

**FACTORS INFLUENCING SHARE PRICE VOLATILITY OF FIRMS LISTED
AT THE NAIROBI SECURITIES EXCHANGE**

By

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**A Thesis Submitted in Partial Fulfilment for the Award of the Degree of Masters of
Business Administration (MBA)-Finance Option**

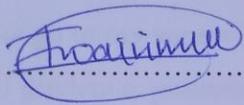
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The Catholic University of Eastern Africa**

April, 2017

DECLARATION

This thesis is my original work and has not been presented for any award in any other examination body or at any University.

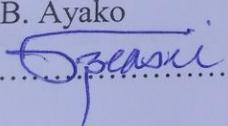
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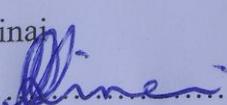
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First, may I take this opportunity to acknowledge the omnipresent nature of God in my life. He has sustained me through every stage of my life this far. Good health and intelligence are precious gifts I count from God.

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LIST OF ABBREVIATIONS AND ACRONYMS

ATS	Automated Trading System
CDS	Central Depository System
CMA	Capital Markets Authority
IPO	Initial Public Offer
NSE	Nairobi Securities exchange

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ABSTRACT

This research thesis sought to find out the factors influencing the stock prices in the Nairobi securities exchange. The independent variables were gross domestic product, inflation, dividend policy, and trading volume. A descriptive survey method was used in this study. The target population was the 61 firms that are listed at the NSE. The study used secondary data obtained from annual reports and financial statements of the firms listed in NSE found at the Capital Markets Authority (CMA) library for the period January 2010 to December 2016. A data collection form was designed to record stock prices, gross domestic product, inflation, dividend policy, and trading volume. The data collected was analyzed using the statistical package for social science (SPSS). To determine the factors influencing share price volatility of firms listed at the Nairobi securities exchange, regression and correlation analysis was carried. The study concludes that GDP, inflation rate, Dividend policy, and trading volume, influenced share price volatility. All of the variables influenced it positively. The study found out that the intercept was 1.103 for all years. The five independent variables that were studied (GDP, inflation rate, dividend policy, and trading volume) explain a substantial 80.7% of share price volatility among firms listed at the Nairobi Securities exchange as represented by adjusted R² (0.807). The study concludes that the coefficient for GDP was 0.852, meaning that GDP positively and significantly influenced the share price volatility among firms listed at the Nairobi Securities exchange. The study also concludes that the coefficient for inflation rate was 0.654, meaning that inflation rate positively and significantly influenced the share price volatility among firms listed at the Nairobi Securities exchange. The study concludes that the coefficient of dividend policy was 0.231, meaning that dividend policy positively and significantly influenced the share price volatility among firms listed at the Nairobi Securities exchange. Finally the coefficient of trading volume was found to be 0.489, this means that trading volume positively and significantly influence the share price volatility among firms listed at the Nairobi Securities exchange.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

A stock market is an institution that deals in exchange of securities issued by publicly quoted companies and the government (Kinder, 2010). The stock market is part of the broader market referred to as financial market (Samuelson, 2010). The major role that the stock market has played and continues to play in the world economies is that they promote a culture of saving. The very fact that institutions exist where savers can safely invest their money and in addition earn a return is an incentive to investors to consume less and save more. Stock brokerage industry has expanded and diversified with the number of stockbrokers increasing from 6 to 20 and licensing of stock dealers and investment banks. The role of brokers remains that of an agent.

Due to the many processes in the NSE, stock prices are turbulent as they keep on changing from time to time. The changes in stock prices and the trend of changes are of great interest in the capital market given their effect on stock market stability and strategies are adopted by investors (Maisami, 2004). It is therefore very vital for all investors to understand causes of price changes in the Nairobi securities exchange. According to Ncube, (2011) there are tools that can be used to estimate stock prices based on identified factors such as inflation, exchange rates, interest rates and money supply. The study sought to investigate the factors influencing stock prices at the NSE.

Share price is the value of the firm divided by the number of shares outstanding (Ngechu, 2004). It can also be defined as the price that buyers and sellers establish when they trade in the shares, (*Nairobi Stock Exchange Hand Book*, 2005). Additionally another definition is the par value that is merely a stated figure in the corporate charter and has little economic significance. Accounting earnings are the gains in wealth from business that is the amounts which can be spent without encroaching upon the initial wealth of the

firm (Osei, 2006). It is also the summary of revenues expenses and net income or loss of a firm for a period of time. Finally another definition is the monetary measure of a firm's performance for a period and to the extent feasible excluding items that are extraneous to the period, (Small et al, 2013).

The prediction of earnings has preoccupied accountants and market analysts for a long time. Its accurate prediction cannot be certain due to the profound effects on share prices and the subsequent allocation of financial resources. According to the conventional theory of share pricing any condition or situation that indicates a change in earnings of a particular company or of a specific industry, or of many companies or of the entire economy will affect share prices, which will move in advance of actual changes in earnings and dividends. While the confidence theory states that the basic factors in the movement of share prices is the rise and fall of trader and investor confidence in the future of stock prices, earnings and dividends (Sloman and Kevin, 2007).

Shares prices are highly affected by the business fundamentals, which are either economic or political. These are factors that affect the share prices but are outside the share market itself. The many traders and investors in the market are at all times seeking to know the trend of the share prices, and this trend is mainly based on the fundamental conditions, (Stavarek, 2005). Investors are mainly interested in the returns they get from their investment; therefore they will always select their investment well so as to fulfill their expectations. Investments are about sacrifice of current gains for future gains and this involves time (waiting) and risk. Whereas the current gains are certain the future gains are uncertain and also the investors have different preferences thereby presenting various kinds of risks (*Nairobi Stock Exchange Hand Book*, 2005). A common finding in the literature is that systematic post announcement change in share prices is associated with the sign or magnitude of accounting earnings (Forester, 2012).

Dealing in shares started in 1920s in Kenya when Kenya was still a British colony. There was however no formal market, rules or regulations to govern stock brokerage activities. Trade stock place on the informal agreements between the two parties involved.

Accountants, auctioneers, estate agents and lawyers conducted the brokerage activities. The brokerage was done over a cup of tea/coffee (Sifunjo, 2012). The Nairobi stock exchange was constituted as voluntary association of stockbrokers registered under the societies Act, (Cap 108) in 1954. The responsibilities of the Nairobi stock exchange were to develop the stock market and regulate trading activities. The stock market evolution process in Kenya indicates graduation from non-formal markets to formal organizations and establishments of a statutory body aimed at enhancing the confidence of investors. Capital Market Authority (CMA) was formed in 1989, to assist in creation of a conducive environment for growth and development of the country's capital markets (Thomas, 2006).

The public should be motivated to invest in shares in a bid to ensure greater participation in the stock market, an area that has not been fully exploited by many potential investors due to poor self education ignorance and stereotypes. Manual system (where the exchange of shares involved use of physical certificates) was in use before automation in November 2004. Central depository system was implemented/ put in place by the NSE in November 2004. This automated the settlement of equity transactions. This improved liquidation of the markets and increased investor confidence as it modernized its infrastructure. Until October 2006, the trading system of NSE was floor trading. Here dealers met and traded by yelling out their orders to board writers. This was replaced by Automated Trading System (ATS). This is a trading engine designed to match sell and buy orders in a transparent process. Here the members firms of NSE place bids and ask prices in a centrally accessible electronic order book through computer terminals located at the NSE's trading floor. ATS enhances trade in corporate bonds and treasury bonds, greater transparency in the placement of bids and offers, improvement of market surveillance and transmission of real time trading information relating to index movements and prices and volume movements of traded securities (Tucker, 2007).

Many companies have issued successful initial public offers (IPO) such as Nation Media Group Ltd, Equity Bank Group, Uchumi supermarket Ltd, Safaricom Ltd, Cooperative Bank etc. in 2003 the demand for shares in Kenya was high and shares traded at high

market value in the NSE. The total value of investment at the NSE market had a capitalization of about 1.3 trillion in 2003. In 2009 market capitalization had depreciated to 790 billion. The share depreciation could be attributed to many factors such as global financial crisis and the 2007 post election violence. The trading activities in NSE has increased in the last 5 years with the Nairobi stock exchange 20 share index moving from 2,738 in 2004 to 5,444 in 2007 before declining to 3,247 in 2009 and 6,173 in 2012. This increase can be attributed to increase in individual investors who joined the NSE through the IPO.

The companies whose shares are listed in the NSE are scattered all over the country including private companies, public companies and the government bonds. In every company that deals with the securities and stocks trade, there are specialized personnel dealing specifically with the NSE business. They keep in touch with the dealings and keep the track of their shares and securities performance at the NSE, take statistics about their securities and estimate forecasts for their securities. Most of the companies have branches countrywide with the headquarters in Nairobi. Nairobi has an estimate population of about 4.5 million people which constitutes 2.7 females and 1.8million males. It has a population density of 4,509/km² (11,680/sqm). Nairobi province is the centre for this study.

1.1.1 Share Price Volatility

According to Baskin (1989) Stock price volatility is the relative rate at which the price of a security moves up and down or simply it's the variation in stock price. The stock price volatility is estimated by calculating the annualized standard deviation of daily changes in stock prices. If the price moves up and down more rapidly over short time periods, then the stock has high volatility and if the price makes slight changes, then the stock has less volatility. Stock price volatility can be used by investors to measure the potential risk of a given stock hence it is always good to keep the volatility in stock prices on the minimal.

The volatility of stock is a measure of uncertainty about the returns provided by the stock, and it is generally not observable. A market is said to be volatile if the past prices of

stocks reflect in the future stock prices. Thus, to be able to input the estimates of the volatility of an underlying asset, we can only observe the stock return series. In financial market, volatility is often referred to as the standard deviation or variance.

Schwert (1989) looked at the relationship between stock volatility and the volatility of real and nominal macroeconomic variables. Based on US data for several macroeconomic variables (namely inflation, industrial production, and money), he found weak evidence that macroeconomic volatility can be helpful in predicting stock return volatility. He, however, pointed a positive link between macroeconomic volatility and stock market volatility. Peters (1994) noted that stock prices and returns are cyclical, with imperfect predictability in the short run and unpredictable in the long run. They also exhibit nonlinear, and possibly chaotic, behavior related to time-varying positive feedback. There has not been extensive research on stock volatility in the Sub-Saharan African and Kenyan market in particular, possibly because the securities market is still developing. Some studies done in the African stock markets in this area include, Frimpong and Oteng-Abayie (2006) who applied GARCH models to the Ghana Stock Exchange. Brooks et al., (1997) examined the effect of political change in the South African Stock market, Appiah-Kusi and Pascetto (1998) investigated the volatility and volatility spillovers in the emerging markets in Africa. Ogumetal (2006) applied the EGARCH model to the Kenyan and Nigerian Stock Market returns.

1.1.2 Nairobi Securities Exchange

NSE was established in July 1953 as Nairobi Stock exchange as an overseas stock exchange. However, in 1954 the Nairobi Stock Exchange was then constituted as a voluntary association of stockbrokers registered under the Societies Act. Since Africans and Asians were not permitted to trade in securities, until after the attainment of independence in 1963, the business of dealing in shares was confined to the resident European community. 1988 saw the first privatization through the NSE, of the successful sale of a 20% government stake in Kenya Commercial Bank.

In 1996, the largest share issue in the history of NSE, the privatization of Kenya Airways, came to the market. Having sold a 26% stake to KLM, the Government of Kenya proceeded to offer 235,423,896 shares (51% of the fully paid and issued shares of Kshs.5.00 each) to the public at Kshs.11.25 per share. More than 110,000 shareholders acquired a stake in the airline and the Government of Kenya reduced its stake from 74% to 23%.

In July 2011, the Nairobi Stock Exchange Limited changed its name to the Nairobi Securities Exchange Limited. The aim was to reflect the strategic plan of the Nairobi Securities Exchange to evolve into a full service securities exchange which supports trading, clearing and settlement of equities, debt, derivatives and other associated instruments. In the same year, the equity settlement cycle moved from the previous T+4 settlement cycles to the T+3 settlement cycle. This allowed investors who sell their shares, to get their money three (3) days after the sale of their shares. In September 2011 the Nairobi Securities Exchange converted from a company limited by guarantee to a company limited by shares and adopted a new Memorandum and Articles of Association reflecting the change. Nairobi Securities Exchange All Share Index (NASI) was introduced complimentary to the NSE 20 share index in 2008, with a base value of 100 as of January 2008. This was part of some of the recommendations by the International Finance Corporation (IFC) and regulators of world stock markets to ensure a comprehensive dissemination of market information to investors. Unlike the 20 Share Index, which measures price movement in selected, relatively stable and best performing 20 listed companies, NASI incorporates all listed companies irrespective of their performance and their time of listing. NASI is calculated based on market capitalization rather than the price movements of the counters, meaning that it reflects the total value of all listed companies at the NSE. Prices are based on last trade information from NSE's Automated Trading System

The Stock market in Kenya has been growing rapidly and has diversified to provide not only the primary role of providing an alternative source of capital for investment, but also

many other functions. The NSE has recently adapted an automated trading system, to keep in pace with other major world stock exchanges, and this has greatly increased the volumes of stocks traded in the market. Currently the NSE is trading more than a 100 million shares each month, making it to play a great role in the economic growth of Kenya. This has been facilitated by enabling idle money and savings to become productive by bringing together the borrowers and lenders of money at a low cost. The market has helped in educating the public about the need to invest in the stock market as well as boosting the confidence of investors through the requirement of listed companies to have published financial reports.

1.2 Statement of the Problem

Nairobi securities exchange has been performing well since the automation of NSE activities in 2004 as evidenced by the NSE 20 share index which increased from 2,738 in 2004 to 5,444 in 2007 before the decline in 2009 and bouncing back to better performance in 2012 at 6,173. This has been brought about by the increase in companies issuing IPO and rights issues, which has given investors more opportunities to invest.

The trading experts and specialists in the companies whose stocks are listed have been concentrating on building the markets for their securities. Stability in the stock's performance is highly desirable in all companies.

However, the shares prices at the Nairobi securities exchange has proved so versatile and non-stable. The investments in securities are too risky and hard to predict their future directions. According to behavioral theory of rational expectations, investors prefer low risk-low returns to high risk-high returns investments. This could be the reason behind unpopularity of securities market in Kenya. This study seeks to find out the factors that influence the prices of securities at the NSE.

Numerous studies have been carried out on factors influencing decisions of individuals and institutions investors' behavior and decision making. Many studies have also dealt with investors' decision in industrialized economies e.g. Taiwan. Further research has

been done about factors that influence stock prices in western countries and other developed countries. Scanty information is available in Kenya on the factors that influence the stock prices in the NSE, and how to interpret them and maybe the possible reactions to shield the investors and the traders from losses. These gaps trigger this current study on the factors that influence the price volatility of securities of listed firms at the Nairobi Securities Exchange.

1.3 Objectives of the study

1.3.1 Main objective

Factors influencing Share price volatility of Firms Listed at the Nairobi Securities Exchange

1.3.2 Specific Objectives

- i. To examine the trend of volatility of share prices of the firms listed at the NSE
- ii. To determine the factors affecting price volatility of shares of the firms listed at the NSE
- iii. To access the recommendations on reducing price volatility of shares of the firms listed at the NSE

1.4 Research Questions

- i. What is the trend of volatility of share prices of the firms listed at the NSE?
- ii. What are the factors affecting price volatility of shares of the firms listed at the NSE?
- iii. What are the recommendations on reducing price volatility of shares of the firms listed at the NSE?

1.5 Significance of the Study

The purpose for study will be to determine those factors that affect the prices of securities at the Nairobi securities exchange. On determining these factors, the results may be used to offer information to be used by agents and stockbrokers on advising the company management and the investors on how to maintain the stability of share prices and the formation of rules and regulations to help in the stability of prices. Formation of rules and regulations by the capital markets authority by the aid of the findings of this research and future research based on this study could easily see stability in the stock prices thus, enhancing the investor confidence in the NSE.

Capital markets authority may be able to create and facilitate an enabling investment environment by formulating and implementing policies and regulations to satisfy investor's desires to give more to enhance investor's decisions and market efficiency. The trading companies may also benefit from the information by formulating policies to boost the demand for their shares leading to high returns. This may enable them to raise more funds from the NSE. The study may also form a basis for future research and improvement of this topic and any other related topics of research.

The results of this study may be very important for both the investors and policy makers to identify the factors that influence prices volatility of securities of the firms listed at the NSE, and implement control measures to enhance the trading activities at NSE. The stockbrokers too may have relevant information to give reliable advice to the investors. This may enable the investors to meet their future dreams and obligations in securities investments. The investors may also benefit from owning a company through the shares and benefit from dividends and capital gains which is tax free. The shares may also be used as collaterals at financial institutions.

1.6 Scope and delimitations of the Study

The study intends to cover firms that are listed at the NSE. This is because the securities affected by price volatility at the NSE are only from listed firms. There is only one

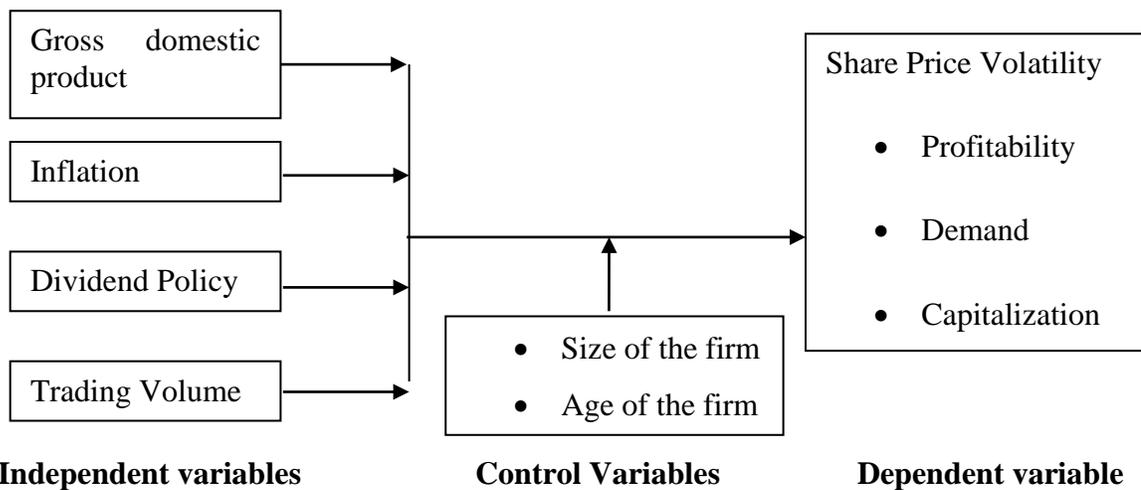
Securities Exchange in Kenya i.e the NSE, Making it the key focus of the study. It is therefore easier to obtain relevant information from the Nairobi which hosts NSE and forms the headquarters of several listed firms.

The study used secondary data obtained from annual reports and financial statements of the firms listed in NSE found at the Capital Markets Authority (CMA) library for the period January 2010 to December 2014

Share price volatility is the study’s dependent variable. The independent variable consisted of; gross domestic product inflation, dividend policy and trading volume. The control variables were size of the firm and age of the firm.

1.7 Conceptual Framework

Figure 1.1: Conceptual Framework



The dependent variable was share price volatility. The independent variables were gross domestic product, inflation, dividend policy and trading volume. The dependent variables indicators that were reviewed are profitability, demand of the shares, and capitalization. The share volatility influence profitability in the sense that price appreciation increases revenues upon sale of shares and vice versa. Demand for the shares affects prices

according to the law of market forces. Most appealing shares attract high demand and transactions leading to high market capitalization.

1.7 Organization of the Study

The remainder of the study was organized into four chapters. In chapter two, we present a review of both theoretical and empirical literature, and thereby draw research gaps that helped in refining of the research topic and to guide the study. The review also helped in avoiding duplication of knowledge. Chapter three presents the methodology used in the study including research design, population of the study, sampling design and sample size, data collection instruments, data collection procedure, data analysis, test of validity and reliability, and ethical issues observed. Chapter four presents discussion and interprets the empirical findings accruing from the analysis of data. Finally, chapter five presents summary of key findings, conclusions and recommendations of the study. The chapter also contain key limitations of the study, and suggestions on further areas of the study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviews various literature works that had been carried out in previous studies on share price behavior. It deals with theoretical literature review, empirical review, conceptual framework and operational framework. Literature review aim at identifying and locating relevant sources of information that could be used to develop and strengthen the current research study. It provide an understanding of previous relevant contributions to the current problem and help identify the research gaps in order to refine research topic more clearly and avoid duplication of information.

2.2 Theoretical Literature Review

Traditionally, finance and investment literature relied on the assumption that investors are fully rational in investments decision making. The most financial academic research has been based for a long time on investor's rationality. The fixing of stock prices are as a result of rational investor's future anticipations, reactions to economic environments, the risk computation, the time, value of money and the opportunity costs. There are however an existence of irrational investors who deviate from one or more aspects of rationality.

2.2.1 Mixed Distribution Hypothesis

The mixture of distribution hypothesis (MDH) developed by Clark (1973) and Epps and Epps (1976) gives an alternative volatility-volume nexus, in which the relation is critically dependent upon the rate of information flow into the market. The model assumes that the joint distribution of volume and volatility is bi-variate normal conditional upon the arrival of information. According to the hypothesis, all traders receive the new price signals simultaneously. This causes an immediate shift to new equilibrium without intermediate partial equilibrium. This is contrary to SIAH, which

assumes that there are intermediate equilibria en route to the final equilibrium. However, under MDH, there should be no information content in past volatility data, that can be used to forecast volume since these variables contemporaneously change in response to new information arrival. Thus, both volatility and volume change contemporaneously in response to the arrival of new information. The MDH is used to measure the amount of disagreement among investors as they reassess their market standing based on the arrival of new information into the market. Under the MDH, trading volume increases as the level of disagreement among investor's increases. This suggests a positive causal relationship from trading volume to absolute returns.

This study focuses into finding out whether information flow affects stock volatility and volumes traded in the NSE. Investors in many cases access information at the same time, due to presence of equal participating conditions such as release of audited financial statements, that provide an in depth analysis of the company. Such occurrences could influence investors' behavior in the NSE, leading to either positive or negative impact on volumes of stock traded and stock prices. This study will, thus, investigate whether there is MDH in NSE and its effects to the market.

2.2.2 Sequential Information Arrival Hypothesis

This model was developed by Copeland (1976) and later advanced by Jennings et al., (1981), and the model relates to the observed relationship of volume and volatility to private information. From the model, an individual trader receives a signal ahead of the market and trades on it, thereby creating volume and price volatility. As a result, volatility and volume move in the same direction. Traders, thus, change their trading positions as new information arrives to the market. Since not all traders receive the new information at exactly the same time, the response of each individual trader to this information represents an incomplete equilibrium. Thus, the final market equilibrium is established when all the traders have received the information and have made a trading decision based on the information. SIAH, thus, suggests that a lead-lag relationship between volume and volatility exists only in the presence of information. SIAH differs

slightly with MDH as it proposes a positive causal relationship between volumes and returns in both directions, that is, each determines the other.

SIAH is experienced in NSE, in cases where some investors access information before others. In such instances, investors normally change their trading positions as new information arrives to the market leading to changes in stock volatility and stock volumes traded. This study will find out the effect on trading volumes and stock prices, as the investors receive new information at different times.

2.2.3 Efficient Market Hypothesis

Fama (1965) championed the efficient market hypothesis which suggested that at any point of time, prices will fully reflect all available information about individual stocks and the stock market as a whole. This is because when new information arrives, the news spread very quickly and is incorporated into the prices of securities immediately. Thus, according to the EMH, no market player has the advantage in forecasting stock price movements since no one has access to information that is not available to the entire market. Some investors tend to believe that they can select those stocks that will outperform the market through fundamental analysis, an analysis of

financial information such as company earnings, dividend payout, asset values and so forth, or through technical analysis; a study of past stock prices in an attempt to predict future prices.

According to Malkiel (2003), these analyses enable the investors to achieve returns greater than those that could be obtained by holding a randomly selected portfolio of individual stocks with comparable risk. However, under the EMH, investors engage themselves in a game of chance and not skill, at any time of them buying and selling securities. Therefore, it is, however, impossible to out-perform the market as prices normally incorporates and reflects all relevant information in the market. The EMH is not only concerned with the type and source of information, but also the quality and speed of which it is disseminated among inventors. This helps in questioning the type of

information available and incorporated in stock prices. According to Fama (1970, 1991), EMH may exist in three levels:

2.2.3.1 Weak form of the EMH

The weak form reflects the situation where a movement in stock prices follows a random path. Current stock price movements are independent of past price movements. This means that, all information contained in past trading volume, prices of stock, and the rates of return are already reflected in the current stock prices. Thus, the past data on stock and market are of no use in predicting future price changes. The random nature of stock price movements, on the other hand, means that any attempt to study past prices moving in order to detect mispriced stock and to gain above-average profits will fail. Thus one cannot gain from using information that everybody else in the market has known. Investors and analysts cannot practice technical analysis by drawing up charts of past stock prices and trading volume in order to predict future price movement since it cannot be used to predict and beat a market.

2.2.3.2 Semi-strong form of the EMH

The semi-strong form of the EMH states that the current stock prices not only reflect all past price movement but also all publicly available information (Fama, 1970). Examples of public information are data reported in a company's financial statements, earnings and dividend announcements, announced merger plans, the financial situation of company's competitors, expectations regarding macroeconomic factors and so forth. This information will then be available at random intervals, and are quickly absorbed by the market. Therefore, investors who practice fundamental analysis by studying relevant reports and announcements with the attempt to make above-average returns on a consistent basis would be disappointed as the stock prices have already reflected such new public information.

2.2.3.3 Strong-form of the EMH

The strong-form of the EMH is the strongest version of EMH, which states that current stock prices reflect all pertinent information, both public and private or inside information (Fama, 1970). The current stock price reflects all true or intrinsic value of the share and thus, the stock would be fairly priced in the stock market. Thus, there is no opportunity for investors to have exclusive access to information relevant to stock prices. The stronger-form of EMH states that even corporate insiders within a corporate a corporation would find it impossible systematically gain abnormal returns from inside information. Such information includes detailed information about the financial state and major strategies of the firm, alongside the tactical decisions the company makes that may not be available to shareholders. Under the EMH, investors engage in a game of chance and not skill, at any time of them buying and selling securities. Therefore, the stock volumes and prices will change from time to time, as investors respond to different information levels in the market. Thus, if the investors in NSE obtain information that seems to reflect expected market performance, they will transact in response to such news, leading to new market equilibrium. This will give either a positive or a negative relationship between stock volatility and volumes of stock traded in the market.

2.3 Determinants of Share price volatility

Prior to 1981, much of the finance literature viewed the present value of dividends to be the principal determinant of the level of stock prices. However, Leroy and Porter (1981) and 16 Shiller (1981) found that, under the assumption of a constant discount factor, stock prices were too volatile to be consistent with movements in future dividends. This conclusion, known as the excess volatility hypothesis, argues that stock prices exhibit too much volatility to be justified by fundamental variables. While a number of papers challenged the statistical validity of the variance bounds tests of Leroy and Porter and Shiller, on the grounds that stock prices and dividends were non-stationary processes (Flavin, 1983; Kleidon, 1986; Marsh & Merton, 1986; Mankiw, Romer, & Shapiro, 1991), much of the subsequent literature, nonetheless, found that stock price movements

could not be explained solely by dividend variability as suggested by the present value model with constant discounting (West, 1988a; Campbell & Shiller, 1987). High volatility on the emerging financial markets can be caused by many factors

2.3.1 Gross Domestic Product

According to Fama (1990), Liua and Sinclairb (2008), Oskooe (2010), inter alia, economic growth influences the profitability of firms by affecting the expected earnings, dividends of shares and stock prices fluctuations. Furthermore, Schwert (1989, 1990) relates stock return volatility to the level of economic activity through financial and operating leverages. When stock prices fall relative to bond prices or when firms increase financial leverage by issuing debt to buy back their stocks, the volatility of firms' stock return increases. With an unexpected decline in economic activity, the profits of firms with large fixed costs falls more than the profits of firms that avoid large capital investment or long-term supply contracts.

Analysis from Schrodgers Economics team (2010), found that over the past sixty years there has tended to be a positive relationship between GDP growth and stock market returns during the recovery, expansion, and slowdown phases of the traditional business cycle. In the recovery and expansion phases of the business cycle, the stock market tends to perform well as rising GDP and earnings growth drives positive excess returns on equity. In the slowdown phase, inflation is still high and monetary policy remains tight, resulting in a difficult environment for corporations. Reduced earnings and stock valuations tend to result in negative excess returns for equities: declining GDP growth is therefore usually matched with poor equity performance. During the recession phase, there is often a de-coupling of GDP growth and stock market returns: GDP growth is falling, but the excess return on equity tends to be positive.

2.3.2 Inflation

Inflation - the rise in price of goods and services - reduces the purchasing power each unit of currency can buy. Rising inflation has an insidious effect: input prices are higher,

consumers can purchase fewer goods, revenues and profits decline, and the economy slows for a time until a steady state is reached. Numerous studies have looked at the impact of inflation on stock returns. Unfortunately, these studies have produced conflicting results when several factors are taken into account - namely geography and time period. Most studies concluded that expected inflation can either positively or negatively impact stocks, depending on the ability to hedge and the government's monetary policy.

But unexpected inflation did show more conclusive findings, most notably being a strong positive correlation to stock returns during economic contractions, demonstrating that the timing of the economic cycle is particularly important for investors to gauge the impact on stock returns. This correlation is also thought to stem from the fact that unexpected inflation contains new information about future prices. Similarly, greater volatility of stock movements was correlated with higher inflation rates. The data has proven this in geographic regions where higher inflation is generally linked to emerging countries, and the volatility of stocks is greater in these regions than in developed markets. Since the 1930s, the research suggests that almost every country suffered the worst real returns during high inflation periods.

2.3.3 Dividend Policy

According to Pandey (2005) dividend policy is the practice that management follows in making dividend payout decisions out of firm's earnings by determining how much dividend to pay to shareholders and how much to re-invest. He argued that a perfect dividend policy is the one that strikes a balance between current dividends and future growth and maximizes the firm's stock price. Ross (1977) on the other hand defined dividend payment as the distribution of company's profits to shareholders. Baskin (1989) measured dividend policy of a firm by considering two measures of dividends; dividend payout ratio and dividend yield. Brealey et al. (2007) defines dividend payout ratio as the percentage of earnings paid to shareholders in dividends while dividend yield as the return on investments for stock in the absence of capital gain.

Nazir, Nawat, Anwar and Ahmed (2010) studied the relationship between dividend policy and share price volatility and concluded that there exists a negative relationship between dividend policy (as measured by dividend yield and dividend payout ratio) and stock price volatility. This means that the higher the dividend yield, the lower the price volatility and the lower the dividend yield, the higher the price volatility. However the early study of Allen and Rachim (1996) showed a positive but non-significant relationship between dividend yield and stock price volatility. A number of theoretical mechanisms that cause the dividend yield and dividend payout ratio to vary inversely with stock price volatility have been suggested which include; duration effect, arbitrage effect, rate of return effect and information effect (Baskin, 1989).

Lintner (1956) studied different determinants of corporate dividend policy and its effect on firm's marketvalue by conducting the interviews of top managements of 28 firms. Result of his study showed that firm's Market Value depends on the Dividend Payout. Also Ross (1977) argued that dividends are relevant because they have informational value. As such a dividend increase may signal good future earnings and lead to an increase in share prices. A dividend decrease may signal poor future earnings and therefore decline in share price.

Allen and Rachim (1996) argue that dividend policy remains one of the controversial issues for many years of theoretical and empirical research and so is the case with its linkage with share price volatility. According to Miller and Modiglian (1961) dividend policy does not have any influence on the value of the firm in a perfect world where there is no corporate and personal taxes, all investors have similar expectations regarding company's future investment and profit, no transaction costs and no floatation costs. Gordon (1963) gives a different opinion and finds that payment of large dividends reduces risk and influences stock prices. According to Pandey (2004), practical researches which have mostly been done in developed countries have concluded that dividends and share prices are significantly associated, thus increasing dividends improve investors' confidence leading them to discount firm's cash flows at inferior required rate leading to

a rise in share price. On the other hand lowering dividends increases investor's uncertainty causing prices to fall down

2.3.4 Trading Volume

A Wall Street adage says "It takes volume to make price move" (Karpoff, 1987). Researchers (such as Osborne) hypothesized long ago that volume would drive variability, and was subsequently supported by many empirical studies. These studies on volume-price relation suggest that there are positive relations between the absolute value of daily price changes and daily volume for both market indices and individual stocks (Ying, 1966; Westerfield, 1977; Rutledge, 1979). Return-volume relationships are of common interest as they may unearth dependencies that can form the basis of profitable trading strategies, and this has implications for market efficiency (Chen et. al, 2004). Market folklore claims that the relationship between volume and price movements depends on whether the market is in a bull or bear run. In a bull market, a relatively higher level of volume is associated with a given price change in comparison to a bear market. However, these claims are anecdotal and unsubstantiated.

Karpoff (1987) suggests the following four possible reasons for considering trading volume and its relationship to volatility. It provides insight into the structure of financial markets. The correlations which are found can provide information regarding rate of information flow in the marketplace, the extent that prices reflect public information, the market size, and the existence of short sales and other market constraints. The relationship between price and volume can be used to examine the usefulness of technical analysis. For example, Murphy (1985) and DeMark (1994) emphasized that both volume and price incorporate valuable information. A technical analyst gives less significance to a price increase with low trading volume than to a similar price increase with substantial volume

Understanding the price-volume relationship in futures and other speculative markets is vital for one to determine why the distributions of rates of return appear kurtotic. One theory is that rates of return are characterized by a class of distributions with infinite

variance, known as the stable Paretian hypothesis. Another theory is that the data comes from a mixture of distributions wherein each has different conditional variances, known as the mixture of distributions model. Research has shown that price data is generated by a stochastic process with changing variances which can be predicted or estimated by volume data. Also, price variability affects trading volume in futures contracts. This interaction determines whether speculation is a stabilizing or destabilizing factor on futures prices. The time to delivery of a futures contract affects the volume of trading, and possibly also the price.

Thus, to improve the understanding of the microstructure of stock market, the relationship between return, volume and volatility has received substantial attention in the market microstructure for a number of years. In addition, the return-volume relationship sheds light on the efficiency of stock markets.

2.4 Empirical Literature Review

Khaled, Chijoke and Aruoriwo (2011) carried out a research on UK market with the objective of determining the relationship between dividend policy and stock price volatility. After applying a multiple regression analysis on the data, the research showed that there exists a positive relationship between dividend yield and stock price volatility. The research also showed evidence that debt level; firm's size and earning explain price volatility as well. Similarly, Allen and Rachim (1996) on their study of dividend policy on stock price volatility concluded that dividend yield is positively related to stock price volatility. The same results were equally found by Yasir, Zernigah and Muhammad (2012) who applied cross sectional regression analysis in their study on the relationship between dividend policy and share price volatility in Pakistan market. On the contrary, Baskin (1989) studied firms in U.S during the period 1967 to 1986 and found that the price volatility was negatively related to dividend yield and payout ratio similarly to findings by Nazir et al. (2010) in their study of Karachi stock exchange in Pakistan during the period 2003 – 2008.

There are numerous empirical studies, which support the positive relationship between price (returns, volatility) and trading volume of a tradable asset (Crouch, 1970; Epps and Epps, 1976; Karpoff, 1986, 1987; Assogbavi et. al, 1995; Chen et. al, 2001). In a similar strand of literature, the asymmetric nature of volume response to return (volatility), i.e. the trading volume is higher when price moves up than on the downtick is sought to be explained (Epps, 1975; Karpoff, 1986, 1987; Assogbavi et. al, 1995). The asymmetric nature is explained through heterogeneous expectations and costs involved in short selling. Henry and McKenzie (2006) examined the relationship between volume and volatility allowing for the impact of short sales in Hong-Kong market and found that the asymmetric bidirectional relationship exists between volatility and volume.

Paul and David (1983) conducted a study on the Impact of Initiating Dividend Payments on Shareholders' Wealth on firms listed in NYSE and the ASE. The study considered 168 firms that either pay the first dividend in their corporate history or initiate dividends to shareholders. Data collected from companies listed in NYSE and the ASE for the period January 1954- December 1963. The dividend announcement dates and the amount of dividends paid by these companies were then collected. A dividend announcement date was the date when news of the forthcoming dividend first appeared in the Wall Street Journal. Dividend announcement dates and dividend amounts were collected not only for the initial dividend but also for the largest dividend increase that occurred during the following 12 quarters. This provided information on the dividend histories of the sample firms for the 3-year period following the initial dividend and also allowed a comparison of initial and subsequent dividends. Of the 168 initial firms, 114 increased their dividend within 3 years, seven decreased their dividend and the remaining 47 kept their dividend at the initial level. Finally, stock prices were collected for the month end before all dividend announcements to calculate changes in dividend yield, and earnings per share information was collected for the previous fiscal year to calculate changes in payout ratios. They concluded that initiating dividends increases shareholders' wealth.

Ngunjiri (2010) studied on the relationship between dividend payment policies and stock price volatility for the period 2004-2008. Secondary data was obtained from NSE of 40

companies and analyzed using regression analysis. He concluded that dividend payment policies have no impact on stock price volatility. Thiong'o (2011) investigated the relationship between dividend payment and stock prices for firms listed at NSE for the period 2006-2010. The study employed simple linear regression and came up with the findings that there exists a weak positive relationship between dividend payout ratio and stock prices. Ngobe et al. (2013) studied the relationship between dividend policy and stock price volatility for the period 1999-2008 at NSE using correlation and multiple regression analysis and concluded that dividend yield has a positive relationship with price volatility while payout ratio has a negative relationship with price volatility, contrary to the findings of Ngunjiri (2010).

2.5 Research Gaps

Numerous studies have been carried out on factors influencing decisions of individuals and institutions investors' behavior and decision making. Many studies have also dealt with investors' decision in industrialized economies e.g. Taiwan. Further research has been done about factors that influence stock prices in western countries and other developed countries. Scanty information is available in Kenya on the factors that influence the stock prices in the NSE, how to interpret them and maybe the possible reactions to shield the investors and the traders from losses. These gaps trigger this current study on the factors influencing share price volatility of firms listed at the NSE.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the methods that were used in the collection of data pertinent in answering the research questions. Section 3.2 presents research design, 3.3 presents the population of the study, 3.4 present's data collection and finally section 3.5 presents data analysis.

3.2 Data Type

The study used secondary data obtained from annual reports and financial statements of the 65 firms listed in NSE found at the Capital Markets Authority (CMA) library for the period January 2010 to December 2016. A data collection form was designed to record stock prices gross domestic product, inflation, dividend policy, and trading volume

3.3 Data Analysis

To determine the factors influencing share price volatility of firms listed at the Nairobi securities exchange, regression was carried out. Regression analysis measures the pattern of the relationship and its closeness in absolute terms. This was achieved with the help of statistical package for social sciences (SPSS version 21).

3.3.1 Analytical Model

To examine the relationship between share price variability and predictive variables ordinary least squares regression was used. The regression equation was expressed as follows:

$$SPV = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \epsilon$$

Where, SPV is share price variability

β_0 : Indicates the value of SPV when all the values of explanatory variables are zero.

X_1 = Gross domestic product

X_2 = Inflation

X_3 = Dividend policy (DPS)

X_4 = Trading volume

X_5 = Size of the firm

X_6 = Age of the firm

$\beta_1, \beta_2, \beta_3$ and β_4 are coefficients of the independent variables.

ϵ is the error term.

3.3.2 Test of Significance

The model's test of significance was measured on how well the regression model fits the data by comparing explanatory variables that proposed actually explain variations in the dependent variable. Quantities known as goodness of fit statistics are available to test how well the sample regression function (SRF) fits the data how or how close' the fitted regression line is to all of the data points taken together. The most common goodness of fit statistic is known as R^2 (Brooks, 2008). A correlation coefficient must lie between -1 and $+1$ by definition. Since R^2 defined in this way is the square of a correlation coefficient, it must lie between 0 and 1. If this correlation is high, the model fits the data well, while if the correlation is low (close to zero), the model is not providing a good fit to the data. R^2 is the square of the correlation coefficient between the values of the dependent variable and the corresponding fitted values from the model. In testing the significance of the model, significance tests were employed to determine whether or not the finding is as a result of a genuine difference between two or more variables, or

whether it is just due to chance. Coefficient of determination (R^2) and Analysis of variance (ANOVA) test was computed. F-statistic was also computed at 95% confidence level to test whether there is any significant relationship between share price variability and predictive variables across year 2010 to 2016.

CHAPTER FOUR

PRESENTATION, DISCUSSION AND INTERPRETATION OF EMPIRICAL FINDINGS

4.1 Introduction

This chapter entails analysis and findings of the study as set in the research objectives and methodology. The study findings are presented on the factors influencing share price volatility of firms listed at the Nairobi securities exchange

4.2 Descriptive Statistics

The study used secondary data obtained from Nairobi Securities Exchange (NSE). The data was analysed using SPSS, which resulted in the following descriptive statistics relating to the factors influencing share price volatility of firms listed at the Nairobi securities exchange for the period January 2010 to December 2014. Descriptive statistics presents the mean, maximum and minimum values of variables used in this study together with their standard deviations.

4.2.1 Share Price

Table 4.1 presents the findings on the descriptive statistics for Share Price for the years 2010-2016.

Table 4.1: Share Price

	Minimum	Maximum	Mean	Std. Deviation
2010	99.00	112.30	105.5275	4.09705
2011	99.80	113.10	106.3167	4.10473
2012	101.40	115.00	108.0417	4.19772
2013	101.90	115.50	108.5417	4.19772
2014	103.20	117.00	109.9667	4.25170
2015	107.90	122.40	115.0417	4.46694
2016	112.90	128.00	120.3083	4.66758

The means portray a steady increase in the Share Price for all the 61 firms listed at the Nairobi Securities exchange with the lowest being 105.5275 in the year 2010 and the highest being 120.3083 in 2016. Additionally the scores of standard deviation indicate variation in Share Price for the various listed firms statistically.

4.2.2 GDP

Table 4.2 presents the findings on the descriptive statistics for GDP for the years 2010-2016.

Table 4.2: GDP

	Minimum	Maximum	Mean	Std. Deviation
2010	5.70	6.40	6.0417	.23143
2011	4.30	4.90	4.6000	.18586
2012	4.50	5.10	4.8000	.18586
2013	5.80	6.50	6.1500	.23160
2014	6.20	7.00	6.5667	.24618
2015	7.10	8.00	7.5250	.29271
2016	8.10	9.20	8.6250	.32228

The means indicates a stable increase in the GDP for all the 61 firms listed at the Nairobi Securities exchange with the lowest being 4.6000 in the year 2011 and the highest being 8.6250 in 2016. Moreover the scores of standard deviation indicate variation in GDP for the various listed firms statistically at a lower level. There is a narrow gap between the maximum and minimum GDP, which means that there is low variability of GDP change in NSE.

4.2.3 Inflation rate

Table 4.3 presents the findings on the descriptive statistics for inflation rate for the years 2010-2016.

Table 4.3: Inflation rate

	Minimum	Maximum	Mean	Std. Deviation
2010	6.20	12.80	10.5000	6.20
2011	2.60	9.10	4.1000	2.60
2012	3.60	19.70	9.4408	3.60
2013	3.30	18.90	10.9617	3.30
2014	8.00	13.50	10.4917	8.00
2015	8.20	13.80	10.7000	8.20
2016	8.30	14.00	10.8917	8.30

The means portray irregular pattern flow of the inflation rate for all the 61 firms listed at the Nairobi Securities exchange. Year 2011 and 2012 recorded the lowest inflation rate figure of 4.1000, and 9.4408 respectively. The highest record of 10.9617 was recorded in the year 2013. Additionally the scores of standard deviation indicate variation in inflation rate for the various listed firms statistically at a higher level. There is a wide gap between the maximum and minimum inflation rate, which means that there is high variability of inflation rate change in NSE.

4.2.4 Dividend per share

Table 4.4 presents the findings on the descriptive statistics for Dividend per share for the years 2010-2016.

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
VAR00001	12	2.91	3.30	3.0975	.11993
VAR00002	12	2.94	3.34	3.1375	.12234
VAR00003	12	3.55	4.03	3.7842	.14632
VAR00004	12	4.03	4.57	4.2958	.16638
VAR00005	12	4.76	5.40	5.0767	.19764
VAR00006	12	5.08	5.76	5.4142	.20987
VAR00007	12	5.55	6.30	5.9233	.23043
Valid N (listwise)	12				

Table 4.4: Dividend per share

	Minimum	Maximum	Mean	Std. Deviation
2010	2.91	3.30	3.0975	.11993
2011	2.94	3.34	3.1375	.12234
2012	3.55	4.03	3.7842	.14632
2013	4.03	4.57	4.2958	.16638
2014	4.76	5.40	5.0767	.19764
2015	5.08	5.76	5.4142	.20987
2016	5.55	6.30	5.9233	.23043

The means indicates a stable increase in the Dividend per share for all the 61 firms listed at the Nairobi Securities exchange with the lowest being 3.0975 in the year 2010 and the highest being 5.9233 in 2016. Additionally the scores of standard deviation indicate variation in Dividend per share for the various listed firms statistically at a lower level. There is a narrow gap between the maximum and minimum Dividend per share, which means that there is low variability of Dividend per share change in NSE.

4.2.5 Trading volume

Table 4.5 presents the findings on the descriptive statistics for trading volume for the years 2010-2016.

Table 4.5: Trading volume

	Minimum	Maximum	Mean	Std. Deviation
2010	103.54	933.53	479.2125	205.25760
2011	335.25	725.05	476.8142	114.37996
2012	338.90	917.00	492.7333	191.37450
2013	466.25	804.51	631.3275	109.34391
2014	500.48	853.58	676.2592	121.29083
2015	556.00	949.00	751.6667	134.81188
2016	618.00	1054.00	835.0000	149.70881

In capital markets, volume, or trading volume, is the amounts of a security (or a given set of securities, or an entire market) that were traded during a given period of time. The means portray a steady increase in the trading volume for all the 61 firms listed at the Nairobi Securities exchange with the lowest being 476.8142 in the year 2011 and the highest being 835.000 in 2016. Additionally the standard deviation figures are high for volume, indicating that the data points are spread out over a large range of values, meaning that there is high level of variability in the data. There is a wide gap between the maximum and minimum volume, which means that there is high variability of volume change in NSE.

4.3 Inferential Statistics

The study further applied general Linear Model to determine the predictive power of the effect of GDP on share price volatility among firms listed at the Nairobi Securities exchange. This included regression analysis, the Model, Analysis of Variance and coefficient of determination.

4.3.1 Regression Analysis

In addition, the researcher conducted a multiple regression analysis so as to test relationship among variables (independent) on the share price volatility of firms listed at the Nairobi securities exchange. The researcher applied the statistical package for social sciences (SPSS V 21.0) to code, enter and compute the measurements of the multiple regressions for the study.

Coefficient of determination explains the extent to which changes in the dependent variable can be explained by the change in the independent variables or the percentage of variation in the dependent variable (share price volatility) that is explained by all the four independent variables (GDP, inflation rate, Dividend policy, and trading volume).

4.3.2 Model Summary

Table 4.6: Model Summary

Model	R	R Square	Adjusted Square	R Std. Error of the Estimate
1	0.822	0.807	0.791	0.116

The four independent variables that were studied, explain only 80.7% on the influence on share price volatility represented by the R^2 . This therefore means that other factors not studied in this research contribute 19.3% of the influence on share price volatility. Therefore, further research should be conducted to investigate the other factors (19.3%) that affect share price volatility.

4.3.3 ANOVA Results

Table 4.7 ANOVA of the Regression

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	100.465	5	20.093	8.635	.000 ^a
	Residual	130.312	56	2.327		
	Total	230.777	61			

The significance value is 0.000 which is less than 0.05 thus the model is statistically significant in predicting how (GDP, inflation rate, Dividend policy, and trading volume) affect share price volatility. The F critical at 5% level of significance was 2.25. Since F calculated is greater than the F critical (value = 8.635), this shows that the overall model was significant.

4.3.4 Coefficient of Correlation

Table 4.8: Coefficient of Correlation

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.103	0.2235		5.132	.000
	GDP	0.852	0.1032	0.1032	6.569	.001
	Inflation rate	0.654	0.3425	0.1425	4.117	.004
	Dividend policy	0.231	0.2178	0.1178	3.968	.002
	Trading volume	0.489	0.1243	0.1234	4.018	.001
	Firm size	0.463	0.079	0.126	5.860759	0.001
	Firm Age	0.473	0.073	0.045	6.479452	0.005

Multiple regression analysis was conducted as to determine the relationship between the share price volatility and the four variables. As per the SPSS generated table below, regression equation

($SPV = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \epsilon$) becomes:

$$(Y = 1.103 + 0.852 X_1 + 0.231 X_2 + 0.654 X_3 + 0.489 X_4 + 0.463 X_5 + 0.473 X_6)$$

According to the regression equation established, taking all factors into account (GDP, inflation rate, dividend policy, and trading volume) constant at zero, share price volatility will be 1.103. The data findings analyzed also shows that taking all other independent variables at zero, a unit increase in GDP will lead to a 0.852 increase in share price volatility; a unit increase in inflation rate will lead to a 0.654 increase in share price volatility, a unit increase in dividend policy will lead to a 0.231 increase in share price volatility, while a unit increase in trading volume will lead to a 0.489 increase in share price volatility.

This infers that GDP contribute most to the share price volatility followed by inflation rate. At 5% level of significance and 95% level of confidence, GDP, inflation rate, dividend policy, and trading volume were all significant in share price volatility.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter provides a summary, conclusion and recommendations of the main findings on the factors influencing share price volatility among firms listed at the Nairobi Securities exchange

5.2 Summary of Key Findings

From the above regression model, the study found out that GDP, inflation rate, dividend policy, and trading volume, influenced share price volatility. All of the variables influenced it positively. The study found out that the intercept was 1.103 for all years.

The five independent variables that were studied (GDP, inflation rate, dividend policy, and trading volume) explain a substantial 80.7% of share price volatility among firms listed at the Nairobi Securities exchange as represented by adjusted R^2 (0.807). This therefore means that the five independent variables contributes 80.7% of the share price volatility among firms listed at the Nairobi Securities exchange while other factors and random variations not studied in this research contributes a measly 19.3% of the share price volatility among firms listed at the Nairobi Securities exchange.

The study established that the coefficient for GDP was 0.852, meaning that GDP positively and significantly influenced the share price volatility among firms listed at the Nairobi Securities exchange. These findings are in line with Schrodgers Economics team (2010) analysis who found out that over the past sixty years there has tended to be a positive relationship between GDP growth and stock market returns during the recovery, expansion, and slowdown phases of the traditional business cycle. In the recovery and expansion phases of the business cycle, the stock market tends to perform well as rising GDP and earnings growth drives positive excess returns on equity. In the slowdown phase, inflation is still high and monetary policy remains tight, resulting in a difficult

environment for corporations. Reduced earnings and stock valuations tend to result in negative excess returns for equities: declining GDP growth is therefore usually matched with poor equity performance. During the recession phase, there is often a de-coupling of GDP growth and stock market returns: GDP growth is falling, but the excess return on equity tends to be positive.

The study also deduced that the coefficient for inflation rate was 0.654, meaning that inflation rate positively and significantly influenced the share price volatility among firms listed at the Nairobi Securities exchange. Rising inflation has an insidious effect: input prices are higher, consumers can purchase fewer goods, revenues and profits decline, and the economy slows for a time until a steady state is reached. Numerous studies have looked at the impact of inflation on stock returns. Unfortunately, these studies have produced conflicting results when several factors are taken into account - namely geography and time period. Most studies concluded that expected inflation can either positively or negatively impact stocks, depending on the ability to hedge and the government's monetary policy.

The study established that the coefficient of dividend policy was 0.231, meaning that Dividend policy positively and significantly influenced the share price volatility among firms listed at the Nairobi Securities exchange. Contrary to the findings, Nazir, Nawat, Anwar and Ahmed (2010) studied the relationship between dividend policy and share price volatility and concluded that there exists a negative relationship between dividend policy (as measured by dividend yield and dividend payout ratio) and stock price volatility. This means that the higher the dividend yield, the lower the price volatility and the lower the dividend yield, the higher the price volatility. However the early study of Allen and Rachim (1996) showed a positive but non-significant relationship between dividend yield and stock price volatility. A number of theoretical mechanisms that cause the dividend yield and dividend payout ratio to vary inversely with stock price volatility have been suggested which include; duration effect, arbitrage effect, rate of return effect and information effect (Baskin, 1989).

Finally the coefficient of trading volume was found to be 0.489, this means that trading volume positively and significantly influence the share price volatility among firms listed at the Nairobi Securities exchange. Similarly, A Wall Street adage says “It takes volume to make price move” (Karpoff, 1987). Researchers (such as Osborne) hypothesized long ago that volume would drive variability, and was subsequently supported by many empirical studies. These studies on volume-price relation suggest that there are positive relations between the absolute value of daily price changes and daily volume for both market indices and individual stocks (Ying, 1966; Westerfield, 1977; Rutledge, 1979). Return-volume relationships are of common interest as they may unearth dependencies that can form the basis of profitable trading strategies, and this has implications for market efficiency (Chen et. al, 2004). Market folklore claims that the relationship between volume and price movements depends on whether the market is in a bull or bear run. In a bull market, a relatively higher level of volume is associated with a given price change in comparison to a bear market. However, these claims are anecdotal and unsubstantiated.

5.3 Conclusions

The study concludes that GDP, inflation rate, Dividend policy, and trading volume, influenced share price volatility. All of the variables influenced it positively. The study found out that the intercept was 1.103 for all years.

The five independent variables that were studied (GDP, inflation rate, dividend policy, and trading volume) explain a substantial 80.7% of share price volatility among firms listed at the Nairobi Securities exchange as represented by adjusted R^2 (0.807). This therefore means that the five independent variables contributes 80.7% of the share price volatility among firms listed at the Nairobi Securities exchange while other factors and random variations not studied in this research contributes a measly 19.3% of the share price volatility among firms listed at the Nairobi Securities exchange.

The study concludes that the coefficient for GDP was 0.852, meaning that GDP positively and significantly influenced the share price volatility among firms listed at the

Nairobi Securities exchange. The study also concludes that the coefficient for inflation rate was 0.654, meaning that inflation rate positively and significantly influenced the share price volatility among firms listed at the Nairobi Securities exchange.

The study concludes that the coefficient of dividend policy was 0.231, meaning that dividend policy positively and significantly influenced the share price volatility among firms listed at the Nairobi Securities exchange. Finally the coefficient of trading volume was found to be 0.489, this means that trading volume positively and significantly influence the share price volatility among firms listed at the Nairobi Securities exchange.

5.4 Recommendations

First, GDP is an important variable in influencing the general share price volatility prevailing in Kenya. As such, the study recommends that the policy makers need to keenly consider the levels of GDP in Kenya so as to ensure stable share price volatility.

The study also recommends that firms listed at the Nairobi Securities exchange be careful in their overnight inflation because it has some level of effects on the prevailing rates of share price.

The study revealed that trading volume significantly enhanced the listed firms' share price. The study recommends that the management of the listed firms' should regularly conduct market research to identify emerging future viable investment opportunities that the firms may exploit in order to achieve growth in their trading volume hence enhancing their firm's share price.

5.5 Limitations of the Study and Suggested Areas

The study encountered difficult in obtaining data from Nairobi securities exchange and capital markets authority for some few companies whose data was missing in some years. This meant that these companies had to be left out and did not form part of statistics. The other limitation is the length of period of the study. The study used five-year period which was sufficient, however a longer period would yield better results.

The study suggests that further studies should be conducted in similar study for longer period of 10 years. A similar study should also be carried out to on the factors affecting share price volatility incorporating other variables such as the prevailing macroeconomic in a country as opposed to the current study which took only six variables into account. Also Further research can be done on the same topic but involve the use of other models other than multiple linear regression such as polynomial models of second order.

A study can also be done in more than one country to make better the findings and provide more room for generalizability. This is because the findings of this study are focused on the Kenyan firms alone. A study with a wider population will be more informing and will give more generalizable results.

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APPENDICES

Appendix 1: Research Budget

Proposal preparation			
Activity	Quantity/Duration	Unit cost	Total Ksh
Stationary	7 reams	Sh.500	3,500.00
Internet services			6000.00
Library services			3,000
Typesetting proposal	40	25.00	1,000
Photocopying proposal papers	120 pages	2.00	240.00
Binding of proposal	5 copies	50.00	250.00
Printing Questionnaires			3,000.00
Total			16,990

Appendix II: Trading Volume

	2010		2011		2012		2013		2014		2015		2016	
	Volume	In Volume												
January	603.91	2.781	725.05	2.86	350.6	2.545	519	2.715	638	2.805	709	2.851	788	2.896
February	369.76	2.568	335.25	2.525	342.1	2.534	692	2.84	545	2.736	606	2.782	673	2.828
March	525.77	2.721	469.03	2.671	366.2	2.564	571	2.757	544	2.736	605	2.781	672	2.827
April	398.53	2.6	497.19	2.697	526.1	2.721	596.9	2.776	727.99	2.862	809	2.908	899	2.954
May	933.53	2.97	410.87	2.614	543.6	2.735	778.2	2.891	853.58	2.931	949	2.977	1054	3.023
June	364.71	2.562	410.97	2.614	385.5	2.586	727.8	2.862	830.87	2.92	923	2.965	1026	3.011
July	691.34	2.84	433.7	2.637	383.6	2.584	615.9	2.79	625.48	2.796	695	2.842	772	2.888
August	103.54	2.015	551.9	2.742	338.	2.53	670.	2.826	628.	2.798	699	2.844	776	2.890

					9		38		64					
September	402.11	2.604	582.4	2.765	470.2	2.672	488.79	2.689	767.18	2.885	853	2.931	947	2.977
October	500.96	2.7	570.01	2.756	917	2.962	804.51	2.906	500.48	2.699	556	2.745	618	2.791
November	498.78	2.698	398.9	2.601	827	2.918	645.2	2.81	630.85	2.8	701	2.846	779	2.892
December	357.61	2.553	336.5	2.527	462	2.665	466.25	2.669	823.04	2.915	915	2.961	1016	3.007
		2.634		2.667		2.668		2.794		2.824		2.869		2.915

Appendix III: Inflation rate

2010	2011	2012	2013	2014	2015	2016
12.1	9.1	4.7	18.9	13.5	13.8	14.0
11.9	5.9	4.1	18.3	12.3	12.5	12.8
10.5	5.3	3.6	16.7	11.1	11.3	11.5
7.8	4.1	4.2	15.6	10.2	10.4	10.6

9.9	2.7	3.9	13.1	8.7	8.9	9.0
6.2	3.2	4.7	12.2	8	8.2	8.3
12.8	4.3	4.5	10.1	9.1	9.3	9.5
12.1	3.3	14.49	7.7	11.1	11.3	11.5
10.5	2.6	16.6	6.1	9.8	10.0	10.2
9.9	3.1	15.5	5.4	10	10.2	10.4
12.4	2.9	17.3	4.14	11	11.2	11.4
9.9	2.7	19.7	3.3	11.1	11.3	11.5

Source: Kenya National Bureau of Statistics

Appendix IV: GDP

2010	2011	2012	2013	2014	2015	2016
5.8	4.4	4.6	5.9	6.3	7.2	8.3
5.9	4.5	4.7	6	6.4	7.3	8.4
6	4.6	4.8	6.2	6.6	7.6	8.7
6.2	4.7	4.9	6.3	6.7	7.7	8.8
6.3	4.8	5	6.4	6.8	7.8	8.9
6.4	4.9	5.1	6.5	7	8.0	9.2
5.7	4.3	4.5	5.8	6.2	7.1	8.1
5.8	4.4	4.6	5.9	6.3	7.2	8.3

5.9	4.5	4.7	6	6.4	7.3	8.4
6	4.6	4.8	6.1	6.6	7.6	8.7
6.2	4.7	4.9	6.3	6.7	7.7	8.8
6.3	4.8	5	6.4	6.8	7.8	8.9

Source: Kenya National Bureau of Statistics

Appendix V: Share Price

2010	2011	2012	2013	2014	2015	2016
101.23	102	103.6	104.1	105.5	110.4	115.4
103.4	104.1	105.8	106.3	107.7	112.7	117.8
105.5	106.3	108	108.5	109.9	115.0	120.2
107.7	108.5	110.3	110.8	112.3	117.5	122.9
110	110.8	112.6	113.1	114.6	119.9	125.4
112.3	113.1	115	115.5	117	122.4	128.0
99	99.8	101.4	101.9	103.2	107.9	112.9
101.1	101.9	103.5	104	105.4	110.2	115.3
103.2	104	105.7	106.2	107.6	112.5	117.7
105.4	106.2	107.9	108.4	109.8	114.9	120.1
107.6	108.4	110.2	110.7	112.1	117.3	122.7
109.9	110.7	112.5	113	114.5	119.8	125.3

Source: Kenya National Bureau of Statistics

Appendix VI: Dividend per share

2010	2011	2012	2013	2014	2015	2016
2.97	3.01	3.63	4.12	4.87	5.19	5.68
3.03	3.07	3.71	4.21	4.97	5.30	5.81
3.1	3.14	3.78	4.29	5.08	5.41	5.92
3.16	3.2	3.86	4.39	5.18	5.53	6.05
3.23	3.27	3.94	4.48	5.29	5.64	6.17
3.3	3.34	4.03	4.57	5.4	5.76	6.30
2.91	2.94	3.55	4.03	4.76	5.08	5.55
2.97	3.01	3.63	4.12	4.86	5.19	5.67
3.03	3.07	3.7	4.2	4.97	5.30	5.80
3.09	3.13	3.78	4.29	5.07	5.41	5.92
3.16	3.2	3.86	4.38	5.18	5.52	6.04
3.22	3.27	3.94	4.47	5.29	5.64	6.17

Source: Kenya National Bureau of Statistics