise affordable capital by issuing more shares for investors to purchase. The capital raised from the issuance of shares can be used to help the company grow and pay for different business costs.

ii). Enhanced profile- Firms listed on the stock exchange are much more recognizable and visible than their privately held counterparts. The increased visibility that comes with being listed on an exchange can help company attract new clients and customers, and it draws press attention that might be difficult and expensive for the company to draw on its own.

According to conservative economic thinking, interest rate has a negative impact on the stock market index. Investors tend to move their money from higher risks instruments, that is the stock market, may be to a savings account when interest rate is high. On the contrary, when the interest rate is low, they will invest more on the stock market. Fisher (1930) postulated that the ex-ante nominal interest rate should fully anticipate movements in expected inflation, in order to yield an optimal real interest rate. The expected real interest rate is determined by real factors such as the productivity of capital and time preference of clients, and is independent on the expected inflation rate. In principle, the Fisher hypothesis could be extended to any asset, such as common stock and real estate (Fisher, 1930).

Kabubo and Ngugi (1998), states that the primary role of interest rate is to help mobilize financial resources and ensure the efficient utilization of resources in the promotion of economic growth and development. Chen et al. (1986) indicated that interest rate had a positive impact on the stock market return. In the industrial analysis, Nguyen (2007) found interest rate spreads had a significant effect on the riskiness of capital-intensive industries.

Gazi and Mahmudul (2009), performed a study on 15 countries comprising of both developed and developing countries. They found a significant negative relationship between interest rate and share price. This findings were the same as those from the study conducted by Mukherjee and Naka (1995) in Japan. They also found out that in the long run, interest rate has a negative impact on the stock market index. Using the daily data, Joseph and Vezos (2006), proved that the stock market returns are highly sensitive on the interest rate and exchange rate changes.Ajayi and Mougoue (1996) alsoinvestigated the short-and long- run relationship between stock prices and exchange rates in eight advanced economies. Ajayi and Mougoue explain this as follows: a rising stock market is an indicator of an expanding economy, which goes together with higher inflation expectations. Foreign investors perceive higher inflation negatively. Their demand for the currency drops and it depreciates.

According to Chen, Roll and Ross (1986), changes in aggregate production, inflation and short-term interest rates as well as maturity risk-premium and default risk-premium are the economic factors that explain the changes in stock prices using United States economic data. However, Fama (1981) found a strong positive correlation between

common stock returns and the real economic variables like the capital expenditures, industrial production, money supply, lagged inflation and interest rates.

In the property stocks research in United Kingdom, Hong Kong and Japan in the period of 1987- 1997, Huang and Liow (2004) found a highly significant negative correlation exists between interest rate and the monthly excess return of the property stocks. They went ahead to advice that the interest rate and the return of the property stock should be carefully considered by investors in the construction portfolio to reduce the interest rate exposure. Few studies have been done on the linkages between stock market returns and macroeconomic variables in the Ghanaian context. As this study is centered on Ghana Stock Market, it is empirical to review studies done in the area. Osei (2002) tested the market efficiency hypothesis.

In Ghana, Adam and Twenenboah (2008) used Johansen's multivariate co-integration analysis to examine the role of macroeconomic variables on the stock price movement. Using Treasury Bill Rate, Consumer Price Index, Databank Stock Index and Exchange Rate as macroeconomic variables, they found there exists a long run relationship between the variables and the stock prices. Ransford C. Enyaah also used Cointegration test and Error correction model to test the presence of a long-run equilibrium relationship between the stock market and exchange rate. There also exists a negative correlation between lending rates and the stock market performance in Ghana (Agyire & Kyereboah, 2008).

The correlation between interest rate and stock market can also be analyzed over periods of time. In his study, Nikiforos (2006), found there were varying degrees of relationships between interest rate and stock market from decade to decade in the United States. No co-

integration correlation between interest rate and stock market index existed in the 1970s and 1980s. However, there was a significant negative relationship between the variables in 1990s.

Policy makers should carefully plan and focus on the interest rate to attract investors in their market since the interest rate is determined by monetary policy of a country (Zafar et al., 2008). Ologunde et al. (2006) explored the stock market capitalization and interest rate in Nigeria using ordinary linear regression model. Their findings showed that interest rate has a positive influence on the stock market capitalization rate. When interest rate is increased, the stock market capitalization also increases. Therefore, the government can plan and control interest rate to encourage growth of the stock market.

Kurihara and Nezu (2006) studied the Japan Stock Exchange. Their findings showed an insignificant correlation between interest rate and Japanese stock prices, particularly the domestic interest rate. Interest rate in Japan has been reduced to almost zero due the unprecedented monetary easing, therefore interest rate can hardly impact the stock market at all. In March 2001, the Bank of Japan introduced the quantitative easing scheme to end the deflation in Japan. The policy led to the increase of stock prices in Japan.

According to Mueller (2006), interest rate can only affect but not determine the stock market. He argued that when interest rate is increased, borrowing will become difficult. Firms will have the necessary funds to expand their operations and therefore affect profits. Bonuses and share dividends will thus be cut and this may affect the investor's decisions to invest more. Interest rate is not the only factor that affect the stock market. Stock market index might be thriving due to positive economic growth, political issues and monetary policies even when the interest rate is high (Mueller, 2006).

2.2 Exchange Rate

Foreign exchange rate is the rate at which one currency is exchanged for another. It is an important element in the economic growth and development of a developing nation. Foreign exchange rate is said to fixed or flexible exchange rate: fixed exchange rate is the rate which is officially fixed by the government or monetary authority and not determined by market forces. This ensures stability in exchange rate which encourages foreign trade however there is a fear of devaluation, in a situation where excess demand exists, central bank will use its reserves to maintain foreign exchange rate and if still persistent the government will have no option than to devalue the domestic currency. Flexible exchange rate is the rate of exchange determined by the forces of demand and supply; According to Jackson and McIver (2001) the major determinants which cause the demand and the supply change of the currency as follows: Preferences, GDP differentials, inflation differentials, interest rate differentials and speculations the value of currency is allowed to fluctuate freely according to change in demand and supply. Under this regime there is no need for the government to hold any foreign exchange reserve however if measures are not properly taken it will generate inflationary pressure when prices of importsgo up due to depreciation of the currency. A few studies have been conducted on exchange rates in Ghana. However, fewer still are those that even consider the determination of exchange rates, perhaps due to the lack of a generally accepted model of exchange rate determination. Jebuni, Sowa and Tutu (1991) looked at the effects of real exchange rate on output, exports and imports. The study found the real exchange rate as a significant explanatory variable for output with appreciation in the rate causing a

decline in output. Similarly, they found that depreciation of the real exchange rate had a positive effect on exports and a negative effect on imports.

Chhibber and Shafik (1991) on the other hand, using a macroeconomic model investigated the determinants of black market premium and inflation in Ghana with emphasis on their link to the monetary, fiscal and real sides of the economy. Their model was estimated for the period 1965 – 1988 using two-stage least squares regression. It was discovered that the premium was determined by the real effective official exchange rate, with devaluation of the latter reducing the premium (Chhibber and Shafik, 1991). Interest rate differentials between Ghana and the rest of the world were also significant, with widening differentials causing an increase in the premium. Uncertainly about future exchange rates, with expectations of official devaluation also cause a decrease of the premium.

Gyimahand Brempong (1992), using quarterly data for the period 1972 – 1987 in a four – equation simultaneous model, also investigated the determinants of the parallel market exchange rate. He found that official exchange rate policy affects the parallel market rate both directly and indirectly. The direct effort works through official devaluation and exchange law enforcement and policing effects2. The indirect effect works through changes in imports and exports and hence the supply and demand for black-market foreign exchange. Similarly, like Chhibber and Shafik, Gyimah – Brempong finds that devaluation of the official exchange rate leads to an appreciation of the black market premium. Jhingan (2005) stated that to maintain both internal and external balance, a country must control its exchange rate. Agu (2002) also argue that Optimal exchange rate

policy is designed to obtain real exchange rate (RER) that maintains both internal and external balance.

2.3 Stock Market and Exchange Rate

The effect of a stock price increase on expenditure is explained by Mishkin (2001) as follows. First, it leads to increased investment by firms. The value of a firm's equity increases as its stock price rises while the prices of new equipment remain unchanged in the short run. As a result, investment is now relatively cheaper and companies will tend to invest more.

Secondly, an increase in stock prices will affect positively the value of financial assets held by households, leading to an increase in household wealth and therefore consumption.

Solnik (1987) also carried out a study on the effect of variables including exchange rate, interest rate and changes in inflation expectations and stock prices. The research used data from nine developed countries, namely, Japan, France, Belgium, Canada, United States, United Kingdom, Germany, Switzerland, and the Netherlands. Among the findings of the study was that a fall in the exchange rate impacted positively on the United States stock market as against changes in inflation expectations.

The fluctuations in exchange rate influences the output levels of organizations and the trade balance of an economy. The movements of share prices affect the aggregate demand through wealth, liquidity effects and indirectly the exchange rate (Gavin, 1989). Specifically, the reduction in stock prices reduces the wealth of local investors and might lead to reduction in liquidity of the economy. This reduction of liquidity may eventually

result in the reduction of interest rates which in turn induce capital outflows and in turn causes currency depreciation (Adjasi et al., 2008).Hsing (2011) found a positive correlation between exchange rate and stock market in Johannesburg Stock Exchange in South Africa. In Taiwan, Cheng' et al. (2011) analyzed the stock market and found a positive relationship between exchange rate and stock return.

According to Dimitrova (2005), currency depreciation led to stock market depression in the United States and United Kingdom. His findings found out that when exchange rate declines by one percent, the stock market will react with less than one percent decline. He went further to suggest the United States implement a policy to strengthen its dollar. The policy will stabilize the stock market since there is a negative relationship between stock market index and exchange index. However, there were insignificant results in his attempt to show that exchange rate will depreciate during the booming of the stock market. Therefore, multinational corporations which use exchange rate forecasting can consider to use stock market as a forecasting indicator as a proxy. The local currency is expected to depreciate during such times of buoyant sentiments in the stock market.

Jamil and Ullah (2013) asserts that the relationship between the stock market returns and exchange rates is short run in nature which is inconsistent with earlier results by Atanda and Maku (2010) while it confirms earlier findings by Karoui (2006) that exchange rates have a significant impact on stock returns using the Vector Error Correction Model.

Japan being an export-oriented country, depreciation of its currency is expected to promote exports and increase stock prices. However, this is not the case has proved by Kurihara and Nezu (2006). They found a negative correlation between exchange rate and stock market. They concluded there is a possibility that the industrial and economic structure of Japan have changed. United States is the largest trading partner of Japan and therefore the stock prices in the United States do have a significant impact on the stock prices in Japan.

The appreciation of exchange rate has positive impact on the United Kingdom non-financial firms' stocks return (Ahmed & Omneya, 2007). Two reasons were given. First, the United Kingdom international trade involves trading with Europe, Japan and the United States. Second, the basket of foreign currencies is used in the portfolio. Thus, the exposure of the exchange rate risk in the portfolio is lower.

Rahman and Uddin (2008) examined the possibility of correlation between exchange rates and stock prices in the emerging economy of Bangladesh. They used monthly nominal exchange rates of US dollar, Euro, Japanese Yen, pound sterling and monthly values of Dhaka Stock Exchange General Index for the period 2003 to 2008. The findings indicated no co-integrating association between exchange rate and stock prices. The Granger causality test showed that stock prices and exchange rate have causal relationship of the US dollar and Japanese yen. However, there was no causal association between stock prices and exchange rates of the euro and sterling pound.

Kemboi and Taurus (2012) examined the stock market macroeconomic determinants for the period 2000-2009, using quarterly secondary data. The hypothesis on the existence of a co-integrated relationship between stock market development and macroeconomic determinants was tested using Johansen- Julius co-integration technique. The findings showed that macroeconomic factors like levels of income, development of the banking sector and stock market liquidity are important in the development of the Nairobi Securities Market. These results indicated that macroeconomic stability is not a significant predictor of development of the securities market.

Karoui (2006) studied the relationship between equity volatilities and foreign exchange rates for emerging economies and whether the variation in foreign exchange rate would cause a variation in stock markets. The findings confirmed those of Muktadir Al-Mukit (2012) who showed that a significant positive relationship existed between volatilities in equity and exchange rates markets.

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 market index.

Results by Agrawal, Srivastav and Srivastava (2010) in the study of relationship between Nifty returns and Indian Rupee exchange rates contradict Md-Yusuf and AbdRahman (2012). Their findings indicated that Nifty returns and exchange rates were non-normally

distributed and exchange rate and Nifty returns were stationary at the level form. Negative relationship was found to exist between the two variables. According to Md-Yusuf and AbdRahman (2012), there exists a bi-directional causality between equity market and exchange rate in the industrial and finance sectors only.

Zia (2011) found no evidence of both short and long run relationship existing between stock market index and exchange rates and also there was no causal relationship. According to Nath and Samanta (2003), there is no causal relationship between stock prices and exchange rates.

Chhibber and Shafik (1991) on the other hand, using a macroeconomic model investigated the determinants of black market premium and inflation in Ghana with emphasis on their link to the monetary, fiscal and real sides of the economy. Their model was estimated for the period 1965 – 1988 using two-stage least squares regression. Chhibber and Shafik discovered that the premium was determined by the real effective official exchange rate, with devaluation of the latter reducing the premium. Interest rate differentials between Ghana and the rest of the world were also significant, with widening differentials causing an increase in the premium. Uncertainly about future exchange rates, with expectations of official devaluation also cause a decrease of the premium.

Damankeshideh and Shanasaei (2013) results indicated uncertainty on the impact of exchange rate on the stock market index. The impact of all explanatory variables except gross domestic product on the stock index was negative.

Mlambo et al (2013) findings indicated a weak relationship existed between currency volatility and stock market returns. This was in contradiction with Karoui (2006). A negative relationship was found to exist between the currency volatility and total mining production and prime overdraft rate. However, the United States had a positive influence on the market capitalization.

Studies by Zia and Rahman (2011) and Muhammad and Rasheed (2011) confirmed the absence ofboth short run and long run relationship between stock prices and exchange rate. Jamil and Ullah (2013) supportthe findings of no long term relationship between exchange rates and stock prices.Menike (2006), Sekmen(2011) and Khan andYousuf (2013) contradicted the preceding studies by providing evidence of a negativelong run relationship while Muktadir Al-Mukit(2012) a positive long term relationship.

Khan and Yousuf (2013) found a positive long term relationship exists between interest rates and 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 prices and variables like exchange rates and interest rates.

2.4 Review of the Study

The following key observations were made on the interactions between variables in this paper. The relationship between exchange rates and stock markets returns and between interest rates and stock markets returns was inconclusive. There is no definite direction suggested on the relationship in both the long and short run, the causal link is also not clear. Some researchers suggested no causal link, bidirectional relationship or

unidirectional link. Variables were found to converge to long run equilibrium and in some cases there was no long run relationship. The effect of the dependent variables used in this study on the performance of the stock market was also mixed. In some cases no influence was found while some studies reported a significant impact. Some findings reported a positive impact and in some cases the impact was negative. Several researchers attest to these assertions which include: Bahmani-Oskoee and Sohrabian (1992); Mok (1993); Karoui (2006); JamilandUllah (2013); Beirne et al (2009); Mlambo et al (2013); Nath and Samanta (2003); Muktadir Al-Mukit (2012); Zia (2011). The empirical results were somewhat weak. The support for the hypothesis that a depreciation of the currency may depress the stock market—the stock market will react with a less than one percent decline to a one percent depreciation of the exchange rate. This also implies that an appreciating exchange rate boosts the stock market. If the exchange rate collapses sharply, it will trigger a milder fall of the stock market. Because of the joint causality, a collapse in the stock market will trigger exchange rate appreciation. Similarly, if there is a stock market collapse, the exchange rate will appreciate and cause a rebound in the stock market. Thus, the joint relationship between the two markets aids self recovery during a financial crisis.

Literature fails to therefore provide a general consensus on the relationship and the direction in which the variables are related. Literature shows that models or tests used by researchers include: Autocorrelation, multicollinearity, heterodasticity and granger causality, four-variant GARCH-mean model, Engle-Granger Co-integration test, multivariate vector auto regression (VAR), EGARCH model and the VECM. However,

all these literature agree a relationship do exists among these variables and therefore warrants further examination for a developing nation like Ghana. The next section of this study describes the methodology that had been employed to examine the relationship between exchange rate and stock market returns in Ghana.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

In the previous chapter, literature pertaining to the study was reviewed and research gaps identified. This chapter addresses the methodology for the research. It examines the criteria for determining the appropriate methodology for the study. It discusses the description of the research variables, data collection, and the analysis plan.

3.1Data Types and Sources

In order to concentrate on the issues raised in the paper, the study considered the period of January 2007 to December 2015. The main source of data for this study was collected from the secondary data sources including financial publications from the Ghana Stock Exchange. The macroeconomic variable, that is the exchange rate, was sourced from the official website of Bank of Ghana and the quarterly bulletins published by the Bank of Ghana while the stock indices were obtained from the Ghana Stock Exchange.

The choice of these variables is as a result of the interrelationship and interdependence. Investors would want to consider either investing on the stock market or buy a fixed rate treasury bill in order to ensure higher profitability. The exchange rate in addition help in making investment decisions due to their great impact on investment returns. The Treasury bill rate was used as interest rate because savers usually invest their savings for higher interest with certainty when investment in the stock market does not seem profitable to them.

The data on exchange rate between the Ghana cedi and the US dollar was used due to the dominance of the U.S. dollar in international markets as well as financial relationship between Ghana and US economy has improved over the years.

3.2 Description of Variables

GSE all- share –index (GSI)

This variable captures the overall performance of the market and it is the dependent variable whilst the exchange rate is the independent variable in the regression analysis.

In the calculation of GASI, the base index value of 100 is considered. This value is usually adjusted yearly to maintain its continuity. It is adjusted in accordance with the events affecting the capitalization of companies included in the index and are not caused by changes in prices. These include new listings, delisting, new share issues and right issues. The change in the value of the index reflects the change in overall market capitalization from previous trading session. The base period market capitalization is the average capitalization of the market for the period from 12th November 1990 to 30th December 1993, and is calculated by averaging the market capitalization for all trading sessions during this period (Adjasi et al., 2008).

3.2.1Exchange Rate

The US Dollar is the one of the main currency for international trade in Ghana. The cedi-dollar exchange rate is therefore important since this is translated into the cost for importing raw materials and other inputs. Ghana being a developing economy, is still considered an import nation. The rise and fall in exchange rate make Ghanaian equity

cheaper or expensive for foreign investors and therefore any changes in the exchange rate should have an impact on equity investment for foreign investors to make proper decision. The study expects a negative relationship between exchange rate and the performance of the stock market.

3.3Models

The regression model to carry out various econometrics tests and analyze the data using the statistical tools; Augmented Dickey-Fuller Test, Unit root test for stationarity, Ordinary Least Square (OLS) model, Vector Error Correction model and Co-integration test.

3.3.1Unit Root Test and Augmented Dickey -Fuller Test

The objective of the unit root test is to check for stationarity given an unstable time series data. After changing the data, it is appropriate to test for stationarity in the data .The Augmented Dickey -Fuller (ADF) test was employed to test stationarity (no unit root). for each of the coefficient of the variables , the null hypothesis of unit root exist (meaning the data sets are not stationary) against the alternative, there exist no unit root in the data set (meaning the data sets are stationary). The null hypothesis is rejected whenever the absolute value of the ADF statistic is greater than the critical. Most macroeconomic time series data are observed to be non-stationary; A stochastic process is said to be stationary if its mean and variance are constant overtime (Charemza & Deadman, 1992). According to Charemza and Deadman (1992), the value of the co-variance between two periods depend only on the gap between the periods and not the actual time at which this

covariance is considered. If one or more of these conditions are not fulfilled then the process is said to be non-stationary.

The time series property of each variable is then investigated using univariate analysis by applying the Augmented Dickey-Fuller Test (ADF) to check non-stationarity according to Dickey and Fuller (1981) and Fuller (1996). The Phillips-Perron test is also implemented accordingly (Philips, 1986; Phillips & Perron, 1988). The Kwiatkowski, Philips, Schmidt and Shin (KPSS) analysis is also developed as a counterpart of ADF and Phillips and Perron test to test for stationarity (no unit root) as stipulated by Kwiatkowski *et al* (1991).

The Augmented Dickey-Fuller test was performed to check the stationarity of the variables thereby generating three regression forms as shown;

$$\Delta Y_t = \alpha_1 Y_{t-1} + \sum_{j=1}^{p} \gamma_j \Delta Y_{t-j} + \varepsilon_t (None),$$

$$\Delta Y_t = \alpha_0 + \alpha_1 Y_{t-1} + \sum_{j=1}^{p} \gamma_j \Delta Y_{t-j} + \varepsilon_t (With\ Constant),$$

$$\Delta Y_t = \alpha_0 + \alpha_1 Y_{t-1} + \alpha_1 t + \sum_{j=1}^{p} \gamma_j \Delta Y_{t-j} + \varepsilon_t (With\ Constant\ and\ Trend),$$

for all t = 1, 2, …, 120 and ε_t is a white noise

The additional lagged terms are included to ensure that the errors are uncorrelated. In a unit root test as per the above regressions, the null hypothesis to be tested is that the coefficient of with one lag is equal to zero(H_0: $\alpha_1 = 0$), that is no unit root exists against the alternative hypothesis that there is a presence of a unit root, thus not integrated of order zero.

3.3.2 Vector Error Correction Model

The vector error correction model is implemented to estimate the long-run causality and short-term dynamics and find out if there is an evidence of co-integration relationship among the variables. The model is estimated as shown below;

$$\Delta \ln GASI_t = \alpha + \lambda \varepsilon_{t-1} + \sum_{i=1}^{n} u_i \Delta \ln GASI_{t-i} + \sum_{i=1}^{m} v_i \Delta \ln EXR_{t-i} + \sum_{i=1}^{k} w_i \Delta \ln TBR_{t-i} + \xi_t \quad (3.1)$$

Where;

lnGASI= natural log of GSE All-Share index

lnEXR= natural log of exchange rate

lnTBR= natural log of Treasury bill rate

ε_{t-1} = Error correction term

ξ_t = white noise error term

$t - i$= time lags.

Δ = difference operator

The error correction term reflects the deviation from the long-run equilibrium path.

This allows the causality to be determined in two ways;(1) Short-run causality- is determined by the lagged difference of the variables and (2) Long-run causality- is determined by the significance of the coefficient of the error- correction term.

The null hypothesis that exchange rate does not Granger cause GASI is rejected if $v_i \neq 0$ or $w_i \neq 0$are jointly significant and the coefficient of the error-correction term is significant. This means that the exchange rate variable can cause GASI even if the coefficients on the lagged changes in exchange rate variable is not jointly significant.

Equation 3.1 shows that the variables are co-integrated if the estimate of $\lambda$is negative and statistically significant in terms of the associated t-value. This will therefore indicate unidirectional long-run causal flows from changes in exchange rate and Treasury bill rate to change of the GSE all-share index as well as long-run convergence. According to Bahamani and Payesteh (1993), changes in exchange rate and Treasury bill rate Granger cause the changes in stock market return whenv_i's and w_i's are jointly significant in terms of the joint F-test as determined. However, ifλ is positive and statistically significant, there will still be an existence of long-run causality, but with divergence.

3.3.3 Empirical Model

The fundamental estimating equation in log-linear form is as shown in the equation below;

$$\ln GASI_t = \beta_0 + \beta_1 \ln EXR_t + \beta_2 \ln INFL_t + \beta_3 \ln TBR_t = \varepsilon_t (3.2)$$

Where;

β_0 = constant

$\beta_1 \; and \; \beta_2$ = measures of the level of sensitivity of each independent variable to the dependent variable.

The error term, ε_t is assumed to be independent and identically distributed. The expected signs of the above equations are$\beta_0 > 0, \beta_1 < 0 \, , \beta_2 < 0 and \; \beta_3 \lessgtr 0$. The $\beta_3$is expected to be positive or negative. If the unit root test confirm the stationarity in time series data of each variable, then equation (3.2) is estimated appropriately by the Ordinary Least Square (OLS) method.

This is done, according to Granger and Newbold (1974), to avoid misleading inferences in the presence of false correlation. As a rule of thumb, (Granger & Newbold, 1974) suggested that one should be apprehensive if R^2 is greater than Durbin-Watson statistic.

If the unit root test rejects the null hypothesis that the series has a unit root, it means that the series is stationary and therefore can be used for Vector Auto regression model. But, if the unit root test cannot reject the null hypothesis, it means that the series are not stationary and therefore the difference operator can be applied to make the series stationary before testing for Vector auto regression approach.

3.3.4 Co-Integration Model

Cointegration provides appropriate statistical techniques to investigate if there is an economically significant long-run relationship between the variables. If the variables are found to have unit roots (non-stationarity), and are of the same order of integration using the vector error correction model (VECM), the cointegrating relationship among variables is determined.

It is also used test whether variables converged to a long run equilibrium using the Johansen-Juselius model (Johansen 1988; Johansen & Juselius, 1992) to overcome the associated problem of false correlation and ambiguous interpretations. If the variables are found to be cointegrated, the relationship may be interpreted as a long run relationship.

3.3.5 Johansen-Juselius Model

The Johansen procedure is applied to test for cointegration and this can be done through the Vector Autoregression approach as outlined in Granger (1988). The appropriate lag-length is selected with the assistance of the Final Prediction Error criterion and Akaike

Information Criterion to ensure that errors are white noise (Akaike, 1969). A time series $H_t$is called white noise if $\{H_t\}$ is a sequence of independent and identically distributed random variables with finite mean and variance. This is to help overcome the problem of over or under parameterization that may induce prejudice and inefficiency in the estimates. The analysis then begins with a compatible statistical system of unrestricted reduced form as stated below:

$$Y_t = \propto + \sum_{i=1}^{p} \Pi\, Y_{t-i} + \xi_t \qquad (3.3)$$

$$\xi_t \sim N(0, \Omega);\ \ i = 1, 2, \ldots, 120.$$

Where:

$Y_t$is a (3 *1) vector of order $I(1)$ and order $I(0)$ variables.

$\propto$is an (3*1) vector constraint.

Let $\Delta Y_t = Y_t - Y_{t-i}$, equation 3.3 becomes ;

$$Y_t = \propto + \sum_{i=1}^{p-1} \Psi\, \Delta Y_{t-i} + \Pi Y_{t-i} + \xi_t \qquad (3.4)$$

Since $\xi_t$is stationary, the rank r, of the long-run matrixΠ determines how many linear combinations of $Y_t$are stationary. If $r = n$, allY_t are stationary, while if $r = 0$,so that $\Pi = 0$, $\Delta Y_t$is stationary, as are all linear combinations if $Y_t$is of order $I(1)$. For $0 < 1 < n$, there exist r cointegrating vectors.

In view of the fact that, the study seeks to examine the long-term relationship between stock market returns and macroeconomic variables in Ghana, then the hypothesis for the cointegration vectors is stated as $H_0: \Pi = \propto \beta'$where both $\propto$and $\beta$are nxrmatrices. The

cointegration vectors β of are the error-correlation mechanisms in the system, while ∝contains the adjustment parameters. In order to test the hypothesis, the order of the cointegration vector needs to be determined first.

Johansen (1991) proposes two ways to perform likelihood ratio tests for the value of (*r)* which differ in assumptions of alternative hypothesis. These are computed as follows:

- $\lambda_{trace} = -T\sum_{t=r+1}^{n}\ln(1-\hat{\lambda}_i)$, where the null is $r = q$ against the more general alternative $r \leq 1$.
- $\lambda_{max} = -T\ln(1-\hat{\lambda}_{r+1})$, where the appropriate null is $r = q$ cointegrating vectors with (q = 0, 1, 2, 3,…) against the alternative that there exists only one additional cointegrating vector, that is, ($r \leq q+1$).

Where;

λ_{trace} = trace statistics

λ_{max}= estimated eigenvalues

Theλ_{max} andλ_{trace}tests are usually conducted in the Johansen-Juselius analysis. According to Johansen and Juselius (1992), the λ_{max} test should be considered for inferences when conflict arises between the two tests.

3.3.6 Vector Autoregressive Model

The vector autoregressive model is estimated in the first-difference when there is absence of co-integrating relation among the variables. This is implemented by excluding the error correction term $\varepsilon_{t-1}$from the Equation 3.1 for Granger causality test is used in this study shows that stock prices lead exchange rates in the short run and there is no long run relationship between two variables. This equation reduces to;

$$\Delta \ln GASI_t = \alpha + \sum_{i=1}^{n} u_i \Delta \ln GASI_{t-i} + \sum_{i=1}^{m} v_i \Delta \ln EXR_{t-i} + \sum_{i=1}^{k} w_i \Delta \ln TBR_{t-i} + \xi_t \quad (3.5)$$

CHAPTER FOUR

DATA ANALYSIS, FINDINGS AND DISCUSSION

4.0 Introduction

This chapter presents the data analysis, findings of the study and discussions of the results. It has three main parts. Part one is the descriptive statistics, Part two deals with the tests results (Unit root test, Co integration test and Error Correction Model) and Part three is about the analysis of the regression results (long Run and Short Run Analysis).

4.1 Descriptive Statistics

This section of this study provides descriptive results in which the measure of central tendency and dispersion appear for the variable. It appears in order to provide a visual depiction of the distribution of the variable where the mean provide a measure of central tendency and the standard deviation provides a measure of variability. The summary statistics of the variable used in the study is presented in Table 4.1 in terms of kurtosis and skewness.

Table 4.1: Descriptive statistics

Variables	Ln GASI	Ln EXR
Mean	8.158	-0.080
Median	8.544	-0.097
Maximum	9.298	0.396
Minimum	6.606	-1.014
Std. deviation	0.879	0.274
Skewness	-0.598	-0.351
Kurtosis	-1.263	-1.089
Jarque-Bera	16.465	10.073
Probability	0.0003	0.0065

The Stock market returns (ln GASI) has a larger standard deviation among all the index returns, which supports the general intuition that the stock market is highly volatile. The coefficient of skewness is low and negatively skewed. The value for kurtosis in each variable is below the benchmark for normal distribution of 3 which confirms near normality. The mean-to-median ratio of each variable is approximately 1. The range of variation between maximum and minimum is quite logical. The standard deviation, compared to the mean is low which indicates small coefficient of variation.

The J-B statistics also indicate that the distributions of all the variables during the sample periods have long left tails and flat than the normal distribution. On the whole, by the J-B test the variables do not conform to normal distribution but display negative skewness and a flat distribution. These results are, however, based on the null hypothesis of normality and provide no information for the parametric distribution of the series.

4.2 Unit Root Test

The Phillips Perron (PP) and Augmented Dickey Fuller (ADF) tests were used in this study to examine the time series characteristics of the variables to be able to discern their order of integration. The time series property of each variable is examined using the ADF and PP test for the unit root whiles the KPSS test for stationarity (no unit root).

From Table 4.2, the calculated ADF and PP statistic accepts the null hypothesis that there is unit root at 1%, 5% and 10% significance levels when compared with the respective critical values. Additionally the calculated KPSS statistics also clearly accept the

alternate hypothesis of no stationarity (presence of unit root) at 1%, 5% and 10% levels of significance when compared with the corresponding critical values. It suffices the state that the ADF, PP and KPSS test all consistent confirming the non-stationarity of each variable.

Table 4.2: ADF, PP and KPSS Unit Root test

Type of test	Variable	Deterministic term	Lags	Test value	Critical values		
					1%	5%	10%
			LOG LEVEL				
ADF	Ln GASI	Constant	1	-1.6151	-2.57	-2.88	-3.46
	Ln EXR	Const. & Trend	2	-2.8305	-3.13	-3.43	-3.99
PP	Ln GASI	Constant	Long	-1.5585	-2.58	-2.88	-3.48
	Ln EXR	Const. & Trend	Long	-1.5585	-3.15	-3.44	-4.03
KPSS	Ln GASI	-	-	1.2603	0.35	0.46	0.74
	Ln EXR	-	-	1.3573	0.35	0.46	0.74
			FIRST DIFFERENCE				
ADF	Ln GASI	Constant	0	-8.9974	-2.57	-2.88	-3.46
	Ln EXR	Constant	1	-4.6631	-2.57	-2.88	-3.46
PP	Ln GASI	Constant	long	-9.6566	-2.58	-2.88	-3.48
	Ln EXR	Constant	long	-4.2849	-2.58	-2.88	-3.48
KPSS	Ln GASI	-	-	0.1938	0.35	0.46	0.74
	Ln EXR	-	-	0.3149	0.35	0.46	0.74

The study however fails to reject the null hypothesis that the remaining variables possess unit root. This indicates these variables are not stationary in log levels. The existence of unit root in a variable implies non-stationarity. The economic implication of unit root is that, once any of the variables experiences a shock, the effects will be long-lasting and

estimations based on non-stationary variables are very likely to lead to the production of spurious results. The study proceeded to test their order of integration in first difference. All the variables considered in this study became stationary once they were first differenced. The conclusion for that reason is that all the variables are integrated of order one.

4.3 Co-integration Test and Error Correction Model

The optimal lag length was determined by both Final Prediction Error (FPE) and Akaike Information Criterion (AIC) using 8 maximum lags in the general VAR model. The aim is to choose the number of parameters, which minimizes the value of the information criterion. The results of the tests are presented in Table 4.3

Table 4.3: VAR lag order number selection criterion

Lag	AIC	FPE
1	-1.904240e+01	5.370895e-09
2	-1.928743e+01	4.205437e-09
3	-1.929901e+01	4.160588e-09
4	-1.938093e+01	3.839075e-09
5	-1.943172e+01	3.657439e-09
6	-1.936244e+01	3.932782e-09
7	-1.937288e+01	3.909525e-09
8	-1.931691e+01	4.159076e-09

4.4.1 Analysis of the Regression Results -Long Run Relationship

The Table 4.4 indicates that both trace statistics and maximum eigenvalue points show one co-integrating relationship which indicates the presence of a long-run equilibrium relationship between the variables.

Table 4.4: Johansen Cointegration Test

		Trace Test		Max-Eigen		
Maximum Rank	**Eingen Value**	**Trace Statistic**	**0.05 critical value**	**Max-Eigen Statistic**	**0.05 value**	**critical**
0	0.92099	138.9367	124.24	58.3769	45.28	
1	0.65382	80.5598*	94.15	24.39868*	39.37	
2	0.56997	56.1612	68.52	19.4098	33.46	
3	0.43904	23.4549	47.21	13.2965	27.07	
4	0.39605	11.8569	29.68	11.5979	20.97	
5	0.23552	5.6801	15.41	6.1769	14.07	

*means rejection hypothesis of null at 5% level

It can be seen from the table that the trace statistic of 138.94 is above the 95-percent critical value (124.24). Thus the hypothesis of null which states that there is the absence of cointegration (none) cannot be accepted. The alternate hypothesis that there is only one cointegration relationship is hence accepted. The hypothesis of null which states that the maximum cointegration relationship is one (1) is accepted because the trace statistic (80.56) is well below the 95-percent critical value (94.15).Conversely, the hypothesis of null which states that the number of cointegration rank is zero implies the absence of cointegration among the variables can also not be accepted by the Max-Eigen statistic. The hypothesis of null that the maximum cointegration rank is equal to 1 is however not

rejected. It is therefore established that, there is the presence of a long run relationship between stock market returns and other macroeconomic variables.

4.4.2 Analysis of Regression Results- Short Run Relationship

The Vector error correction model variables are presented in Table 4.5

Table 4: 5 Vector Error Correction Model

Variable	coefficient	Std. Error	t-statistic	Probability
C	0.014153	0.009407	1.504	0.1354
Res	-0.043247	0.019668	-2.199	0.0300*
$\Delta \ln GASI_{t-1}$	0.213539	0.092208	2.316	0.0224*
$\Delta \ln GASI_{t-2}$	0.068765	0.091794	0.749	0.4554
$\Delta \ln GASI_{t-3}$	0.122262	0.090759	1.347	0.1807
$\Delta \ln GASI_{t-4}$	0.175601	0.091296	1.923	0.0570
$\Delta \ln GASI_{t-5}$	-0.149234	0.091504	-1.631	0.1058
$\Delta \ln EXR_{t-1}$	-0.570665	0.739592	-0.772	0.4420
$\Delta \ln EXR_{t-2}$	0.942455	0.760343	1.240	0.2178
$\Delta \ln EXR_{t-3}$	0.897931	0.800526	1.122	0.2645
$\Delta \ln EXR_{t-4}$	-0.943871	0.705634	-1.338	0.1838
$\Delta \ln EXR_{t-5}$	-0.565612	0.633985	-0.892	0.3743
Multiple R^2	0.2064	Mean dependent variable		0.017448
Adjusted R^2	0.0899	S.D. Independent variable		0.084151
Sum squared residual	0.70252	Akaike info criterion (AIC)		-260.2873
Log likelihood	148.144	F-statistic		1.771
Durbin-Watson Stat	1.9435	Prob. (F-Statistic)		0.04426
Residual standard error	0.08028	Bayesian info criterion (BIC)		-209.2343

The results in Table 4.5 indicate that the first lag of stock market return $\ln GASI_{t-1}$ is positive and statistically significant at the 5% level. Moreover, it is also an evident from the value of the estimated coefficient which is (λ= -0.043247). This is good and speaks well of the model because the independent variable account for a greater differences in

the dependent variable. Also, the lags of the second to fifth month were found to be insignificant in explaining the variation in the GASI.

The coefficients of the lagged terms of the changes in the Exchange divulge a short-term net negative feedback effect from Exchange to GASI, as their sum is negative. The finding is however contrary to expectations.

Aside that, the associated t-values of the lagged variables are insignificant. The reason behind is that, there is negative relationship between the Exchange and GASI which may be attributed to the depreciation of the Ghanaian cedi at certain months within the period understudy which lowers the adjusted rate of return for foreign investors. This may discourage foreign investors from investing into portfolios in Ghana. The F-statistic at 1.771 explains that the coefficients of the variables are not zero. The Durbin-Watson Statistic as indicated from Table 4.5, which is 1.9435 gives an indication that there is no auto-correlation between the variables.

CHAPTER FIVE

SUMMARY OF MAJOR FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.0 Introduction

Most researchers have done a lot of studies on the relationship between macroeconomic variables and stock market prices in the previous years. A few studies have investigated the relationships between exchange rate and stock price across a range of countries, with mixed conclusions. This chapter therefore focuses on the summary of the major findings, conclusions and recommendations of the study.

5.1 Summary of major findings

Based in the discussion in chapter four the following are the summary of the major findings. Firstly, the study made use of Johansen and Juselius (1990) test of cointegration to determine the presence of long run relationship between the variables under consideration. It was found out that there is a positive relationship between the stock market returns and the exchange rate and its consistent with Solnik (1987) and Ajayi and Mougoue (1996) finds a significantly positive relationship between stock prices and exchange rates.

Secondly, the study also made the use VECM (Vector Error Correction Model) to examine the presence of a short run relationship between the variables. It was detected that the Exchange rate was found to be negatively related to the GASI in the short run

which is consistent with Adhikary and Banerjee (2009) and Adjasi et al (2008) on exchange rate and the stock market returns.

Finally, it was also evident that a long-run equilibrium relationship exists between the variables and a unidirectional causal flow runs from changes in the Exchange to GASI

5.2 Conclusion

Exchange rate and stock returns drift together in the long run and share a mutual equilibrium. The aim of this was to investigate whether stock prices and exchange rates are related to each other or not. There are some factors that have an impact on everyday stock prices such as stock prices of other countries, gross domestic product, exchange rates interest rates and others.

Investigation of the Exchange reveals a short term net negative feedback from the Exchange to the GASI with insignificant associated t-values of the coefficients the existing and lagged variables. This shows that the Exchange rate and GASI are nearly independent of each other which is also enhanced by the results of the adjusted R^2 and F-statistic. This is probable because there is a limited foreign portfolio investment in Ghana stock market and the depreciation of the Ghana cedi to the USD. In the inter-bank market, the Ghana cedi for instance depreciated marginally by 0.7% against the US dollar during the second quarter of 2014.

It can therefore be concluded that the Ghana Stock Exchange market and foreign exchange rate of the USD seem to move independently, although there is some evidence showing an existence of a long-run equilibrium relationship between the variables.

5.3 Recommendations

The study gives the following recommendations based on the findings in chapter four. Firstly, In order to achieve better stock performance, policy makers of the Ghana Stock Exchange must put in place measures to ensure better corporate performance by listed firms. This is because investors would like to know the performance of the stock market in the previous year before they decide to invest in them. It is likely the falling performance of the GSE would dampen its stock prices.

Moreover, Monetary stakeholders should be keen on macroeconomic indicators and diligently assess the impact of exchange rate volatility on the GSE market returns. Volatility would depend on both the degree of openness of domestic economy and the degree of the trade imbalance. Capital account transactions should be well monitored to ensure a sound portfolio balance. According to Frankel (1993), a rising stock market would attract capital flows into the economy which increases for domestic currency and cause exchange rate to appreciate.

Furthermore, Potential investors pay attention to both exchange rate and interest rate dynamics due to the relationship that exist with the GASI in the long run. Investors are advised to also consider other factors like inflation and foreign direct investment and its

performance in their investment decisions. This is because macroeconomic variables may serve as a guide in forecasting stock market viability and to decide if it is worthwhile to invest in such portfolios. Investors, apart from the fundamental factors should consider firm specific factors in their decision to purchase the firm's stock.

In addition, Foreign players in Ghana like the telecoms, energy and mines sector should be encouraged to be listed to add up to the 39 already listed companies on the stock market. This is expected to boost the economy and allow Ghanaians to also reap some of the profits. In view of that, the GSE can be more attractive than the other investment instrument like exchange rates market and the treasury bills. This is because investors see Treasury bills as alternative assets to GSE stocks and would switch to the Treasury bills if the rate of returns from the GSE is lower.

The government must also continue to ensure that prudent measures are put in place to ensure that inflation rates are kept low to keep the levels of interest rate stable over a period of time which will as such move in the same direction as the stock market. By so doing, investors will wish to invest in both short term and long term portfolios and will also encourage foreign investors into the Ghanaian market to boost the economy.

Finally, the country can use its link to attract foreign investment to increase the portfolio in their own countries. If the causality runs from stock prices to exchange rates then the authorities can focus on national economic policies to achieve stability in the stock market.

Lastly, other economic factors should be considered such dividends and gross domestic product, interest, inflation to determine its effect on GSE index to determine the long term or short term effect of the macroeconomic variables on stock market returns in Ghana

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