UNIVERSITY OF GHANA

THE IMPACT OF INFLATION ON STOCK MARKET PERFORMANCE IN GHANA

BY

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(10703896)

A LONG ESSAY SUBMITTED TO THE UNIVERSITY OF GHANA, LEGON IN
PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE AWARD OF
MASTER OF SCIENCE DEGREE IN DEVELOPMENT FINANCE.

JUNE, 2019
CANDIDATE’S DECLARATION

I, the undersigned do hereby declare that this thesis is the result of my own original research and that no part of it has been presented for another degree in any University or Institution. However, all sources of borrowed materials have been duly acknowledged.

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SUPERVISOR’S DECLARATION

I declare that the preparation and the presentation of this thesis were in accordance with the guidelines on supervision of thesis laid down by University of Ghana.

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Name:  DR. ELIKPLIMI KOMLA AGBLOYOR

Date:  ..........................................................
DEDICATION

This thesis is humbly dedicated to the Almighty God, and Dr. & Mrs. Akor and family for their unending support during my study. I would also like to dedicate this work to all my loved ones, colleagues at work and course mates for the support they also gave me during my study.
ACKNOWLEDGEMENT

I first and foremost express my deepest gratitude to God Almighty for the gift of life and His grace for seeing me through this academic exercise.

To my supportive Supervisor, Dr. Elikplimi Komla Agbloyor, under whose guidance and supervision this research has become a success; I will forever remain grateful.

I would also like to thank my parents, siblings and friends for their immense prayers and support throughout my thesis.
ABSTRACT

Stocks represent ownership in a corporation or a company in finance. They are sometimes referred to as equities or shares. The converging place of the buying and selling of stocks is what is referred to as a Stock Market/Exchange. The main objective for the study was to determine how inflation impacts the stock market performance in Ghana to help companies and individuals make informed decisions when there are changes in inflation rate. A quantitative approach of data analysis was employed to analyse secondary data obtained covering a 25-year period for the study. Three models were fitted between inflation and three different measures of stock markets performance: percentage change in the composite index, market capitalization-to-GDP ratio, and market turnover ratio. Descriptive statistics from 1994 to 2006 revealed the highest and lowest inflation figures to be 59.32% and 11.68% respectively with a mean inflation of 24.94%. This compared unfavourably to inflationary figures from the period 2007 to 2018 with 17.46%, 6.70% and 12.15% as the highest, minimum and average inflationary figures respectively. The study also brought to bare that in a high inflationary period, 1994 to 2006, there was a negative correlation between the stock market indicators and inflation. This indicates that stock market was not a good hedge against inflation during the period under consideration. In the subsequent period, 2007 to 2018 which was a low inflationary period, there was a positive relationship between inflation and the stock market indicators. The study recommends that the central bank maintains inflation at low levels. Thus, inflation rates must be kept significantly low so that they do not erode the value of returns investors earn in the market. Also, the GSE and the Securities and Exchange Commission should intensify public insight and education of equity investments and transactions to attract more listings on the Exchange and more opportunities for trading. This will directly lead to an increase in market capitalisation.
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<th>Description</th>
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<td>ASI</td>
<td>All-Share Index</td>
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<td>BoG</td>
<td>Bank of Ghana</td>
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<td>CME</td>
<td>Capital Market Efficiency</td>
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<td>CI</td>
<td>Composite Index</td>
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<td>CPI</td>
<td>Consumer Price Index</td>
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<td>EMH</td>
<td>Efficient Market Hypothesis</td>
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<td>GATS</td>
<td>GSE Automated Trading System</td>
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<td>GAX</td>
<td>Ghana Alternative Exchange</td>
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<td>GDP</td>
<td>Gross Domestic Product</td>
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<td>GSE</td>
<td>Ghana Stock Exchange</td>
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<td>GSE-CI</td>
<td>GSE Composite Index</td>
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<td>INF</td>
<td>Inflation</td>
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<td>Licensed Dealing Members</td>
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<td>MCGDP</td>
<td>Market Capitalization-to-GDP</td>
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CHAPTER ONE
INTRODUCTION

1.0 Introduction
This chapter sets the tone for the research by describing the research problem. The purpose of the study as well as its intended objective to be achieved is outlined in this chapter. It further elaborates on the outline and the format adopted by the researcher. The chapter talks about the organization of the research. It concludes by outlining some relevance of the research and its general organization.

1.1 Background to the Study
Stocks represent ownership in a corporation or a company in finance. They are sometimes referred to as equities or shares. The converging place of the buying and selling of stocks is what is referred to as a “Stock Market/Exchange”. It exists for issuing new shares as well as dealing in shares already listed on the stock exchange or over-the-counter where stocks are traded directly between two parties of the stock market without the supervision of an exchange. The stock market is a crucial aspect of present-day financial engineering, known to contribute significantly to long-term financial intermediation that fosters the expansion of the economy.

The “Stock Market” is a secondary market. It provides liquidity to shares issued at the primary market whereby prospective buyers can buy shares from existing shareholders at prevailing share price or value. The performance of this market sends signals that, shares bought today can easily be sold tomorrow and boost investor confidence. It also demonstrates the accurate performance of the various institutions listed on the stock exchange through the fluctuating nature of the share prices, either favourable or unfavourable.
Inflation can be defined as “the persistent and appreciable increase in the general price levels of goods and services in an economy within a stipulated time”, which leads to a fall in the value of real money. The rate of inflation is a macroeconomic indicator that measures yearly the percentage highs or lows in value of services and goods in an economy. Governments, all over the world, regularly publicise the consumer index of prices monthly. The rate of inflation estimates, on average, the base point by which prices have increased over the benchmark index period.

The prospects of higher inflation is bearish for the stock market because it encourages investors to lock in their cash from equities to more attractive, less risky securities like money market funds. The lower the funds flow, the lower the stocks, hence lower share prices. Again expectation of higher inflation is what drives the market crazy. When there is uncertainty, the risk premium tends to increase, which leads to higher expected returns from the stock market. A continuous increase in inflation will cause the minimum returns on stock to be higher which will push market valuation lower. Share prices will fall until estimated earnings increases to a point enough to offset the expected inflation. The expectation of a rising inflation can adversely affect the stock in the short-term. In vesting in stocks can be a good hedge against inflation over the long-term.

The SEC happens to be the sole institution mandated to regulate stock market and could issue license to other institutions to operate. The GSE has two categories of listing, namely Ghana Alternative Market (GAX) and the official list. The GAX is intended for small to medium-sized enterprises. There are 41 of these companies currently listed on Ghana Stock Exchange.
1.2 Research Problem
Several studies have proven that inflation affects the performance of stock markets. Long-Run study of the variables of the stock market has revealed that inflation is a key issue that cannot be overlooked as fast as stock markets are concerned. Inflationary periods can lead to a rise in increased interest rates due to a rise in the consumer price index. This can further lead to declining stock prices. High inflation causes extreme levels of stock market fluctuations which could threaten the economy, making it inefficient. This calls for further investigation into the subject matter to gain clarity on the behavior of the two variables, especially in the context of Ghana. This study, therefore intends to address this uncertainty and find answers to the question: what effect does inflation have on stock market performance in Ghana?

1.3 Research Purpose
The purpose of this research is to determine how inflation impacts the stock market performance in Ghana to help companies and individuals make informed decisions when there are changes in inflation rate.

1.4 Research Objective
This study, examines to achieve the following objective;

i. To investigate the correlation between inflation and stock market liquidity in Ghana form 1994 to 2006, 2007 to 2018 and 1994 to 2018.

1.5 Research Question
The study provides empirical evidence on the impact of inflation on stock market performance in Ghana - that answers the following research questions:-
i. Is there any correlation between inflation and stock market liquidity in Ghana from 1994 to 2006, 2007 to 2018 and 1994 to 2018?

1.6 Significance of the Study

Stock markets all over the world act as a conduit for boosting any economy by allocating resources to productive sectors of the economy in an efficient manner. They serve a fundamental function in the growth of industries and the expansion of the commercial sector of every economy. The stock exchange is also a significant factor in the growth of any financial sector which plays a pivotal role in mobilising funds in many emerging economies. This study intends to look at the relationship existing between inflation, a key economic indicator and stock market returns.

The findings of this research will be of relevance by contributing to the existing literature on the relation holding between inflation and stock market performances, and adding to the existing body of knowledge on the operations of stock markets. It will also be a source of reference to key players in the stock market, including policymakers, portfolio managers, research analysts, foreign investors, institutional investors, and individual investors. This study will reveal the level of relation inflation has on stock performance so that industry players and stakeholders can make sound investment decisions. As part of plans to get more companies listed on the exchange, the findings of this study will help put forward the necessary conditions needed to ensure efficient performance of the listed shares on Ghana Stock Exchange.

1.7 Chapter Organization

The study consists of five chapters which collectively seek to look at the correlation between inflation and stock market performance in Ghana from 1994 to 2018.
The first chapter is the introductory section of the study. It outlines the problem statement, the research purpose, research questions and significance of the study as well as its organisation.

Chapter two looks at relevant literature covering the study. Chapter two deals with the empirical, theoretical and conceptual frameworks proposed or developed by other researchers in various works.

Chapter three looks at the method by which the study is conducted. This includes the technique used in data collection as well as the technique used in the analysis of the data.

The fourth chapter is an analysis of the data obtained.

The fifth chapter, Chapter five summarises and concludes the study. It also gives some recommendation for further studies.

1.8 Chapter Summary

When there is uncertainty, risk premium tends to increase, which leads to higher expected returns from the stock market. A continuous increase in inflation will cause the minimum returns on stock to be higher which will push market valuation lower. Inflationary periods can lead to a rise in increased interest rates due to a rise in the consumer price index. The study seeks to assess the association between inflation and some stock market variables. It is evident from the above that the study will reveal the level of relation inflation has on stock performance so that industry players and stakeholders can make sound investment decisions.
CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter evaluates germane studies and theories regarding inflation and the stock market in Ghana. Section 2.2 begins with the concept of Capital Market Efficiency (CME), by discussing the meaning of CME, the rationale for Efficient Market Hypothesis (EMH) on the capital market and some major forms of EMH strategies. Section 2.3 presents the dynamics of stock market returns, explaining the performance of an investment, while section 2.4 reviews various empirical studies evaluating performance on the stock market. Finally, section 2.5 provides a summary of the chapter and the gaps in the literature.

2.2 Theoretical Review

This section examines various theories proposed by scholars regarding inflation, stock market conditions and the Concept of Capital Market Efficiency.

2.2.1 Relationship between Inflation and performance of Stock Market

The value and purchasing power of currency diminishes over time due to inflation. Inflation is a state in the economy of a country, when there is a persistent rise in aggregate level of price of goods as well as services. Repetitive price increase erodes the purchasing power of money and other financial assets with fixed values creating serious economic distortions and uncertainty. With increase in inflation, every sector of the economy is affected. Ranging from unemployment, interest rates, exchange rates, investment, stock markets. There is an aftermath of inflation in every sector. Inflation is bound to impact all sectors, either directly or indirectly. Inflation and stock market have a very close association. If there is inflation, stock markets are the worst
affected (Jepkemei, 2017). Inflation within the entire domestic economy is estimated using GDP deflator while consumer prices are measured by the CPI.

Price stability is essential in determining whether an economy is stable or not. Inflation which is the constant increase in price creates uncertainty in the economy; Well inflation is known to wipe out the savings and investments of people. If Inflation goes out of control and increases too much, people will have to spend too much on the essential stuff, which means they will stop buying things which are not essential. This will make the economy stagnant as demand for various goods will drop (Ibrahim and Agbaje 2013, Choudhary 2015). When there is threat of escalating inflation, the central bank tries to control this by raising interest rates. By increasing interest rate, they hope to attract investors to park their cash in fixed income instruments, thereby siphoning off excess liquidity from the system. Theoretically, when there is less liquidity, there is less speculative demand for goods in the economy, hence slowing down the increase in general prices (Ong 2014).

An increase in the rate of inflation has an effect, including the level of unemployment, exchange rates, interest rates and the performance of stock markets in every economy. For this reason, central banks that aim to reduce inflation, being cautious of deflation, ensure the efficient running of monetary activities in the economy. In Ghana, Bank of Ghana (BoG) ensures that inflation rates are kept in check. Price stability is essential in determining whether an economy is stable or not. Inflation which is the constant increase in price creates uncertainty in the economy; Well inflation is known to wipe out the savings and investments of people. If Inflation goes out of control and increases too much, people will have to spend too much on the essential stuff, which means they will stop buying things which are not essential. This will make the economy...
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Theoretically, when there is less liquidity, there is less speculative demand for goods in the economy, hence slowing down the increase in general prices (Ong 2014). They argue that the demand for goods and services is the most important factor in determining price levels. Keysians believe that excessive demand of goods and services is the major cause of inflation and therefore, the government has the responsibility to control the general demand for goods and services to an optimum level through its fiscal policy. Monetarists conversely argue that money supply is the major factor in determining price levels. They believe that the government’s participation in the economy must be maintained at a minimum level since its fiscal policies are ineffective in controlling inflation.

Effect of inflation on stock market is also evident from the fact that if the inflation rate is high, the interest rate is also high. In the wake of both (inflation and interest rates) being high, the creditor will have a tendency to compensate for the rise in interest rates. Therefore, the debtor has to avail of a loan at a higher rate. This plays a significant role in prohibiting funds from being invested in stock markets (Economy watch 2010). Rising inflation can cause the most damage in fixed income securities, because most likely going to lose the real terms if the agreed interest rate is less than the inflation per cent; it also encourages investors to lock in their cash from equities to more attractive, less risky securities, like money market funds. The stocks are one of the few assets that can rely on when it comes to beating inflation; the other asset that can consider is real estate which tracks inflation through value appreciation. However, this is not as liquid as stocks.
The lower the funds flow into the market, the lower the demand for stocks, hence lower share prices, the price of stocks are directly proportional to the performance of the company. In the event when inflation increases, the company earnings (worth) will also subside. This will adversely affect the stock prices and eventually the returns. If inflation continues to increase, the minimum return on stock investment will also be higher which will push market valuation lower. Share prices will fall until the estimated earnings yield increase to a point enough to offset the expected inflation (Ong 2014).

2.2.3 Proxy Hypothesis

Fama (1991) consequently proposes that the inverse association observed among real stock returns and inflation is misleading. He argues that the inverse association among stock returns and inflation is a result of the positive association of stock returns with real activity and the negative association between inflation and real activity. His argument is centred on the fact that when rational consumers realise a fall in economic activity, the money they demand is consequently reduced. This leads to a surplus in money stock and hence, inflation.

“Wei and Wong (1992), Benderly and Zwick (1985) and Lee (1992) endorsed the proxy hypothesis. However, Ram and Spencer (1983) did not support the claims of the theory. They argued that Fama’s analysis creates doubts about the standard theories of the Phillips curve, which suggests a positive rather than a negative correlation between inflation and real activity. They find consistent proof of a positive correlation between real activity and inflation and a negative correlation between real activity and stock returns (Modigliani, F. & Cohn, R., 1979)”.

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2.2.4 The Concept of Capital Market Efficiency

2.2.4.1 Efficient Market Hypothesis (EMH)

The EMH suggests that the current prices of traded assets and securities reflect all publicly accessible information at any given point in time. Fama (1965) proposed that the current prices of stocks entirely reflect all available information regarding the value of an organisation and therefore, it is not feasible to make surplus profits by using that information. This proposition implies that it is impossible to steadily “beat the market” on a risk-adjusted basis since market prices would only react to the newly available information. It asserts that no investor can consistently outdo the market because it is extremely difficult and highly improbable to forecast price movements. Security prices adjust swiftly to new information.

2.2.4.2 Forms of Market Efficiency

Fama (1991) noted that EMH can be categorised into strong, semi-strong and weak form market efficiencies. If markets were efficient, every stock would yield the same expected returns. As a result, only unforeseen random information can affect the prices of shares, making them deviate from the expected average yields. However, Sanford and Joseph (2013) argue that perfect market efficiency is unrealizable. It would exclude profits gained from the gathering of information. Slight inefficiency is essential to give well-versed investors motivation to drive prices near efficiency. They argue that the costs of security evaluation and trading are constraints to market efficiency. Thus, a different level of efficiency is expected across different markets concerning trading levels.
2.2.4.2.1 Weak Form Efficient Market Hypothesis and its Implications

The weak form of the EMH emphasises that prior records of prices of securities are entirely incorporated in current prices. The present price of a security is a reflection of past prices. The weak form EMH also asserts that analysing prices from the past cannot accurately predict future prices. This means that no investor can “beat the market” by analysing only historical security prices. If this holds, then “no one should be able to profit from using prior information that everyone else knows (Vena H, 2014)”.

Investment techniques strictly based on “historical data and prices cannot be used to generate excess returns in the long run (Corrado et al, 2002)”. This assertion suggests that technical analysts- financial analysts who earn profit by examining past data on securities- cannot steadily make surplus returns.

2.2.4.2.2 Semi-Strong Form Efficient Market Hypothesis and its Implications

This form of market hypothesis claims that “the most recent prices of securities are a reflection of all information that is publicly accessible (Vena H, 2014)”, both past and present. Consequently, future prices cannot be forecasted based on currently available information. Available information may include past prices, data available in financial statements, filings with Exchange Commissions, dividend declarations among others. If freely “available information is already incorporated” into prices of stocks and other securities, then both technical and fundamental analysts cannot produce extra earnings and hence, it is of no relevance paying for the services of analysts.

2.2.4.2.3 Strong Form Efficient Market Hypothesis and its Implications

In strong-form EMH, prices of securities are a complete reflection of all information, both published and unpublished. Therefore, no investor can make surplus earnings. Since prices are a
reflection of both public and private information, the strong form of EMH suggests that even if it were legal to use private (inside) information to trade securities, no one, not even management of a company (insiders) can expect to make extra returns from such trades. It is quite impossible to attain such a form of market efficiency.

2.2.4.3 Evidence of Market Efficiency from Emerging Markets

The majority of literature on market efficiency in emerging markets points to a variety of results; most of which assert that emerging markets, especially in Africa, are weak-form efficient. Very few emerging markets are semi-strong with practically no strong form of market efficiency in such markets. Appiah-Kusi and Menyah (2003) in using an autoregressive model to investigate the form of efficiency in African markets assert that contrary to previous studies done on the stock market in Nigeria, there is not enough evidence to conclude that it exhibits a weak form of efficiency. They also affirm that the Kenyan and Egyptian markets exhibit some form of efficiency. Evidence from Ghana, Cote D’Ivoire and Botswana are inconsistent with weak-form efficiency. However, Mlambo and Biekpe (2007) observe that markets in Mauritius, Ghana, and Botswana do not follow the “random walk” and hence, can be classified as weak-form efficient. Nevertheless, it is possible for investors who trade on these markets to earn profits.

2.2.4.4 Evidence of Market Efficiency from Developed Markets

Several types of research have been done to investigate market efficiency in different developed markets with varying conclusions. Nisar and Hanif (2012) analysed the Asia-Pacific form of market efficiency on the main stock exchanges using daily, weekly and monthly historic values between 1997 and 2011. They discovered that out of the seven major stock markets, “Nikkei N225 (Japan), Kospi Composite (Korea), Hang Seng Index HIS (Hong Kong) and All Ordinaries
ASX (Australia)” do not “follow the random walk” and thus exhibit weak-form efficiency. In Europe, Borges (2010) used joint variance ratio tests and ran tests to analyse data collated weekly and monthly from 1993 to 2007. She concluded that daily data gathered from the markets in Greece and Portugal do not conform to the hypothesis. The markets in United Kingdom and France also do not conform to the EMH. On the contrary, the markets in Spain and Germany exhibit efficiency with that of Spain being the most efficient. Chan, Gup, and Pan (1992), assert that for markets in the United States, enough evidence does not exist to conclude that those markets exhibit weak-form market efficiency both exclusively and jointly in the long run.

2.3 Stock Market Returns

Earnings that investors can create out of the stock market are generally referred to as stock market returns. Stock market returns usually come in two forms: gains made through “trading in the secondary market and dividends paid out periodically by a company to its shareholders (Chan et al 1992)”.

Stock market returns may be negative or positive. They are not fixed returns and are subject to market risks. In Ghana, stock market returns are usually measured as percentage changes in the year-to-year composite index. The composite index was introduced in 2011, as a capitalisation-weighted index. It takes into account all the listed companies on GSE.

2.4 Review of Empirical Studies

Studies have supported the assertion that since the inflationary rate is a sustained rise in general price levels of goods and common stocks are considered capital goods, then the prices of stocks have to correspond with general price levels. This implies that when the general rate of inflation rises, common stocks should rise to make up for the reduction in the value of money. Inferring from this, a positive correlation between inflation rate and stock prices is expected.
However, some past studies have shown an inverse relationship between stock returns and inflation rate whereas others have shown an anomalous relationship.

Ioannides, Katrakilidis *et al.* (2002) support Fisher’s hypothesis that the “stock market can hedge inflation” after they had examined the connection between inflation and returns from the stock market in Greece from 1985 to 2000 in another study.

Wei (2007) analyses the link between inflation as a result of shocks and returns gained on stocks and concludes that “equity returns respond more negatively to unexpected inflation during economic contractions than expansions.”

Levine *et al.* (2000) in their study on the “influence of inflation on financial market performance” found a strong evidence that there exists a substantial, inverse correlation between inflation and activity in the stock market. They also observed that the correlation between inflation and activities in the stock markets is a non-linear one.

In a study conducted in Nigeria by Daferighe (2012) enough proof that inflation and measures of equity market performance are negatively correlated was observed. Also, Uwubanmwen and Eghosa (2015) observe that a negative association exists between the variables in Nigeria. However, they argue that the association is a weak one and therefore, stock returns cannot be strongly predicted using inflation rates. Aliyu (2012) finds evidence that volatility in the stock market is extensively affected by inflation rates in Ghana and Nigeria. In his study, he discovers that bad news has a more unfavourable impact on the volatility of the Nigerian stock market than the good news of similar enormity. On the contrary, the exact opposite exists in Ghana. Again in Nigeria, Iorember *et al.* (2017) conclude that stock market volatility cannot be accurately explained by inflation.
Madsen (2004) uses Fisher’s hypothesis in investigating the correlation between the rate of stock returns and inflation. The study reveals that returns on shares do not serve as a hedge against inflationary rates that are anticipated. It was thus concluded as proof contrasting Fisher’s hypothesis. However, Vena (2014) infers that inflation is positively linked to stock returns from analysis done in Nairobi. The conclusion is that investments can thrive well in the stock market regardless of the rate of inflation. This conclusion supports Fisher’s hypothesis.

Inflation merely serves as a proxy for real-activity variables in models that associate stock returns to inflation. The fundamental contributing factor of stock returns is the anticipated level of real economic activity. On the other hand, owing to money-demand effects, Fama (1991) argues that surges in expected real activity are inversely linked to inflation. This causes the misconception that increased levels of inflation lead to lower stock returns.

2.4 Summary of Literature Review

It has been observed from the review that a number of studies have been done regarding the effect of inflation on the stock market. A good number of these studies have revealed that inflation adversely affect stock returns. However, other studies have proposed that stocks should act 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 the stock market serves 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.
Concerning the theories that attempt to explain the relation between inflation and stock market performance, several of them assert that the correlation between stock market returns and inflation rates is negative. Others, however, emphasize that the stock market does not seem to be affected by fluctuations in the inflation rate. It is uncertain therefore whether a positive or negative relationship exists between these variables given the contrasting conclusions in the literature. It is in this regard that the current study aims to fill the gap by ascertaining the kind of relation holding between these variables using the situation of GSE.
CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction

In this chapter, the various methodologies adopted to achieve the research objectives are discussed. The chapter starts with a discussion of the research design employed in undertaking this study, the population of the study and the sampling technique used. Afterward, the researcher fitted three models between inflation and three different measures of stock market performance; percentage change in the composite index, “market capitalisation-to-GDP ratio, and the market turnover ratio”. The data obtained used for the study covers the period 1994-2018. The researcher subsequently decomposed the data into three time frames (1994 – 2018, 1994 - 2006 and 2007 – 2018). The method and tools used for analysing the data is also presented and explained in this chapter. The summary of the discussions presented in this chapter appears as the final section.

3.2 Research Design

The study used a test for relationship approach in the quest to determine if the stock market returns in Ghana have any relationship with inflation. This approach was used because of its ability to establish the kind of relationship that exists between these variables and the magnitude of the relationship that holds between the variables.

3.3 Research Population

The target population of the study consisted of all companies listed on the GSE at the end of 2018. This population gave a wide and comprehensive composition of market conditions and hence was an appropriate one. The GSE listed companies as at the end of 2018 and their respective sectors are captured in the table below:
<table>
<thead>
<tr>
<th>Line of Business</th>
<th>Number of Companies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing</td>
<td>• African Champions Industries&lt;br&gt;• Ayrton Drug Manufacturing&lt;br&gt;• Starwin Products&lt;br&gt;• Camelot Ghana&lt;br&gt;• Sam-Woode&lt;br&gt;• Aluwork&lt;br&gt;• PZ Cussons&lt;br&gt;• Unilever Ghana</td>
</tr>
<tr>
<td>Information and Communication Technology</td>
<td>• Clydestone Ghana&lt;br&gt;• MTN Ghana</td>
</tr>
<tr>
<td>Banking and Investment (if any)</td>
<td>• Access Bank Ghana&lt;br&gt;• Agricultural Development Bank&lt;br&gt;• CAL Bank&lt;br&gt;• Ecobank Ghana&lt;br&gt;• Ecobank Transnational Incorporated&lt;br&gt;• GCB Bank&lt;br&gt;• Mega African Capital&lt;br&gt;• New Gold Issuer Limited&lt;br&gt;• Republic Bank Ghana&lt;br&gt;• Standard Chartered Bank Ghana&lt;br&gt;• Societe Generale Ghana&lt;br&gt;• Trust Bank (The Gambia)</td>
</tr>
<tr>
<td>Insurance</td>
<td>• Enterprise Group&lt;br&gt;• SIC Insurance Company</td>
</tr>
<tr>
<td>Food and Beverages</td>
<td>• Cocoa Processing Company&lt;br&gt;• Fan Milk&lt;br&gt;• Guinness Ghana Breweries&lt;br&gt;• Hords Limited</td>
</tr>
<tr>
<td>Education</td>
<td>• Meridian-Marshalls Holdings</td>
</tr>
<tr>
<td>Agriculture</td>
<td>• Benso Oil Palm Plantation&lt;br&gt;• Mechanical Lloyd Company&lt;br&gt;• Produce Buying Company</td>
</tr>
<tr>
<td>Oil &amp; Gas</td>
<td>• Ghana Oil Company&lt;br&gt;• Total Petroleum Ghana&lt;br&gt;• Tullow Oil</td>
</tr>
</tbody>
</table>
### 3.4 Data Collection

The study used secondary time series data for a period of twenty-five years from 1994 to 2018. The data was further divided into two halves thus 1994 – 2006 and 2007 – 2018. The key objective for this was to gain a more extensive coverage and hence, more reliable results. The data used for the analysis and drawing of inferences were obtained from the websites of GSE and BoG. The year-on-year inflation figures were sourced from BoG’s website whiles the data for the other market variables (MCGDP, TR and CI) were computed from the website of GSE.

The measures of stock market performance used in the study include the GSE composite index, the total value of shares traded ratio and the market turnover ratio and the market capitalisation to gross domestic product (GDP) ratio.

Market capitalisation is an alternative measure of stock market performance. Market capitalisation is the value of money an investor would be required to have if he decided to purchase every share of a company-issued at the current market price. In this study, the market capitalisation-to-GDP (MCGDP) “ratio is used as one measure of stock market performance”.

The stock market capitalisation-to-GDP ratio measures the aggregate value of all stocks that are publicly traded in a market divided by that economy's GDP. It is mathematically expressed as:

\[
\text{Market Capitalization to GDP} = \frac{\text{Stock market capitalization}}{\text{GDP}}
\]
Market capitalisation-to-GDP tells the value placed on an entire market. It is an indication of whether a market is undervalued or overvalued when compared to past averages. It is a comparison of the total value of all stocks traded in an economy to that economy's overall output. This ratio indicates the value of the stock market that is represented by GDP. Usually, a ratio that exceeds 100% is an indication that a market is overvalued while a value lesser than 50% indicates that the market is undervalued. The market is said to be fairly undervalued if the ratio lies between 50% and 75%. On the other hand, a value that lies between 75% and 90% points toward a market that it is fairly valued (www.investopedia.com).

Market turnover is a measure of liquidity on the stock market. The turnover ratio (TR) is an indication of the level of ease or difficulty at which shares on an exchange can be traded. It is the “total value of shares traded domestically” divided by their market capitalisation. A high level of market turnover is an indication that investors will find it easier in trading shares in the stock market.

\[
\text{Turnover ratio} = \frac{\text{Total value of shares traded}}{\text{market Capitalization}}
\]

### 3.5 Data Analysis

To obtain accurate results, data collected was analysed using the Pearson correlation. Data was systematically structured and analysed by the statistical software, Eviews to establish the association between inflation and the stock market performance measures, and also determine the extent of dependence between inflation rates and stock market measures. Data and results obtained were presented in tables and graphs.
3.6 Analytical Model

The correlation was used to analyse the extent of relationship between several variables. The relationship between the variables: Inflation (INF), Composite Index (CI), Market capitalisation-to-GDP (MCGDP), and Turnover Ratio (TR) in quantitative analysis. Also, this tool was employed since the data has time-series dimensions. To understand in-depth, the link between inflation rates and the measures of stock market performance used in the study, the Pearson’s Correlation Coefficient is computed to observe the association between all the variables (INF, CI, MCGDP, and TR).

3.7 Hypothesis

\( H_0 \): No negative statistical relationship exists between inflation and the measures of stock market performance of the Ghanaian stock market.

\( H_1 \): A negative statistical relationship exists between inflation and the measures of stock market performance of the Ghanaian stock market.

3.8 Chapter Summary

This chapter focused on the methodology used to achieve the objectives of the study. The study used a quantitative research approach to assess the relationship between inflation and three different measures of stock market performance, namely; percentage change in the composite index, market capitalisation-to-GDP ratio and the market turnover ratio. The data obtained from 1994-2018 was built into two samples thus from 1994 – 2006 and 2007 – 2018. The idea behind this is to understand the dynamic patterns of inflation in the stock market indices. These samples were tested for diagnostically and analysed using EVIEWS.
CHAPTER FOUR
DATA ANALYSIS AND FINDINGS

4.1 Introduction
This chapter presents the analysis and findings derived from the study and interpretation of the results. The data used for the study covered the entire stock market in Ghana and a macroeconomic variable, inflation. Yearly data were collated over an extensive period of 25 years. The analysis was done in phases. First, trend analysis was done and results were presented in graphs. Descriptive statistics then showed the necessary information about the data such as the standard deviation and the mean of the variables used in the study. Diagnostic tests of each model were carried out, after which Pearson correlation analysis was carried out to establish the link relating inflation to each measure of market performance. Interpretation of the results ends the analysis and a chapter summary ends the entire chapter.

4.2 Preliminary Test
Preliminary analysis was carried out to reveal certain characteristics of the data. Trend analysis on each variable within the time horizon was done to establish their pattern.

4.2.1 Trend Analysis from 1994 – 2006
The trend of each variable used in the study is presented below in a form of a graph. Figure 4.2.1, thus shows the annual inflation rate in Ghana from 1994-2006. It is revealed that the inflation rate in Ghana over the period under study has been volatile. Inflation saw a decline from 1995 through to 1999, after which it picked up and continued to fluctuate (www.statista.com). Inflation reduced abruptly in 2006 as shown in the Figure 4.2.1.
Just like annual inflation rates, it is observed that the annual composite indices fluctuate over time. Returns earned in the Ghanaian stock market have not been consistent over the period under study, with both positive and negative returns being generated. The GSE returned the highest in 2003 with an excess return of approximately 155%. The following year, however, saw a decline to 91.33% and an even sharper decline to -29.72% in 2005.

The overall value investors put on the stock market from 1994 to 2006 can be observed from Figure 4.2.1. The graph (Figure 4.2.1) shows that investors generally undervalue the stock market in Ghana, with 8 out of the 13 years considered recording ratios that lie below 50%. The
market in Ghana has been overvalued once, in 2004. In 2006, the market was fairly valued. Figure 4.2.1 shows a graphical representation of the level of ease at which shares can be traded on the GSE. It is observed the stock market turnover in Ghana is largely low, with most years recording ratios that are lesser than 1.0. This implies that the market in Ghana has low liquidity and thus, it is quite difficult for investors to trade on the GSE.

4.2.2 Trend Analysis from 2007 to 2018

It can be observed that the inflation rate declined sharply to its usual range in 2007. As can be observed, the inflation rate in Ghana continues to fluctuate and remain high, with most years recording double-digit figures. The lowest composite index of return was recorded in 2009 at -46.58%. It can be inferred from this trend that positive returns in the stock market are not guaranteed and hence, investors must brace themselves for years that go south. Market capitalisation to GDP observes a sharp decline from 2013 to 2018.
**Figure 4.2.2** Stock Market Turnover Ratio, Inflation, MCGDP and CI from 2007 - 2018
Source: Computations were done using data from the Ghana Stock Exchange

### 4.2. Trend Analysis from 1994 to 2018

**Figure 4.2.3** shows the annual inflation rate in Ghana from 1994-2018. The graph reveals that the inflation rate in Ghana over the period under study has been volatile. Inflation saw a decline from 1995 through to 1999, after which it picked up and continued to fluctuate. Inflation increased abruptly in 2006. However, it declined sharply to its usual range in 2007. Annual composite indices fluctuate over time. Returns earned in the Ghanaian stock market have not been consistent over the period under study, with both positive and negative returns being generated. The GSE returned the highest in 2003 with an excess return of approximately 155%.
The following year, however, saw a decline to 91.33% and an even sharper decline to -29.72% in 2005. The lowest return was recorded in 2009 at -46.58%. It can be inferred from this trend that positive returns in the stock market are not guaranteed and hence, investors must brace themselves for years that go south.

![Time Series Plot of INF, MCGDP, TR, CI](image)

**Figure 4.2.3** Stock Market Turnover Ratio, Inflation, MCGDP and CI from 1994 - 2018

Source: Computations done using data from the GSE

It is observed that the stock market turnover in Ghana is largely low, with most years recording ratios that are lesser than 1.0. This implies that the market in Ghana has low liquidity and thus, it is quite difficult for investors to trade on the GSE.
4.3 Descriptive Statistics from 1994 to 2006

Descriptive statistics were estimated to provide a comprehensive interpretation of the trend of inflation, percentage change in the composite index, “market capitalization-to-GDP ratio” and the “market turnover ratio”. Descriptive statistics of the study reveals the standard deviation, mean, skewness, kurtosis, maximum and minimum values for each variable used in the study.

It is evident from Table 4.3.1 that over the 13 years considered in this study, the average inflation rate was 31.80% which is quite high. Inflation in Ghana over this period recorded its highest point at 80.75% and its lowest at 13.97% from 1994 to 2006. The inflation rate is positively skewed.

Table 4.3.1 presents the descriptive statistics of the variables for a period of 13 years from 1994 to 2006.

<table>
<thead>
<tr>
<th></th>
<th>CI</th>
<th>INF</th>
<th>MCGDP</th>
<th>TR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>41.24923</td>
<td>24.93538</td>
<td>0.368198</td>
<td>0.019736</td>
</tr>
<tr>
<td>Median</td>
<td>16.55000</td>
<td>24.83000</td>
<td>0.190708</td>
<td>0.014457</td>
</tr>
<tr>
<td>Maximum</td>
<td>154.6700</td>
<td>59.32000</td>
<td>1.221897</td>
<td>0.041287</td>
</tr>
<tr>
<td>Minimum</td>
<td>-29.72000</td>
<td>11.68000</td>
<td>0.102546</td>
<td>0.004231</td>
</tr>
<tr>
<td>Std. Dev.</td>
<td>54.85230</td>
<td>19.76142</td>
<td>0.348811</td>
<td>0.013080</td>
</tr>
<tr>
<td>Skewness</td>
<td>0.784394</td>
<td>1.365071</td>
<td>1.535297</td>
<td>0.405322</td>
</tr>
<tr>
<td>Kurtosis</td>
<td>2.598454</td>
<td>3.968756</td>
<td>4.032608</td>
<td>1.707260</td>
</tr>
</tbody>
</table>

Source: Research findings 2019

From 1994 to 2006, the average return earned in the Ghanaian stock market as measured by the percentage change in composite index was 41.25%. The GSE’s highest and lowest returns were
154.67% and -28.72% respectively. The percentage change in composite index is positively skewed.

A market capitalisation-to-GDP ratio of 122.19% is an indication that at a point in time, the Ghanaian stock market was overvalued whereas an MCGDP ratio of 10.25% reveals that the market was undervalued. Nevertheless, on average, the stock market is observed to be generally undervalued. The MCGDP ratio is also positively skewed. Over the 13 years under study, the market turnover ratio of the Ghanaian stock market has not been reassuring. The average turnover ratio of 1.97% is an indication of the low liquidity of the stock market in Ghana. Even the highest turnover ratio of 4.13% recorded over the years is not promising enough. It can be concluded that investors usually find it challenging to easily trade shares on the GSE. The stock market turnover ratio, like every variable aforementioned, is positively skewed. The results obtained here are consistent with our findings from the graphs in Figure 4.2.1

4.4 Descriptive Statistics from 2007 to 2018

It is evident from Table 4.3.2 that over the second 12-year period considered in this study, the average inflation rate was 18.63% which is quite low as compared to the first 12-year period. Comparatively, the cost of doing business here would be low hence boosting investor confidence. Inflation in Ghana over this period recorded its highest point at 52.99% and its lowest at 9.84% from 2007 to 2018. Inflation rate is positively skewed as the mean is greater than the median.
Table 4.3.2 presents the descriptive statistics of the variables for a period of 12 years from 2007 to 2018.

<table>
<thead>
<tr>
<th></th>
<th>CI</th>
<th>INF</th>
<th>MCGDP</th>
<th>TR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>17.10833</td>
<td>12.15083</td>
<td>0.455857</td>
<td>0.007998</td>
</tr>
<tr>
<td>Median</td>
<td>14.60500</td>
<td>12.02000</td>
<td>0.436260</td>
<td>0.007489</td>
</tr>
<tr>
<td>Maximum</td>
<td>78.81000</td>
<td>17.46000</td>
<td>0.791544</td>
<td>0.020425</td>
</tr>
<tr>
<td>Minimum</td>
<td>-46.58000</td>
<td>6.70000</td>
<td>0.203384</td>
<td>0.001785</td>
</tr>
<tr>
<td>Std. Dev.</td>
<td>35.70695</td>
<td>11.37455</td>
<td>0.192200</td>
<td>0.004842</td>
</tr>
<tr>
<td>Skewness</td>
<td>0.050452</td>
<td>2.516274</td>
<td>0.421968</td>
<td>1.336449</td>
</tr>
<tr>
<td>Kurtosis</td>
<td>2.292118</td>
<td>8.327123</td>
<td>2.185821</td>
<td>4.694041</td>
</tr>
</tbody>
</table>

Source: Research findings 2019

When we take a deeper look into the second face of the analysis from 2007 to 2018, the average return earned in the Ghanaian stock market as measured by the percentage change in composite index was 17.12%. The GSE’s highest and the lowest returns were 78.81% and -46.58% respectively. The minimum value here is the lowest as compared with 1994 – 2006 business years. The percentage change in composite index is positively skewed.

A market capitalization-to-GDP ratio of 45.58% is an indication that at a point in time, the Ghanaian stock market was overvalued whereas an MCGDP ratio of 13.36% reveals that the market was undervalued. This results is no different as compared to 1994 – 2006 business years. Nevertheless, on average, the stock market is observed to be generally valued comparatively. The MCGDP ratio is also positively skewed.
Over the second 12-year period under analysis, the market turnover ratio of the Ghanaian stock market has not been reassuring. The average turnover ratio of 0.800% is an indication of the poor liquidity of the stock market in Ghana as compared to 1994 – 2006 business years. The highest turnover ratio of 2.04% recorded over the years is also not promising enough. It can be concluded that investors usually find it more challenging to easily trade shares on the GSE. The stock market turnover ratio, like every variable, is positively skewed.

4.5 Descriptive Statistics from 1994 to 2018

It is evident from Table 4.3.3 that over the 25-year period considered in this study, the average inflation rate was 18.80% which is quite high. Inflation in Ghana over this period recorded its highest point at 59.32% and its lowest at 6.7%. Inflation rate is positively skewed. From 1994 to 2018, the average return earned in the Ghanaian stock market as measured by the percentage change in composite index was 29.66%. The GSE’s highest and lowest returns were 154.67% and -46.58% respectively. The percentage change in composite index is positively skewed. A market capitalization-to-GDP ratio of 12.22% is an indication that at a point in time, the Ghanaian stock market was overvalued whereas an MCGDP ratio of 10.25% reveals that the market was undervalued. Nevertheless, on average, the stock market is observed to be generally undervalued. The MCGDP ratio is also positively skewed. Over the period under study, the market turnover ratio of the Ghanaian stock market has not been reassuring. The average turnover ratio of 1.41% is an indication of the low liquidity of the stock market in Ghana. Even the highest turnover ratio of 4.13% recorded over the years is not promising enough. It can be concluded that investors usually find it challenging to easily trade shares on the GSE. The stock market turnover ratio, like every variable aforementioned, is positively skewed.
Table 4.3.3 presents the descriptive statistics of the variables for a period of 25 years from 1994 to 2018.

<table>
<thead>
<tr>
<th></th>
<th>CI</th>
<th>INF</th>
<th>MCGDP</th>
<th>TR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>29.66160</td>
<td>18.79880</td>
<td>0.410274</td>
<td>0.014102</td>
</tr>
<tr>
<td>Median</td>
<td>16.55000</td>
<td>15.10000</td>
<td>0.316614</td>
<td>0.009746</td>
</tr>
<tr>
<td>Maximum</td>
<td>154.6700</td>
<td>59.32000</td>
<td>1.221897</td>
<td>0.041287</td>
</tr>
<tr>
<td>Minimum</td>
<td>-46.58000</td>
<td>6.70000</td>
<td>0.102546</td>
<td>0.001785</td>
</tr>
<tr>
<td>Std. Dev.</td>
<td>47.33160</td>
<td>17.31012</td>
<td>0.282425</td>
<td>0.011494</td>
</tr>
<tr>
<td>Skewness</td>
<td>0.898413</td>
<td>1.799707</td>
<td>1.234979</td>
<td>1.165874</td>
</tr>
<tr>
<td>Kurtosis</td>
<td>3.536834</td>
<td>5.647713</td>
<td>4.033925</td>
<td>3.120028</td>
</tr>
</tbody>
</table>

Source: Research Findings, 2019

### 4.4 Pearson Correlation Analysis for 1994 to 2006

The correlation matrix used to measure the degree of association between the different variables used in the study for 1994 – 2006 business years is presented in Table 4.3.1. From Table 4.3.1, Composite index is negatively related to Average Interest Rate. It is also negatively related to Market capitalization to GDP but positively related to Turnover ratio. However, an increase in composite index in another economic environment is significantly associated with increases in turnover ratio.
Table 4.3.4: Pearson Bivariate Correlation Coefficients, 1994 - 2006

<table>
<thead>
<tr>
<th></th>
<th>INF</th>
<th>CI</th>
<th>MCGDP</th>
<th>TR</th>
</tr>
</thead>
<tbody>
<tr>
<td>INF</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CI</td>
<td>-0.08023</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MCGDP</td>
<td>-0.33911</td>
<td>-0.00575</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>TR</td>
<td>-0.01123</td>
<td>0.55058</td>
<td>-0.53316</td>
<td>1</td>
</tr>
</tbody>
</table>

Source: Survey Data, EVIEWS Output

The results in the above table indicate a fairly weak inverse relationship between inflation and the stock market variable for the 13-year period (1994-2006). This mean inflation and the other variable move in an opposite direction. This shows that during the high inflationary periods, the stock market was not a good hedge against inflation.

4.5 Pearson Correlation Analysis for 2007 to 2018

The correlation matrix was used within the time horizon (2007 to 2018) to measure the strength of association between the different variables used in the study with respect to inflation as the subject matter.

Table 4.3.5: Pearson Bivariate Correlation Coefficients, 2007 - 2018

<table>
<thead>
<tr>
<th></th>
<th>INF</th>
<th>CI</th>
<th>MCGDP</th>
<th>TR</th>
</tr>
</thead>
<tbody>
<tr>
<td>INF</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CI</td>
<td>0.17465</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MCGDP</td>
<td>0.47458</td>
<td>0.18044</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>TR</td>
<td>0.10858</td>
<td>0.45566</td>
<td>0.11690</td>
<td>1</td>
</tr>
</tbody>
</table>

Source: Survey Data, EVIEWS Output 2019
From Table 4.3.5, the result shows that there is a positive correlation between inflation rate and the stock market variables (Composite Index, Market Capitalization to GDP and Turnover ratio) between the periods of 2007-2008. This is clear that during the low inflationary periods the stock market was a good hedge against inflation.

4.6 Pearson Correlation Analysis for 1994 to 2018

Table 4.3.6 gives correlation analysis of the variables under study for the time horizon 1994 to 2018. It can be inferred from the table that, there is a positive correlation between inflation and composite index as well as inflation and turnover ratio. However, the results show that there is a negative correlation between inflation and market capitalization to GDP.

Table 4.3.6: Pearson Bivariate Correlation Coefficients, 1994 - 2018

<table>
<thead>
<tr>
<th></th>
<th>INF</th>
<th>CI</th>
<th>MCGDP</th>
<th>TR</th>
</tr>
</thead>
<tbody>
<tr>
<td>INF</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CI</td>
<td>0.06677</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MCGDP</td>
<td>-0.37394</td>
<td>-0.00281</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>TR</td>
<td>0.27921</td>
<td>0.56485</td>
<td>-0.44172</td>
<td>1</td>
</tr>
</tbody>
</table>

Source: Survey Data, EVIEWS Output 2019

4.7 Chapter Summary

This chapter used graphs and tables to describe the trends in inflation rate, percentage change in the GSE composite index, “stock market-capitalization-to-GDP ratio and stock market turnover ratio” in Ghana. Pearson correlation Coefficient was used to assess the correlation between inflation rate and each of the measures of stock market performance used in the study. The study discovered a negative significant correlation between inflation rate and the percentage change in
composite index in Ghana. This implies that increase in composite index is generally associated with decrease inflation and Market capitalization to GDP and vice versa within the years 1994 and 2006. It was also revealed that between the years 2007 and 2018, there existed a strong positive linear relation between inflation rate and composite index and between turn over and composite index in each case and finally, inflation recorded a negative but very weak linear relation with most financial indexes as recorded earlier from 1994 to 2018 except for CI which is weak and positively related as observed within the entire data series. However, there was not enough statistical evidence to establish the relationships between inflation rate and both “market capitalization-to-GDP ratio and stock market turnover ratio” in Ghana.
CHAPTER FIVE

SUMMARY, CONCLUSION, AND RECOMMENDATIONS

5.1 Introduction

This chapter presents a summary of the findings of the study and the conclusions drawn from those findings. It also provides some recommendations for further study and drawbacks of the research.

5.2 Summary

The general purpose of the research was to investigate the influence inflation has on stock market performance in Ghana. To achieve this, the study investigated the correlation between inflation and three different stock market performance measures: percentage change in the GSE composite index, stock market capitalisation-to-GDP ratio and stock market turnover ratio. Data used was obtained mainly from the Ghana Stock Exchange and Bank of Ghana over the 25 year period. The Pearson Correlation Coefficient approach was used to check for the association between inflation and each measure of performance. The degree of association between inflation and each performance measure was also examined.

The outcome shows that the correlation between the inflation rate and the percentage change in the composite index in Ghana is negative. However, the period considered under the study does not provide enough statistical evidence to determine the correlations between inflation rate and both market capitalisation-to-GDP ratio and market turnover ratio in Ghana.

5.3 Summary of Findings

It can be inferred from the analysis that, inflation influences market returns negatively in Ghana.

It was discovered that generally, the Ghanaian stock market is undervalued. However, there is
insufficient evidence to prove that inflation accounts for the undervaluation of the market. How inflation correlates with liquidity on the Ghanaian stock market. The analysis revealed that the market turnover ratio in Ghana is low. It can thus be inferred that the stock market in Ghana is not a liquid one. However, the period under study did not give adequate statistical evidence to prove that inflation accounts for the illiquidity on the GSE.

5.4 Conclusion

Having considered the trend in inflation and the entire stock market in Ghana over 25 years, from 1994-2018, the study sought to find out how inflation has a bearing on the overall condition of the equity market in Ghana. Judging from the analysis done, the following deductions can be made:

- Inflation affects returns earned in the Ghanaian stock market negatively.
- On average, the equity market in Ghana is undervalued. However, there is inadequate statistical evidence to prove that inflation accounts for this.
- Insufficient evidence exists to prove inflation affects the level of liquidity in the Ghanaian market.

5.5 Limitations

The major challenge faced in the research was the availability of data. Data especially for years before 2000 were not readily accessible. It was quite difficult to obtain such data from Ghanaian records.

5.6 Recommendations for Further Research

From the discoveries of the study, the following suggestions are made:
• The study recommends that the central bank maintains inflation at low levels. An increase in price levels causes a reduction in the returns earned on the GSE. Thus, inflation rates must be kept significantly low so that they do not erode the value of returns investors earn in the market.

• The GSE and the Securities and Exchange Commission should intensify public insight and education of equity investments and transactions to attract more listings on the Exchange and more opportunities for trading. This will directly lead to an increase in market capitalisation.

• The major purpose of the study was to peruse the influence inflation has on the performance of the Ghanaian market over 25 years. Future research on the related topic could be done with an extended period of coverage. The stock market in Ghana is also influenced by other factors that affect the macro-economy like exchange rates, interest rate, monetary and fiscal policies. Future research could be conducted on these variables and their impact on the GSE.
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