THE EFFECT OF FOREIGN DIRECT INVESTMENT ON PRICE VOLATILITY OF SECURITIES IN THE NAIROBI SECURITIES EXCHANGE

BY

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DECLARATION

This research project is my original work and has not been presented for a master's degree in any other institution.

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D63/72620/2014

This research project has been submitted for the examination with my approval as the candidate's supervisor.

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May the Almighty God bless them all.

DEDICATION

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ABBREVIATIONS AND ACRONYMS

DASS	Delivery and Settlement System
ECM	Error Correction Mechanism
FDI	Foreign Direct Investment
GC	Granger Causality
IFC	International Finance Corporation
NSE	Nairobi Securities Exchange
PPP	Purchasing Power Parity
SPSS	Statistical Package for Social Sciences
VAR	Vector Auto Regression

ABSTRACT

Foreign direct investment (FDI) is arguably the greatest steady form of global capital movements. Foreign Direct Investment are investments from a mother firm to a place outside the mother firm's country of origin. FDI comprises of owner's wealth (equity), firm to firm obligations and retained interest. This analysis of study was conducted with regard to the impact of foreign direct investment and price volatility of securities at the Nairobi Securities Exchange. The research design adopted a causal study design. The population that was targeted for this study was sixty five (65) companies were listed in the NSE as at 31st December 2015. The study used quarterly data on stock market returns, FDI inflows, inflation rate, interest rates, and exchange rate and stock prices for the period January 2006 to December 2015. Data was analyzed using regression model to establish the relationship between FDI inflows, inflation, interest rate, exchange rate and stock price volatility. The study found that price volatility of securities had a positive and insignificant relationship with FDI inflow rate, exchange rates, interest rates but a negative relationship with inflation. The study concluded that an increase in FDI inflow, exchange rate and interest rates leads to an increase in price volatility of securities and that inflation adversely affects price volatilities of securities at the Nairobi Securities Exchange. This study recommended that the government of Kenya should institute policy measures to ensure that they increase foreign direct investment inflows into the country and that Central Bank of Kenya, should come up with guidelines to ensure that the effects of inflation and fluctuations in exchange rates does not affect the price of securities at the Nairobi Securities Exchange.

CHAPTER ONE

INTRODUCTION

1.1 Background to the study

Foreign Direct Investment (FDI) is referred to as the flow of capital from international sources which provide a company in the host country or multinational organization significant control over its foreign subsidiaries. By 2004, the inflows of FDI across the different countries in the world increased to $917 billion, whereby studies revealed that over half of these inflows were received by businesses within small and developing countries. The major issue in various developing countries that surrounds FDI activity is the fluctuation of the currency exchange rates. Exchange rates, may be explained as the domestic currency price in the form of a foreign currency, and it is an issue that matters in form of their volatility and also in term of their levels. Many scholars have identified that exchange rates have the possibility to have an influence on the total amount of foreign direct investment that a country partakes and the reallocation of the spending on investment in various countries around the world (Goldberg, Linda and Kolstad, 2005).

Most developing countries are entangled in spiteful sphere of poverty. Most of these countries located in Africa have insufficient basic capital resources. The total income in these countries is very low and this makes savings very difficult, hence the level of saving and investments is very low. When the income is low, the government gets low revenue from taxation. Due to the low revenue collection, these countries have to face a gap of saving-investment .To minimize on some of these gaps, these countries rely on FDI in order to fast-track the growth and investment process (Mohey-ud-din, 2007).

Foreign direct investment (FDI) is arguably the greatest steady form of global capital movements (UNCTAD, 2009). These private capital movements are investments from a mother firm to a place outside the mother firm's country of origin. FDI comprises of owners wealth (equity), firm to firm obligations, and retained interest (Srinivasan, 2008). FDI is made of a parent company in their home country and an overseas affiliate which form the Multinational Company (MNC). For a company to meet the requirements of FDI, the headquarter company must advance some level of control due to their investment in that foreign affiliate (Meyer, 2004).

This notion of control, developed by Hymer in 1960 is vital to differentiating between portfolio and direct investment as well as the inspiration of the company's asset. Regulation is considered vital when a corporation has 10% or greater of the voting shares. The likely effect of FDI on the price volatility of shares has remained unclear since these companies become multinational (Mohey-ud-din, 2007).

When the value of a currency falls, this implies that the overall value of a different currency compared to the the value of the particular currency declines and, such an exchange rate movement has been studied to reveal that there are two main possible effects for FDI. One is that it declines the specific country's wages lower and as a result the production costs fall compared to the wages of the other countries. The resultant effect is the improved attractiveness compared to other countries due to the real currency depreciation of that country's currency and improved "locational advantage".Further, the country enhances its strategic location for obtaining productive capacity investments. By this "relative wage" channel, there is increased competition from overseas investors eyeing this country for investment projects (Cushman, 2008).

The basic considerations which the level of exchange rate effects relies on are several. First, various studies indicate that the movement of the rates of exchange should be linked to a prime change in the average costs of production across various countries, and hence the rise in the costs relating to the production of goods and services in the intended markets for significant investment should not be the accompanying effects.

1.1.1 Foreign Direct Investment

Foreign direct investment (FDI) has a substantial and developing purpose in business across the world. First, it can provide an entity with new markets and marketing channels, increased products, better skills, lower cost of production facilities, increase access to good technology, and provide capital financing. For the case of a host country or the foreign entity which in this case obtains the investment, it has the potential to issue a source of new improved technologies, increase managerial skills, provide higher capital, ensure efficient processes and higher quality products hence providing a high impetus to economic development (Lipsey, 2001).

Foreign direct investment can be referred to as a monetary investment into property intended for significant production in one country by a company or entity in a different country. The direct investment in the production equipment, the machinery used and real estate buildings may be contrasted against having an indirect investment in the form of a portfolio investment. Recently, it was revealed to comprise of theincreasing acquisition of better and lasting management interests in firms or companies which are located off the original country of the investing firm. Therefore, it could appear in various forms, which include the acquiring of a foreign entity directly, investment in the construction of

a medical or social facility, or investment in a joint venture or a local firm strategic alliance with high and increasing intellectual property licensing and increase in technology (Goldberg, 2004).

1.1.2 Price Volatility of Securities

Price volatility may be defined as the fluctuation of a price upwards or downwards for a particular period of time. That kind of movement could take various forms and can be close to zero which is referred to as low volatility or degrees of magnitude larger which is referred to as high volatility. Volatility could be measured over an average short period of time. The variations in price are considered to contain a prime aspect in the usual operationing of financial markets. The important aspect of the pricing system is that when an item starts being scarce its price increases, hence resulting to a consumption decline and therefore indicating increased investment in the good or service production. Some substantial level in volatility is therefore considered to be essential to the operational functioning markets. The assessment of price volatility measures the relationship between price and the security besides the impact it has on countries and individuals (Prakash, 2011).

Studies indicate that investors are considered to be low risk takers, and thus the changes in the risk profiles of the pool of their investments is crucial since it is used to assess the degree of risk exposed to them. The benchmark for measuring risk for the common stock is its volatility. It is used to interpret the changing pace in the share's price over a particular period of time. This means that a more considerable volatility is an indication of a gain or loss in the foreseeable future. Therefore, when the price of a particular share

varies considerably in a given period of time, it becomes very difficult to predict the future price of the specific share. This results in the investors identifying less risky investments which are considered to be better off that the investments with greater or higher risk (Kinder, 2002).

1.1.3 Foreign Direct Investment and Price Volatility of Securities

Theoretical assumptions regarding the features of FDI indicate long-term motivation to investors, increased stability and the resilience of high capital investment including times of financial crises (Lipsey, 2001). The share markets and their pool of investments are seen to have speculation which results to a fast disinvestment and capital flight by the various investors since they are risk averse by nature (Lipsey, 2001).

FDI has various positive effects which may be seen via the positive influence of the economy. This results in economic growth. Other effects are seen through the transfer of better technology in the market which assist developing countries, the increase in know-how and also indirectly, capital markets. The studies surrounding this reveal that the justification for the increased long term relationship includes the underlying assumption that the presence of FDI inflows results in spillover effects on the local stock market and therefore motivates the law makers to put into effect market-friendly regulations in their various countries, which encourage stock trading (Rogoff, 2005).

There are basic considerations in which price volatility takes effect on FDI which usually rely on the intended destination of what is produced. Where a particular investor produces goods and services for the local market in their country, the substitutes for such could be considered to be FDI and trade. Therefore, this means that an appreciation of the

local currency results in an increase inflow of FDI which is seen the increasing purchasing power of regular and local consumers in that country. The real exchange rate depreciation of the host country increase the FDI rate by a reduction in the cost of capital (Kiyota and Urata, 2002).

Esquivel and Larrain (2002) in their studies have described two channels, which link price volatility with FDI. Their study shows that when there is expectation of the returns to rise high to an extent that they are enough to cover the currency risk, then the potential investors will proceed to have investment in the given nation. This implies that,when the price volatility is higher, then FDI will be lower. Further, the amount and direction of FDI which could be seen via the effect on the real wealth in the various countries could be affected by changes in the bilateral exchange rates of the G- countries. Hence there could result in the fluctuation of FDI based on some factors such as the particular currency's value, FDI relevance as well as its wealth elasticity in the host nations (Aizenbman, 2006).

1.1.4 Nairobi Securities Exchange

In Kenya, the British colony introduced the dealing in shares back in the 1920's . At that time, there was no formally organized market and rules and regulations to govern it did not exist. The NSE was formally organized in 1954 and was registered under the Societies Act as a composition of a voluntary association of stock. Currently, there are sixty five (65) listed companies which are further categorized into ten groups namely; Agricultural, Commercial and Services, Telecommunication and Technology,

Automobiles and Accessories, Banking, Insurance, Investment, Manufacturing and Allied, Construction and Allied and Energy and Petroleum (NSE, 2013).

The Stock market in Kenya has been growing rapidly and has diversified to provide not only the primary role of being a major capital source of investment, but also many other functions. In an attempt to keep pace with what the world stock exchanges in the main parts of the world are undertaking, the NSE recently adapted its own automated trading system, and this has greatly increased the volumes of stocks traded in the market. Section 5 of the Central Depositories Act 2000 enhances the automation is done and approved by Capital Markets Authority so as to ensure efficient operating systems for the deliveries of securities and their settlement. Information relating to the volume of trade and price movements of the securities traded is released in an almost real time basis as well as the data regarding the index movements. Further, the T+5 cycle of equity settlement was moved to T+3 in the same year. This ensured that money from the sale of shares reflects in the investors accounts three (3) days after the sale (Omondi, 2010).

Through liberalization, foreign portfolio were encouraged with the main aim of improving market activity and access to foreign direct investment. For foreign investors, the drive led to diversification of investments to obtain higher returns in consideration to the developing countries against developed countries low correlation. The investor composition change, however, affects prices of securities and risk pricing. This is more so because the foreign portfolio is easily reversible and thus may affect the share prices and market stability (Nyamongo and Misati, 2010).

Price volatility of securities at the Nairobi Securities Exchange still causes a controversy among scholars and the results are therefore mixed. The shortage of liquidity in the market also negatively affects the securities exchange. As a result, investment by foreign firms and the foreign ownership of firms is by application. There is also a ban on foreign controlled firms from having their local subsidiaries invested by the host so as to increase the input from local companies.

1.2 Research Problem

The stock market is a major section of any given economy and its financial structures. It is considered to be a major financing source for new entities and ventures based on the profitability level expected. Further, for a country to increase the level of savings and investment therefore resulting to a growth in the economy the securities market is considered essential and its role is significant in any country or economy. It is considered to be a replica around the world of the economic strength of most countries. Studies by various scholars indicate the positive role of the stock market which results to economic growth in various countries (Levine and Zervos, 2005).

Some factors that result in the securities market development include the political stability of a country, the exchange rate, economic liberalization and foreign direct investment (Adam and Anokye, 2008). The importance stock market development in developing economies as a result of FDI is considered to be very strong. Research from studies shows a triangular causal relationship in ; economic growth stimulation by FDI ; positive effects are observed as a result of economic growth and the ultimate effect is the development of the stock market promoted by FDI (Adam and Anokye, 2008).

In the Kenyan context, the country still remains an economic hub in the region and has retained regional advantages in FDI location, mainly due to its highly trained labour and its location and identity as a prime logistic position. Overseas investors in the country have inclined to comparatively minor investments but they are several and reputable in an extensive range of the econonmy. These have resulted considerably to certain vibrant sectors in the stock market and led to diversification of the economy (World Bank, 2004). Leverage effects and the impact of news on stock prices Conditional variance techniques have been employed by Nyamongo and Misati (2010) to assess leverage effects and the impact of news on stock prices. The absolute terms and relationship between FDI and Kenya's stock market price volatility are not shown in the studies conducted by the World Bank and other researchers . It is due to these varying literatures on the impact of FDI on the price volatility of securities and the lack of a clear evidence that this study seeks to bridge this gap.

There have been studies carried out on how various factors impact and price volatility of securities. For instance, Kullapom and Lalita (2010) conducted a study on inflation and stock prices in Thailand relationship. The study findings established that stock prices fluctuation was not important to inflation however, the study concentrated inflation and not foreign direct investment. Additionally, Jefferis and Okeahalam (2000) examined the stock markets South Africa, Zimbabwe, and Botswana and how the major economic factors affected them. The study findings established a short-run relationship with exchange rate and interstates in Botswana and that stock prices have a positive long-run relationship with real GDP, and real exchange rate in South Africa and Zimbabwe. Stock

prices were also found to be negatively related to interest rates in South Africa but the study did not examine the impact of FDI on security prices.

Locally, a study by Nyamute (1998) studied the relationship between stock prices and other financial variables like money supply, interest rates, inflation rates and exchange rates in Kenya. The study found a positive relationship between stock prices and exchange rates. However, the research performed data analysis on non-stationary series, which may adversely affect the validity of the results. Seile (2009) studied the relationship between stock market and selected macroeconomic variables in the NSE, which included GDP growth rate, inflation, interest and Treasury bill rates. The study findings revealed that market share index was positively related to inflation rate, Treasury bill rate and gross domestic product while it is negatively related to interest rate but the study did not focus on the effect of FDI on the volatility of securities.

Most of the existing empirical evidence has examined the impact of different variables on stock prices. However, there exist few studies on the impact of foreign direct investment on the volatility of share price in Kenya. Thus, this study intent to fill that gap by addressing the question; What is the impact of foreign direct investment and price volatility of securities at the Nairobi Securities Exchange?

1.3 Objectives of the Study

To examine the impact of foreign direct investment and price volatility of securities at the Nairobi Securities Exchange.

1.4 Value of the Study

The findings of the study are important to policy makers like the government and the line ministries since the study will help in understanding inflation, interest rate and exchange rate and their impact on price volatility in Kenya. In addition, the government may use the study findings to control of inflation, interest rate and exchange rate and promotion of investment in the stock market.

The study will be of significance to listed firms and to the companies that wish to become multinationals by opening branches and investing into a different country. The study will evaluate the factors influencing the volatility of their share prices and give trends of the development of FDI in the East African region and what policies every country in the region has been putting in place to attract the FDI.

This research will be of value to future scholars and researchers since it will add new information to the existing literature. In addition, academicians who may be concentrating on the current FDI approaches, and price volatility of shares being eventually critical to the ideologies of sustainability or of other share factors particularly with regards to the method of data collection. The study can form a basis for additional research on FDI on other variables. Such data will optimistically be useful for researchers in establishing their own ways of carrying on their study.

This study is of significant value to the government of Kenya in its policy formulation and implementation towards the attraction of FDI in the country. The study will outline to the government the importance of the FDI to price volatility of shares and the factors that

attracts FDI to the country and this will motivate the government to put in place policies that will attract more FDI to the country.

This research will gill up the gap that requires to be filled by providing an explanation of the relationship between foreign direct investment and price volatility. It will therefore be of value to scholars since the findings of the research will contribute towards the discussion concerning how foreign direct investment relates to price volatility. These findings will therefore be used as a point of reference by future researchers.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter discusses other studies that have been conducted in the area of study. The areas covered include the theoretical review, empirical review and the final section provides a brief summary of what is outlined in the literature review.

2.2 Theoretical Review

The study will focus on the liquidity preference theory, purchasing power parity, and the cost-push theory.

2.2.1 Liquidity Preference Theory

This is a concept that mainly consists in the statement that the interest rate at a particular time, which is the interest foregone for parting with liquidity, is a theory that measures how the individuals who hoard money for their control over it. The interest rate can be understood as the price which equates to an individual's desire to hold cash for transactional, precautionary motive or speculation purposes (Keynes, 1964).

The transactional purpose is whereby individual hold cash for their day to day transactions. This is normally dependent on the income level of an individual. When a person has a high income, the higher the cash held for transactional purposes. The precautionary motive usually involves holding money which could be used for unexpected or anticipated reasons that might occur. The amount of cash the individual

holds in this case is also dependent on the individual's level of income, whereby if one earns a high income, then the money set aside for precautionary purposes is also high. The speculative purpose relates to holding of money with the intention that the bond prices may decline therefore enabling one to make a gain (Keynes, 1964).

These motives are mostly referred to as transactions, speculative and precautionary motives to demand money. The central bank has an essential importance in the macroeconomic theory of the quantity of money existence amongst other variables. On this basis, the theory by Keynes incorporated the importance of the constant money demand and liquidity preference in the meaning which in turn results in the rate of interest being influenced by the supply and demand for money.

2.2.2 Fisher Effect Theory

Fisher effect theory proposes that the required annual percentage return realized on an investment on interest rates to an investor is exclusive of the inflation rate anticipated in a particular country, hence when the real rate incorporates the anticipated inflation rate, this equals the nominal interest rates .This relationship is existent between the movement in exchange rates and interest rates(Dimand, 2003).

Fisher (1930) tested the common stock and his studies revealed that the nominal return expected on a share includes a real rate of return plus one rate of the inflation expected. Additionally, the study proved that indeed there existed a negative and unfavourable correlation between the return on stocks and the inflation which is expected together with the changes in the amount of unexpected inflation (Kaul, 1987). Gultekin (1983) tested the Fisher Hypothesis using a sample of 26 countries using time series and cross-

sectional analyses. The results of his time series analysis were unfavorable compared to the Fisher Hypothesis, while the cross-sectional study revealed that nations with increased rates of inflation in often times had high nominal returns on shares and in this case contrasted the results of the time series.

Fama and Schwert (2002) demystified the general understanding of the fisher effect by publishing that if a particular market was a perfect market that analyzed and reflected the information available at a particular time t-1, then this would incorporate the precedence of the price of common shares such that the nominal return expected from t-1 to t would be the same as the total of the required equilibrium that would be anticipated by real rate and the particular assessment of the market's rate of inflation expected for a similar period of time investors usually reduce their investment from financial assets and increase their real assets when it is anticipated that the inflation rate would increase. Hence, according to the research and analysis by Fama the equities normally represent claims to real assets and hence act as hedges against the inflation, which therefore suggests that the expected inflation rate is correlated to a positive stock price and appreciation in stock price (Dimand, 2003).

2.2.3 Purchasing Power Parity Theory

The purchasing power parity theory is a result of origination of rate of exchange theory and it is also referred to as the exchange rates inflation theory. PPP was in existence since back in the sixteen-century in Spain where Swedish economist Cassel (1918) was the first person to have put a name to this theory as PPP and in the early seventeen century England. Cassel argument with regard to the purchasing parity theory was that without it,

there would not exist a better and meaningful manner to have a discussion regarding the valuation of different currencies. The absolute PPP theory was initially presented to resolve the issues surrounding the relationship between the underlying value of different currencies and the prices. The theory is based on very strong underlying preconditions (Cassel, 1918).

In general, the absolute PPP operates in complex, well defined and a competitive market with products and services with the underlying assumption that there exists no risk in the world, whereby the goods or services can be freely exchanged since there exists no transportation costs, tariffs, export quotas, and so on. However, this is considered as unrealistic since there is no economy in the world that assumes no costs are required to transport goods or services from various places. In the day to day economy, producers supply large volumes of various commodities and services, most of which vary prices from one country to another due to the costs of transporting the goods, tariff costs and other trade barriers (Kanamori & Zhao, 2006).

2.3 Determinants of Price Volatility

Price volatility is a representation of the security prices daily changes in its most basic form. It is the standard deviation of the change in price of a security or other financial instrument over a specified period of time relative to its historic price (Thomas, 2006). The forces which determine the volatility and risk are the most debated in the analysis of financial markets.The determinants of price volatility ainclude inflation rate, interest rate and exchange rate, (Gultekin, 1983).

2.3.1 Inflation

Tucker (2007) in his works defines inflation as the overall rise in the standard price level of services or goods in any given economy. Inflation is referred to as an overall rise in the average level of prices and not specifically in relation to a unit of a given product or service. product. Sloman and Kevin (2007) in their research paper expound that inflation could take the form of either demand pull inflation which is as a result of the increase in demand of goods or the form of a cost push inflation. Demand-pull inflation arises as a result of a general increase in the overall demand by the market which in return results to the raising of prices and partially increase of the output in a given economy. Cost push inflation is as a result of the increase in the levels or cost of production which may affect the firms thus resulting in the companies charging the consumers more (Hendry, 2006).

Companies revert by price increases on the output so as to ensure the increased production cost is passed on to the individuals who purchase the commodities and to partially reducing on production. Hendry (2006) agrees to the fact that inflation is caused by demand increase and increased supply in a particular economy. Tucker (2007) noted that the inflation mechanisms that exist were many because there are various varying price indices which relate to the different sectors a country can have in its economy. There are two major know indices used to report the rates on inflation in different countries. One is the CPI, which measures the prices of goods or services which affect the average consumers in a market, and the other is the implicit price deflator, which mainly measures the prices of locally-produced goods and services.

2.3.2 Interest Rate

According to Thomas (2006), when the cost of borrowing is expressed as a percentage each and every year, it is referred to as interest rate. This is one of the key variables in economies that play an important purpose in consumer's decision to purchase goods or services in a particular country. The significant factors involved are normally the interest adjusted for expected inflation and the real interest rate. The real interest rate influences consumption and investment expenditures and the way in which wealth is redistributed between borrowers and lenders. If real interest rates are unusually high lenders benefit at the expense of borrowers. If real interest rates are abnormally low, borrowers benefit at the expense of the lenders (Thomas, 2006).

In macroeconomics, the rate of interests are the most crucial variables and are ranked highly even in the application of finance in the real world. Most economic phenomena's are influence by the rates of interest changes which include amount of expenditure on the investments in equipment's, the amount of expenditures by the consumers, technology advancement and the way wealth is redistributed between borrowers and lenders. The prices of key financial assets such as stocks, bonds, and foreign currencies are influenced by the rates of interest (Thomas, 2006).

2.3.3 Exchange Rate

According to Thomas, the rate of exchange is the price where one particular country's exchange medium could be traded for a different country's currency. The rate of exchange determines the price of a country's product in other countries and the domestic price of goods brought in the country from abroad. This is one of the essential roles

played by the exchange rate. In the modern day, the floating system of rates of exchange is applied which ensures that the rates change throughout the day (Thomas, 2006).

Exchange rate is referred to as the value of one particular currency expressed in the terms of another different currency in a way that they appear different (Samuelson and Nordhaus, 2010). The importance of the rate of exchange framework is used in the mechanism of the monetary transmission. Real exchange rates have an effect on the overall deman levels in the transfer of monetary policies in the economy. It has an effect on the foreign demand for domestic and foreign goods and the relative prices in the market (Ncube and Ndou, 2011).

2.4 Empirical Review

Mok (1993) by ARIMA approach which was approved by the Granger causality test performed an indepth analysis of the causality of stock prices, daily rate of interest and exchange rate for the period 1986 to 1991 in the republic of Hong Kong. The conclusion of the results was published in their research paper stating that the HIBOR (Hong Kong Interbank offered rate) as well as indices of prices were separate series. An indepth analysis to the research on the homogenity of stock prices and exchange rates was studied, the research resulted in the conclusion that those series were independent.

Pal and Mittal (2011) conducted an analysis on the Indian Capital Markets and exchange rates relationship, interest rates, inflation rate and gross domestic savings of India economy which are the key macroeconomic variables. That study was conducted for a period of fourteen years commencing January 1995. The tests applied on the study were the error correction mechanism, Unit root test and the co-integration test. The results of

that analysis concluded that there was dependence relationship on indices of capital markets and rates of exchange, interest rates, inflation rate and gross domestic savings even though it may seem that they may not be statistically significant in all the areas.

Gultekin (1983) tested the Fisher Hypothesis in a sample of 26 countries using two main analytical methods, namely the time series and cross-sectional analyses. Results of his analysis were unfavorable to the Fisher Hypothesis, whereas the results of the cross-sectional study found out that nations which had rising rates of inflation were affiliated to increased nominal stock returns which appeared to have been different compared to the time series results.

In Africa, Jefferis and Okeahalam (2000) performed an analysis of the impact of major economic influencers in the stock markets in several countries which included Botswana, Zimbabwe and South Africa. Their study revealed that the real GDP had a positive relationship in the long term with the prices of securities in South Africa and Zimbabwe and there existed a short-run relationship with the interest rates and the rate of exchange in Botswana. Further, their study revealed that the prices of securities in the exchange are also negatively related to the rates of interest in South Africa.

Sifunjo (1999) examined the causal relationship between rate of exchange and the price of stocks at NSE between 1993 and May 1999. He studied the monthly average stock price index and nominal dollar exchange rates by utilizing co-integration and error-correction methodology. The study indicated that exchange rate and stock prices are co-

integrated, non-stationary in first difference and integrated of order one. The results showed a unidirectional causality from the price of stocks to the exchange rate.

Anene (2011) studied the relationship between exchange rate and stock prices in Kenya. He used Granger Causality (GC) model. The study showed that there is a unidirectional causal relationship between exchange rates (Ksh /US $) for the five year period, that is Granger causes stock prices at the Nairobi Securities Exchange to be volatile as the exchange rate changes.. The study was a very strong and significant at 90% confidence level.

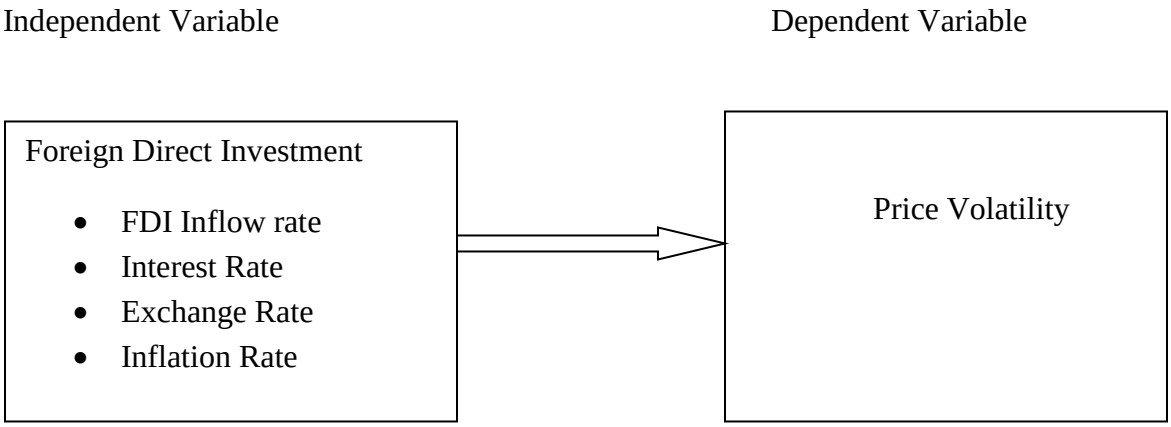
Nyamute (1998) on the other hand studied the relationship between the price of stocks and other financial variables like money supply, inflation rates, rates of interest, and exchange rates in Kenya. He found out that there exists a positive relationship between stock prices and exchange rates. However, in undertaking his research, he utilized and performed performed an analysis of data on some of the non-stationary series which negatively influence the results.

Sifunjo and Mwasaru (2012) analyzed the casual homogenity between NSE prices of securities and foreign exchange rate using data on a month on month basis from November 1993 till May 1999. Johansen consideration procedure and the model of error correction were applied for testing. Empirical findings indicate that in Kenya, nominal exchange rate of shillings per dollar Granger causes stock price. Further to that, the research found out that there exists a unidirectional causality from the prices of stocks to the rates of exchange. Thus, fluctuation in the rates impact majorly on the determination of stock price in Kenya.

2.5 Conceptual Framework

The conceptual framework gives a portrayal of how the factors identified with each other. The factors characterized here are foreign direct investment and price volatility. The independent variables are FDI inflow rate, the exchange rate, inflation rate and interest rate whereas the dependent variable is price volatility.

Figure 2.1: Conceptual Framework



2.6 Summary of Literature Review

The literature has tackled the concepts of inflation, interest rates, exchange rates and stock price volatility of firms listed in the NSE. Understanding the inflation, interest rates, exchange rate and stock price volatility will help advocate for intervention by government through fiscal and monetary policies to control inflation and interest rates. Studies of the major economic factors have been evaluated using empirical review. As it is clearly prominent, the dispute on the relationship between inflation, interest rate, exchange rate and stock price volatility is not yet settled. Further, most of these studies were done in different environments which cannot be generalized to developing countries especially Kenya. Hence, the present study seeks to bridge the gap.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the research design, the population of the study, data collection procedure and the data collection technique.

3.2 Research Design

This infers to planning used on this study, the procedures and techniques applied to obtain solutions to the research problem or question (McMillan& Schumacher, 1984). The research design adopted a design referred to as a causal study which sought to study causal relationship between variables also refer to as interrelationship because they trace relationship among the facts obtained to gain a deeper insight into the situation.

3.3 Population

A population is a clearly specified set of a number of people, group of services, classes fo elements, tasks or events, groups of things or households that are under investigation (Ngechu, 2006). The specific population that was targeted to during this study was all the companies listed in the Nairobi Stock Exchange (NSE). In Kenya, sixty five (65) companies were listed in the NSE as 31st December 2015. Thus, the study undertook an analysis of all the listed firms at the NSE.

3.4 Data Collection

Secondary data was mainly used due to its suitability, adequateness and it was easily obtainable from authentic sources. The study used quarterly data on inflation rate, interest rates, and exchange rate and stock prices for the period January 2006 to December 2015. The NSE was a primary source of data on the stock market price whilst inflation, consumer price index (proxy for inflation) was sourced from Kenya National Bureau of Statistics while the Central Bank of Kenya was the primary source for data on interest rate and rate of exchange.

3.5 Data Analysis

Data was analyzed using the model of regression to establish the relationship between FDI inflows, inflation, interest rate, exchange rate and stock price volatility. The data obtained was analyzed using The Statistical Package for Social Sciences (SPSS version 21.0).

3.5.1 Analytical Model

The study applied the following regression model:

$$Y = \beta_{\circ} + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$$

Where:

Y = Price Volatility of shares measured using of returns on the market index (NSE 20 share index)

X_1 = FDI inflow rate; measured by (FDI/GDP)

X_2 = Exchange Rate; measured by nominal rate of exchange;

X_3 = Rate of Inflation; measured by consumer price index

X_4 = Interest Rate; measured by nominal interest rate

$\beta_1 - \beta_3$ = Regression coefficients

$\beta_\circ$ = Intercept/constant

ε = the error term

3.5.2 Test of Significance

The statistical signifance of the study variables was tested using the t-tests and F- tests. The t test tested the significance of the variables which were independent while the F test was applied on the whole model's statistical significance test.

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND INTERPRETATION

4.1 Introduction

This section shows the descriptive statistics, correlations, regression analysis results and interpretation of the findings of the study.

4.2 Analysis of Data and Presentation of Findings

4.2.1 Descriptive Statistics

Table 4.1 indicates the results of the summary descriptive statistics for the period 2006-2015.

Table 4.1 Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Share price volatility	40	-.462	1.000	.01497	.222155
FDI inflow rate	40	.200	2.280	.62453	.589539
Exchange Rate	40	62.6	103.9	80.855	10.2704
CPI	40	76.3	163.3	116.110	28.0060
Interest Rates	40	12.870	20.340	15.49700	2.087543

Source: Findings from Research

The research findings on table 4.1 show that share price volatility has a maximum and minimum value of -0.462 and 1.00 with mean and standard deviation of 0.01497 and 0.222 respectively. The finding indicates that the average FDI inflow rate in Kenya is 0.62453 with minimum and maximum inflow rates of 0.2 and 2.80 and standard deviation of 0.589539. The findings show that the mean exchange rate is 80.855 with standard deviation of 10.2704 and minimum and maximum exchange rate of 62.6 and 103.9. The findings further show that the average CPI is 116.11 with a standard deviation of 28.006 and minimum and maximum CPI being 76.3 and 163.3. Finally, the findings show that the average interest rate is 15.497 with a standard deviation of 2.0875 and minimum and maximum interest rate being 12.870 and 20.340 respectively.

4.2.2 Correlations

The findings on correlations are shown in table 4.2 as follows

Table 4.2 Correlations

	Share price volatility	FDI inflow rate	Exchange Rate	CPI	Interest Rates
Share price volatility	1				
FDI inflow rate	.346*	1			
Exchange Rate	.316*	.735**	1		
CPI	.216	.849**	.893**	1	
Interest Rates	-.038	.330*	.497**	.637**	1

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Source: Research Findings

The findings on table 4.2 illustrate that share price volatility has a positive correlation with FDI inflow rate. The finding also shows that share price volatility has a positive correlation with exchange rate and the consumer price index (CPI). The findings further show that share price volatility has a negative correlation with interest rates. The findings indicate a positive correlation between FDI inflow rate, Exchange rates, Inflation (CPI) and share price volatility but a negative correlation with interest rates.

4.3.4 Regression Analysis

4.3.4.1 Model Summary

The model summary entails the R (correlation coefficient), the R-square (Coefficient of determination), the adjusted R-square and the standard error of the estimate

Table 4.3 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.485[a]	.235	.148	.169127

a. Predictors: (Constant), Interest Rates, FDI inflow rate, Exchange Rate, CPI

Source: Research Findings

The results illustrated as per the table 4.3 show that R^2 is 0.235, which means that the hypothesized research variables (Interest Rates, FDI inflow rate, Exchange Rate, CPI)

explain 23.5% of the dependent variable variation. Hence, the other 76.5% is explained by other factors not included in the research.

4.3.4.2 Analysis of Variance

Table 4.4 Analysis of Variance

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.307	4	.077	2.655	.047[b]
	Residual	1.001	35	.029		
	Total	1.309	39			

a. Dependent Variable: Share price volatility

b. Predictors: (Constant), Interest Rates, FDI inflow rate, Exchange Rate, CPI

Source: Research Findings

The findings on table 4.4 show that the F value is 2.687 and the significance value is 0.047. This means that the regression model is significant at 95% confidence level and a good predictor of the price volatility of securities at the Nairobi Securities Exchange and foreign direct investments relationship.

4.3.4.3 Regression Coefficients

Table 4.5 Regression Coefficients

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.509	.368		-1.382	.176
	FDI inflow rate	.620	.319	.656	1.945	.060
	Exchange Rate	.012	.006	.690	1.997	.054
	CPI	-.006	.004	-.971	-1.666	.105
	Interest Rates	.002	.021	.021	.095	.929

a. Dependent Variable: Share price volatility

Source: Research Findings

The findings on table 4.5 show that price volatility of securities has a positive (B=0.620) relationship with FDI inflow rate but the relationship is insignificant. The findings also show that price volatility of securities has a positive (B=0.12) relationship with exchange rates but the relationship is insignificant. The results also show that price volatility of securities has a negative (B=-0.006) relationship with inflation (CPI) but the relationship

is insignificant. The results further show that price volatility of securities has a positive (B=0.002) relationship and insignificant with interest rates.

4.3 Interpretation of the Findings

The results established a positive correlation between FDI inflow rate, Exchange rates, Inflation (CPI) and share price volatility but a negative correlation with interest rates. This indicates that FDI inflow rate, Exchange rates, Inflation (CPI) and share price volatility move in the same direction while share price volatility and with interest rates moves in the opposite direction. The findings established that price volatility of securities has a positive relationship with FDI inflow rate but the relationship was insignificant. This means that increase in FDI inflow results to a rise in share price volatility with an amount of 0.620 units which is an insignificant increase. Further, Rogoff (2005) argues that inflows of FDI existence cause spillover effects on the domestic stock market and encourages law makers to create and enforce measures to adopt regulations which are friendly to the market and encourage citizens to participate in trading of stocks.

The findings established that price volatility of securities has a positive relationship with exchange rates but the relationship was insignificant. This means that an increase in interest rates positively affects price volatility of securities by 0.012 units but positive effect is insignificant. Similarly, Nyamute (1998) from his findings established that the relation between stock prices and exchange rates was a positive relationship. In addition, Sifunjo and Mwasaru (2012) established that the fluctuations in the rates of exchange impact major influence on the determination of stock price in this country.

The findings established that price volatility of securities has a negative relationship with inflation (CPI) but the relationship was insignificant. This indicates that there is inflation adversely affects price volatilities of securities at the NSE and an increase in inflation negatively affects share price volatility by 0.006 units but the negative effect is insignificant. Based on past studies, Kullapom and Lalita (2010) established that movement to stock prices is irrelevant to inflation however, the study concentrated inflation and not foreign direct investment.

The results further show that price volatility of securities has a positive relationship and insignificant with interest rates. This in an indication that increases in interest rates increases price volatility of securities by 0.002 units but the increase is significant. Thomas (2006) explains that interest rates influence key financial assets the prices such as stocks, bonds, and foreign currencies. However, Jefferis and Okeahalam (2000) established that prices of stock and interest rates in South Africa were negatively related, which does not concur with findings of this study. This study has also established that all the variables (FDI inflow rate, inflation, exchange rate and exchange rate) are insignificant though they affect price volatility either positively or negatively. Pal and Mittal (2011) support that macroeconomic variables are depended upon by the capital markets indices even though this may not be statistically significant in all the areas.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter outlines the synopsis of the study, the conclusion and recommendation for the study. The chapter also describes the limitations of the study and recommends further areas for research.

5.2 Summary

The purpose of this research was to examine the impact of foreign direct investment and price volatility of securities at the Nairobi Securities Exchange. The study explored the effect of FDI inflow rate, exchange rate, inflation (CPI) and interest rate on and price volatility of securities. Sixty-five (65) companies listed at the NSE were considered and a census of all the firms listed was undertaken. To measure share price volatility the study computed the returns on the market share index (the NSE 20 share index) using quarterly data. Inflation was measured using the CPI whereas exchange rates were measured using nominal exchange rates and interest measured using nominal interest rates on quarterly basis from 2006 through 2015.

The findings of the study found that share price volatility had a mean and standard deviation of 0.01497 and 0.222 and that the average FDI inflow rate in Kenya was 0.62453 with standard deviation of 0.589539. The findings established that the mean exchange rate was 80.855 with standard deviation of 10.2704 and that the average CPI was 116.11 with a standard deviation of 28 and the average interest rate was 15.497 with

a standard deviation of 2.0875. The findings established a positive correlation between FDI inflow rate, Exchange rates, Inflation (CPI) and share price volatility but a negative correlation with interest rates respectively.

The study observed that the hypothesized research variables (Interest Rates, FDI inflow rate, Exchange Rate, CPI) explained 23.5% of the variation in the dependent variable and that the regression model was significant and a good predictor of the relationship between foreign direct investments and price volatility of securities at the Nairobi Securities Exchange. The findings established that price volatility of securities had a positive and insignificant relationship with FDI inflow rate, exchange rates, interest rates but a negative relationship with inflation.

5.3 Conclusion

The findings revealed that FDI inflow rate has a positive relationship with price volatility of securities. The study also found that the relationship was not significant. The study concludes that a rise in FDI inflow results to an increase in price volatility of securities at the Nairobi Securities Exchange. The findings revealed that exchange rates positively influence price volatility of securities at the Nairobi Securities Exchange. The study also found that the exchange rates and share price volatility relationship is not significant. The study concludes that an increase in interest rates positively affects price volatility of securities at the Nairobi Securities Exchange

The finding revealed that price volatility of securities at the Nairobi Securities Exchange had a negative relationship with inflation (CPI). The study also observed the negative relationship between inflation and price volatilities. The study concludes that inflation

adversely affects price volatilities of securities at the NSE and an increase in inflation negatively affects share price volatility at the NSE. The findings revealed that price volatility of securities had a positive and insignificant relationship with interest rates. The study concludes that increase in interest rates increases price volatility of securities at the Nairobi Securities Exchange.

5.4 Recommendations

This study recommends that the government of Kenya should institute policy measures to ensure that they increase foreign direct investment inflows into the country. This is because the study has established that FDI inflows positively affect price volatilities at the Nairobi Securities Exchange. The government plays a significant role in the formulation and implementation of policies and should therefore be in a capacity to come up with favorable terms to the foreign investors.

The study also recommends that the Central Bank of Kenya, which is tasked, with the control of inflation and exchange rates should come up with guidelines to ensure that the effects of inflation and fluctuations in exchange rates does not affect the price of securities at the Nairobi Securities Exchange. The Central Bank on Kenya should play a monitory role to ensure that the inflation rates and the rates of exchange are well regulated to ensure they do not have adverse effects on the share prices.

The study also recommends that the Central bank of Kenya should develop prudential guidelines on interest rates to ensure that the increase of interest rates do not have adverse effects on share prices of firms listed at the Nairobi Securities Exchange. The interest rates should also be monitored frequently to ensure they are favourable to the economy

which will inturn result to positive influence on the share prices at the Nairobi Securities Exchange.

5.5Limitations of the Study

This study was limited to the relationship between FDI inflows and price volatility of securities listed at the Nairobi securities exchange. To determine share price volatility the study computed the returns on market index (the NSE 20 share index) which used at the NSE. The NSE 20 share index comprises 20 firms, which are frequently traded, but the index may not be representative of all the firms listed at the NSE since some of the included firms have low market capitalization and they shares do not frequently trade.

The study also used quarterly data on all the variables considered and a period of 10 years from 2006 to 2015. The selected period provides data, which is historical in nature and may not reflect the current relationship between the independent and the dependent variable. The findings also limited to the firms whose shares are listed at the NSE in Kenya.

5.6 Suggestions for Further Research

The focus of this study was on foreign direct investment and share price volatilities at the Nairobi Securities Exchange in Kenya. The study used the NSE 20 share index to determine price volatility, which represents 20 firms listed at NSE. This study suggest an assessment of the effect of FDI inflows on price volatility using the NSE all shares index which presents all the firms listed at the NSE.

The study also applied the classical linear regression model and correlation analysis to test the relationship between FDI inflows and price volatility of securities at NSE. The study also incorporated other variables that affect the economy as a whole such as interest rates, inflation and exchange rates. This study recommends the examination of the considered research variables using different statistical models like the Unit root test, the co-integration test and error correction mechanism.

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APPENDICES

Appendix I: Firms listed at the NSE

1. A.Baumann CO Ltd
2. ARM Cement Ltd
3. Atlas African Industries Limited
4. Bamburi Cement Ltd
5. Barclays Bank Ltd
6. BOC Kenya Ltd
7. Britam Holdings Ltd
8. British American Tobacco Kenya Ltd
9. Car and General (K) Ltd
10. Carbacid Investments Ltd
11. Centum Investment Company Ltd
12. CFC Stanbic Holdings Ltd
13. CIC Insurance Group Ltd
14. Co-operative Bank of Kenya Ltd
15. Crown Berger Ltd
16. Deacons (East Africa) Plc
17. Diamond Trust Bank Kenya Ltd
18. E. A. Cables Ltd
19. E. A. Portland Cement Ltd
20. Eaagads Ltd
21. East African Breweries Ltd

22. Equity Group Holdings Ltd
23. Eveready East Africa Ltd
24. Express Ltd
25. Fahari Income-REIT
26. Flame Tree Group Holdings Ltd
27. HF Group Limited
28. Home Afrika Ltd
29. I & M Holdings Limited
30. Jubilee Holdings Ltd
31. Kakuzi
32. Kapchorua Tea Company Ltd
33. KenolKobil Ltd
34. Kenya Airways Ltd
35. Kenya Commercial Bank Ltd
36. Kenya Electricity Generating Company Ltd
37. Kenya Orchards Ltd
38. Kenya Power and Lighting Ltd
39. Kenya Re-Insurance Corporation Ltd
40. Kurwitu Ventures Ltd
41. Liberty Kenya Holdings Ltd
42. Limuru Tea Company Ltd
43. Longhorn Kenya Ltd
44. Marshalls (E. A.) Ltd

45. Mumias Sugar Company Ltd
46. Nairobi Securities Exchange Ltd
47. Nation Media Group
48. National Bank of Kenya Ltd
49. NIC Bank Ltd
50. Olympia Capital Holdings Ltd
51. Pan Africa Insurance Holdings Ltd
52. Safaricom Ltd
53. Sameer Africa Ltd
54. Sasini Tea and Coffee Ltd
55. Standard Chartered Bank Ltd
56. Standard Group Ltd
57. Stanlib Fahari Reit
58. Total Kenya Ltd
59. TPS Eastern Africa (Serena) Ltd
60. Trans-Century Ltd
61. Uchumi Supermarket Ltd
62. Umeme Limited
63. Unga Group Ltd
64. Williamson Tea Kenya Ltd
65. WPP ScanGroup Ltd

Appendix II: Research Data

year	quarter	NSE 20 share index	Share price volatility	FDI inflows	GDP	FDI inflow rate	Exchange Rate	CPI	Interest Rates
2006	Q1	5645.65	0.13562	59,635	298,176	0.2000	72.0997	76.35	13.74
	Q2	4880.00	0.12705	59,026	295,130	0.2000	71.7963	76.39	13.54
	Q3	4260.00	0.03756	65,573	327,867	0.2000	71.7830	76.80	13.79
	Q4	4100.00	-0.32801	65,659	328,297	0.2000	72.1577	78.27	13.33
2007	Q1	5444.83	0.05415	727,733	319,181	2.2800	69.5980	78.90	13.32
	Q2	5150.00	0.00000	728,606	319,564	2.2800	69.1620	78.46	12.87
	Q3	5150.00	0.00388	794,947	348,661	2.2800	68.3537	80.90	13.14
	Q4	5130.00	0.31361	796,728	349,442	2.2800	67.4477	82.68	13.56
2008	Q1	3521.18	-0.18710	87,260	323,187	0.2700	67.8763	87.18	14.87
	Q2	4180.00	-0.24163	88,308	327,068	0.2700	65.9347	92.14	13.66
	Q3	5190.00	0.06744	96,575	357,687	0.2700	63.0263	93.75	14.06
	Q4	4840.00	0.32904	94,320	349,334	0.2700	62.6460	96.38	14.06
2009	Q1	3247.44	-0.01311	105,892	341,586	0.3100	79.5813	99.50	14.80
	Q2	3290.00	-0.15805	102,529	330,739	0.3100	79.8067	101.91	14.76
	Q3	3810.00	0.07612	111,698	360,317	0.3100	79.2493	102.90	15.09
	Q4	3520.00	-0.25926	111,765	360,532	0.3100	78.4460	104.07	14.87
2010	Q1	4432.60	-0.04453	160,365	356,367	0.4500	76.4877	105.01	13.87
	Q2	4630.00	0.03240	155,714	346,031	0.4500	76.9770	105.65	13.98
	Q3	4480.00	0.03125	171,786	381,747	0.4500	77.5807	106.32	14.19
	Q4	4340.00	0.26152	173,867	386,372	0.4500	78.9377	108.07	14.39
2011	Q1	3205.00	0.00780	123,414	373,983	0.3300	82.2083	112.41	20.04
	Q2	3180.00	-0.24843	119,399	361,815	0.3300	86.3290	119.56	14.79
	Q3	3970.00	0.02015	132,548	401,661	0.3300	94.8513	123.88	13.91
	Q4	3890.00	-0.06247	131,166	397,472	0.3300	91.5223	128.81	13.92
2012	Q1	4133.00	0.03944	125,180	391,187	0.3200	83.5383	131.36	18.15
	Q2	3970.00	0.06801	119,609	373,778	0.3200	84.7580	133.63	19.73
	Q3	3700.00	0.08919	134,531	420,410	0.3200	84.6057	131.78	20.30
	Q4	3370.00	-0.46201	348,490	1,089,031	0.3200	85.7140	133.35	20.34
2013	Q1	4926.97	0.02715	848,424	1,247,683	0.6800	86.4953	136.72	16.99
	Q2	4793.20	0.04069	814,690	1,198,073	0.6800	84.9843	139.46	16.86
	Q3	4598.16	-0.05713	808,316	1,188,700	0.6800	87.1743	140.99	16.97
	Q4	4860.83	-0.01546	755,468	1,110,982	0.6800	86.1500	143.25	17.73
2014	Q1	4936.00	-0.05328	976,379	1,435,851	0.6800	86.3343	145.99	15.99
	Q2	5199.00	0.05636	906,091	1,332,487	0.6800	87.4317	149.27	16.04
	Q3	4906.00	0.00428	899,466	1,322,744	0.6800	88.4923	151.62	16.36
	Q4	4885.00	-0.04401	888,718	1,306,938	0.6800	90.0430	152.09	16.91
2015	Q1	5100.00	-0.01961	899,928	1,555,054	0.5787	91.8107	154.48	17.45

	Q2	5200.00	-0.05769	989,921	1,566,332	0.6320	97.0067	159.71	16.57
	Q3	5500.00	0.02800	1,187,905	1,528,365	0.7772	103.8947	160.93	15.48
	Q4	5346.00	1.00000	1,437,000	1,574,618	0.9126	102.0750	163.27	15.46