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The Relationship between Macroeconomic Variables and Share Prices: A Case of Nairobi Securities Exchange

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Abstract: This study examined the nature of the relationship between the macroeconomic variables and share prices using the Nairobi Securities Exchange All Share Index (NASI). The study used four macroeconomic variables namely; interest rate, inflation, exchange rate and gross domestic product (GDP) for the period January 2008 to December 2014. The study found a positive relationship between GDP and NSE share prices. Exchange rate was found to have an insignificant positive relationship with share prices while interest rates had negative relationship with share prices. Inflation rate was found to have significant negative relationship with share prices due to its effect on purchasing power. The study concluded that the four macroeconomic variables combined had strong positive and significant relationship with share prices. The macroeconomic variables accounted for 86.97% of changes in share prices. The study recommended that capital markets regulators and other government regulatory bodies should promote a stable macroeconomic environment in the country for optimal performance of shares and stock market at large.

Keywords: *Interest rate, Inflation rate, Exchange rate,Gross Domestic Product.*

I. Introduction

Given the importance the stock market plays in the economy, it's important to understand how various macroeconomic factors affect the share prices. Various researches have been carried out to establish the relationship between various macroeconomic variables and the stock market prices. However, a consensus has not been reached and researchers have conflicting views on the relationship between various macroeconomic variables and shares prices (Olweny & Omondi, 2011). Stock market is fundamentally one of the key structures that constitute and contribute to the growth of the economy and it serves as an indicator to the economy's financial health. In addition it points out the mood of investors in a country (Tachiwou, 2010). According to Asaolu and Ogunmuyiwa (2010), empirical evidence has proved that capital market development is essential for economic growth and the overall development of an economy is a function of how well a stock market performs.

The relationship between the macro economic variables such as exchange rate, interest rate, Gross Domestic Product (GDP), inflation rate and share prices has preoccupied the minds of investors, policy makers, economists, and general public since they all play an important role in influencing the economic development of a country. It is believed that share prices are determined by some fundamental macroeconomic factors implying that an investor's investment decision can be influenced by macroeconomic variables. This has motivated many researchers to investigate the relationship between the share prices and various microeconomic variables (Gan, Lee, Young & Zhang, 2006). The purpose of this study was to assess the relationship between four macro economic variables namely; exchange rate, interest rate, GDP and inflation and share prices of the companies that were listed at the Nairobi Securities Exchange(NSE).

The market innefficiency faced by the stock market in emerging economies makes them more risky than the stock markets in developed economy (Sifunjo & Mwasaru, 2012).Domestic economic situation as well as foreign economic events like foreign exchange rate flactuation affect the price of the securities (Ouma, Mukras, & Oima, 2013).According to Karolyi (2001), inconsistent stock prices change is percieved by rational investors, financial analysts,

brokers, and regulators as a measure of risk.When excessive flactuation in stock prices do not appear to be accompanied by any important news about a firm or the market as a whole investors are worried. The usefulness of the stock prices as an indicator of the fundamental value of a firm is destabilized by excessive volatity in returns. Gabriel and Ugochungu (2004) posit that analysis of the stock market volatility including the NSE is useful in determining the cost of capital. In addition it is useful in determining the evaluation of asset allocation decision. As a result to predict how vulnerable the finacial markets are, policy makers rely on the volatility estimates because stock market volatility can affect the even performance of the financial system and affect the economic performance.

The Nairobi Securities Exchange started trading in shares in 1920 as an informal market. To have access to long term capital by private enterprises and allow commencement of floating of local registered government loans, a formal market was desired. In 1954 the NSE was constituted as a voluntary association of stock brokers registered under the Socities Act. The new stock exchange was charged with the resposibilty of regulating the trading activities (Ngugi, 2003). The NSE 20 share index is used to measure the performance of stocks at the NSE.To complement the NSE 20 share index and to provide investors with a more comprehensive measure of the performance of the stock market, the NSE introduced the Nairobi Securities Exchange All Share Index (NASI) which took into account the performance of all firms listed on the NSE.

Many previous studies that have examined the relationship between various macroeconomic variables and stock market prices using the NSE 20 share index have been criticized for not being reflective of the stock market performance since this index was a weak performance indicator. This study assessed the nature of the relationship between the macroeconomic variables and share prices using the Nairobi Securities Exchange All Share Index (NASI) which is a better performance indicator. The following were the specific objectives of the study; 1) examine the nature of the relationship between Foreign exchange rate and Share prices. 2) investigate the relationship between Interest rate and Stock prices, 3) to analyze the relationship between the Inflation rate and Share prices and 4) to examine the relationship between GDP and Share prices

II. Macroeconomic Variables

Geetha*et al* (2011) defines inflation as an upward movement in the price of commodities as reflected by the consumer price index. Inflation continued to pose great challenges for many developing countries. High inflation distorts movements in relative prices disrupting a steady economic growth. It leads to misallocation of resources (Jumah & Kunst, 2007). In Uganda the inflation rate jumped to its highest in 18 years at 28.3 percent in 2011. In Kenya the inflation increased to 17.3 percent in September 2011 while in Tanzania inflation surged to a 15-month peak of 14.1 percent in August 2011 (McGregor, 2011). In Kenya inflation rose to almost 20 percent by the end of 2011 but declined consecutively for 12 months to 3.2 percent (Andrle et al., 2013).

In regards to exchange rate, Benita and Lauterbach (2004) argue that, there are real economic costs associated with exchange rate volatility that affect the price stability, firms' profitability and a country's stability. The flactuations in exchange rates affects a firm's output level as well as the trade balance of an economy. The aggregate demand is affected by the price movement in the stock market through wealth, liqiudity effects and indirectly through the exchange rate (Subar & Salihu, 2004).

The growth in international trade and the introduction of floating exchange rates in developed and developing world ushered a new era of increased foreign exchange volatility (Sifunjo & Mwasaru, 2012). According to Murinde (1993), an independently floating exchange rate exposes a firm to two types of risks; transaction exposure risk and economic exposure risk. The transaction exposures risk is as a result of settling of investment transactions stated in foreign currency which can result to a gain or a loss. The variation in the firms discounted cash flows as a result of the fluctuation in foreign exchange rates give rise to economic exposure.

Kenya has higher inflation rate compared to its trading partners and points out an appreciation in the in the real exchange rate which give rise to erosion of Kenyans' competiveness. The real exchange rates had been relatively stable for four years up to 2011 and appeared to be in line with the economic fundamentals. In 2011 the high inflation caused a big real appreciation of the shilling and the real effective exchange rate rose by 7.8% in 2011. The real exchange rate for the period between September 2011 and January 2013 appreciated by 21.5 %, which and this weakened the

export competitiveness. In real terms the Kenya shilling appreciated by 37% cumulatively from January 2003 and April 2013 representing an annual appreciation of about 3% (The World Bank, 2013).

In relation to interest rates, the Economic Survey (2010) showed that the average rate of interest on 91 day treasury bills fell to 6.82 percent in December 2009 from 8.59 percent in 2008 (Olweny & Omondi, 2011). The CBK rate reduced from 11 percent in 2012 to 8.5 percent during the first half of 2013 (The World Bank, 2013). Finally, In the year 2012, Kenya registered an improved economic performance. The country registered 4.6 percent growth in GDP compared to 4.4 percent growth in 2011. The real GDP per capital increased by 1.7 percent in 2012 (KES 38,941 in 2011 to KES 39,607 in 2012). However, the growth was lower than the 3.7 percent growth registered in 2010 but marginally above the 1.5 percent growth in 2011 (Kenya Institute for Public Policy Research and Analysis, 2013).

III. Literature Review

2.1 Theoretical Framework

The study was informed by two theoretical frameworks; the Arbitrage pricing theory and the Substitutability theory. According to the arbitrage pricing theory, a financial assets expected return can be modeled as a linear function of various macroeconomic factors. A factor specific beta coefficient is used to represent the sensitivity to change in each factor. Initially the model was developed on the assumption that investors have only access to domestic securities but it was later improved to take into account possible integration with the international markets (Maina, 2011). This is the main theory that informs this study since it links stock returns to the covariance of various variables. On the other hand, the substitutability theory which was advanced by neoclassical monetary theorists the required rate of return increases with an increase in interest rate resulting to a decrease in the price of the shares. This is because high interest rate increases the opportunity cost of holding cash and investors will prefer investing in interest bearing securities instead of the stocks and this will lead to a decrease in the price of the shares (Aynor & Babafemi, 2008). This theory is relevant to the study since it explains the movement of shares as a result of the movement in the interest rate.

2.2 General Literature Review

Fluctuations in macroeconomic variables like foreign exchange rates could cause sharp fluctuations in the stock prices there by making portfolio managers panic. This will encourage them to dispose their equity portfolio causing a fall in the NSE index. Perceived increase in risk with respect to foreign exchange market and hence the stock market leads to high cost of capital and reduction in capital supply. This is a result of declining investor confidence and the decline in the financing capacity of investors (Sifunjo & Mwasaru, 2012). The profitability and the value of quoted companies can be influenced by the interest rate. If a company has borrowed funds at very high interest rates, then its earnings will decline. The price that investors are willing to pay for the stocks in anticipation of future dividend is influenced by the company's profitability which in turn is influenced by the interest rate. Therefore, if a company's cost of capital is high, investors will mark down its value since its earnings potential has been eroded by increased cost of borrowing (Reilly & Brown, 2006).

According to researchers there is a close association between inflation and the stock prices. The stock market volatility and risk is influenced by the inflation (Geetha et al., 2011). Money loses value over time due to inflation and if people are expecting inflation they are unlikely to hold cash. Unexpected inflation causes more damage than expected inflation. The real value of the stocks reduces during the period on inflation or hyperinflation because the stock prices cannot keep up with the increase in the prices of commodities (Geetha et al., 2011). The prices of financial assets which are determined by the net earnings of a corporation are influenced by the stock market performance. The stock market performance is affected by inflation. Therefore, stock prices and the eventual returns are adversely affected by highly inflationary environment. When there is an increase in the inflation rate the lenders will increase the lending rate in a bid to caution themselves against increased inflation. The high interest rate will discourage borrowing of funds for investment and this will negatively affect the growth of the stock markets (Kimani & Mutuku, 2013).

An upward movement in GDP indicates a healthy business climate and this may cause the equity prices to rise due to the potential for higher profits. A decline in the GDP will result to decrease in the share price as people anticipate poor performance of companies and decline in profits. A positive GDP boost investor confidence encouraging them to invest in the stock market and this causes the price of the stocks to rise. As a result, the performance of the

companies in the stock markets is boosted. A decline in the GDP affects the performance of the companies negatively as consumers' tread cautiously and reduce their spending. This exerts more downward pressure on the stock prices (Gitman & Joehnk, 2002).

2.3Empirical Literature

Mohiuddin, Alam and Shahid (2008) investigated the relationship between the macroeconomic variables (Inflation rate, Exchange rate, interest rate, money supply and production index) and stock prices in Bangladesh using multiple regression analysis. They observed that there was no significant relationship between the stock prices and the macroeconomic variables in Bangladesh. Maina (2011) carried out a study to examine the relationship between macroeconomic variables and share prices of companies listed at the NSE using the NSE 20 share index. The study considered GDP, inflation, exchange rate and interest rate. The study revealed that the GDP, inflation, interest rate and exchange rate had a positive relationship with the share prices.

Abugri (2008) carried out a study in four Latin America countries to determine whether selected macroeconomic variables significantly affected the market returns. The macro economic factors considered in the study were exchange rates, interest rate, industrial production and money supply. In all the markets the findings indicated that these factors were consistently significant in explaining the returns. However, the significance and the magnitude of the impact of these variables on the stock market varied across the countries.

Kutty (2010) tested the relationship between exchange rates and stock prices in Mexico using the granger causality tests and the findings revealed that stock prices influenced exchange rates in the short run but there was no long term relationship between the between the two variables. Regarding the effect of GDP on stock market, Lumir (2013) studied the relationship between the stock market and GDP in Central and Eastern Europe with the aim of establishing both the long run and short run relationship between the two variables. The finding of the study revealed a long run relationship between the variables. In a different study, Sharabati (2013) investigated the relationship between the Amman stock market development and the real GDP. The stock market was divided into four sectors. The Pearson correlation results showed that only the industrial sector had a strong relationship with the GDP. There was no significant relationship between the stock market and GDP in the other sectors including Amman stock market general indicator.

2.4 Conceptual Framework

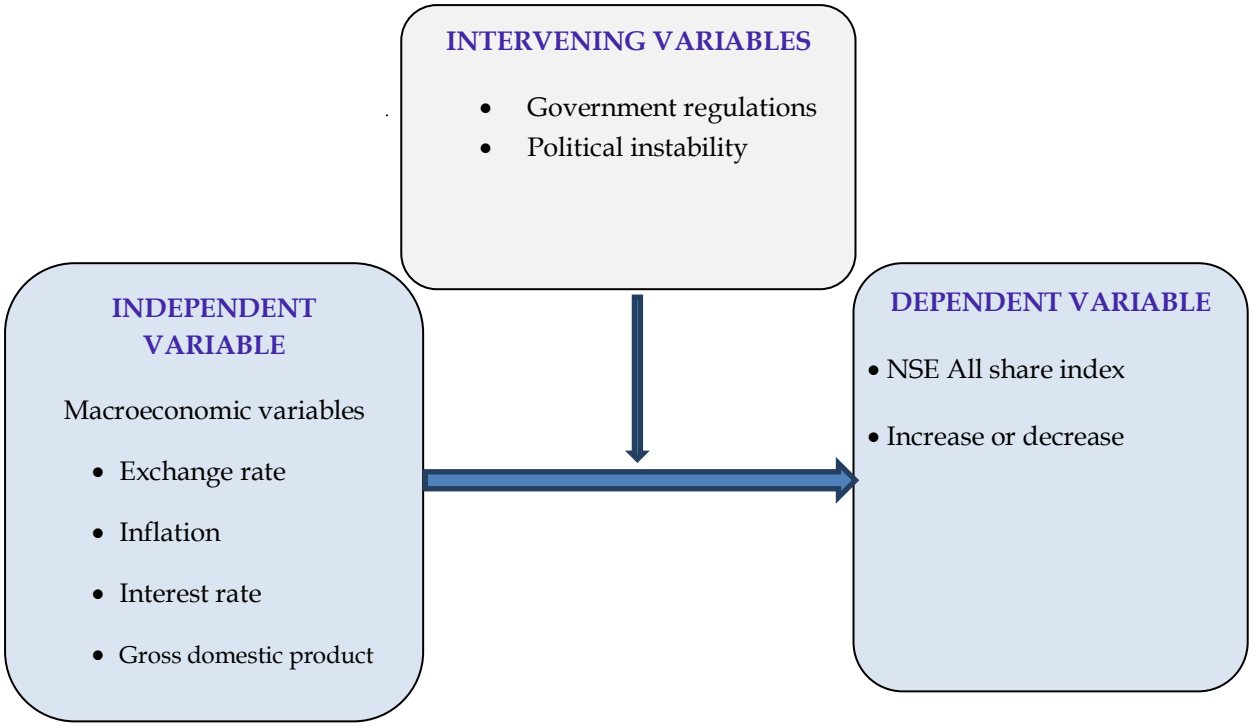

Figure 1: Conceptual Framework

The conceptual framework illustrates that there is a relationship between the macroeconomic variables and share prices. As illustrated in the diagram there are four macroeconomic variables which are independent variables in this study, these include; exchange rate, inflation, interest rate and gross domestic product. The dependent variable is the share price. The independent variables influence the price of the share.

IV. Research Methodology

The population for the study was all the sixty-four companies listed on the Nairobi Securities Exchange. The target population for this study was all the companies which were listed on the Nairobi Securities Exchanges as represented by the Nairobi Securities All Share Index. For the purposes of this study the researcher employed the census method. The researcher used secondary data to arrive at the conclusion since the data was readily available. The data was obtained from the libraries of NSE, CBK and KNBS. The data collected covered the period from January 2008 to December 2014.

The data were analyzed using correlation and regression analysis. Multiple regression model was applied to establish the overall relationship between the dependent and independent variables. The regression analysis tests were used to test the predictive power of independent variables towards the dependent variables and how much each macroeconomic variable contributed to this relationship.Figure 2 represents the model of the regression equation used;

$S_t = B_o + B_1FR + B_2INTR + B_3IFR + B_4 GDP + E$, where
S_t - Share price as measured by NSE all share index
FR- Foreign exchange rate
INTR- Interest rate
IFR- Inflation rate
GDP- Gross domestic product
E- Random error
B_o- The constant term
B_1- Coefficient of foreign exchange
B_2- Coefficient of interest rate
B_3- Coefficient of inflation
B_4 - Coefficient of GDP

Figure 2. Regression Equation Model

Multiple coefficient of correlation (R) and coefficient of determination (R^2) were used to determine how the set of independent variables predicted the stock price. The coefficient of determination was used to find out how variation of the dependent variable could be explained by the independent variable. The researcher used coefficient of determination to determine how much share price variation was a function of the macroeconomic variables. Finally, the researcher used Analysis of Variance (ANOVA) to examine the relevance of the independent variable on the dependent variable by testing using the T- test and the F- test to establish whether any of the estimated coefficients was equal to zero or not. The researcher tested whether all the independent variables have predictive power using the F-test statistic while the t-test statistic was used to test whether either of the coefficients had predictive power.

V. Results

5.1 Nairobi Securities Exchange All Share Index

Share prices for the study was measured using quarterly NSE all share index (NASI) for the period 2008 to 2014 (NASI first implemented in the 1st quarter of 2008). As shown in figure 4.1 below, first quarter 2008 average NASI was 96.62 and grew to 109.57 in second quarter 2008. The lowest NASI was experienced for the whole period of the study in the first quarter of 2009 at 59.83. For the period 2010 quarter one to quarter four 2012, NASI remained below the benchmark of 100. However, performance continued to improve from year 2013 where NSE all share index surpassed 100 mark. The performance continued to improve with minimal volatility to close at 161.80 in quarter four 2014. Performance of NSE as indicated by NSE all share index is shown in figure 4.1 below.

Figure 3: NSE All Share Index

5.2 Economic Performance

Under the study period (2008 to 2014), Kenya's economy was observed to have been growing at considerably high rates from KShs. 635,536 billion in quarter one 2008 to KShs. 1.05 trillion in quarter four 2014 representing a 67% growth rate in GDP. This indicates that Kenya's economy has been expanding with further expansion expected as shown by upward trend in GDP.

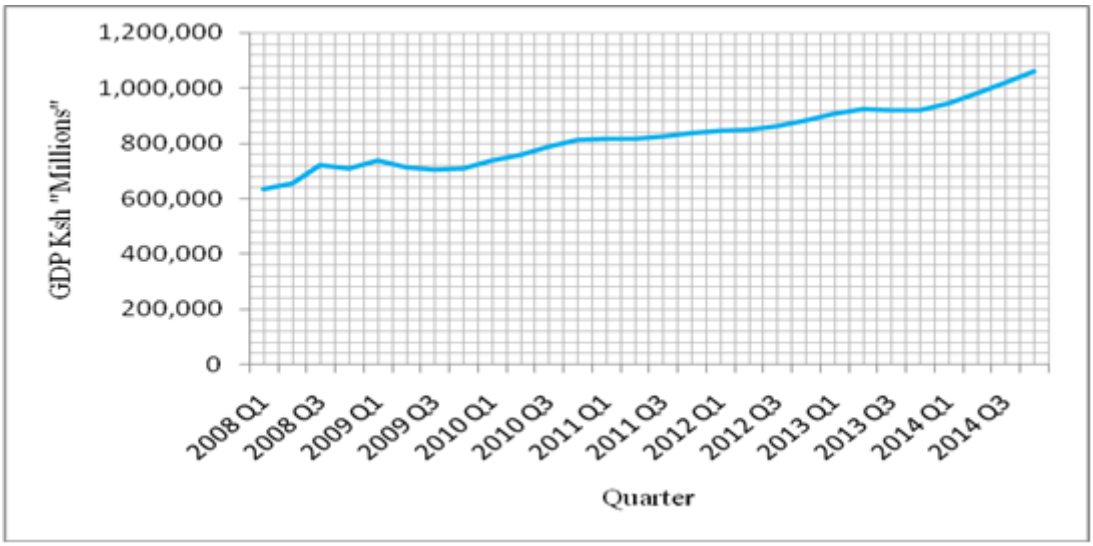

Figure 4: Gross Domestic Product

5.3 Foreign Exchange Rates

Foreign exchange rates between Kenya shillings and US dollar was used since US dollar is the main currency used in international trade in Kenya. Exchange rates remained volatile over the period 2008 to 2014 with the highest exchange rate being in 2011 quarter three at KShs. 94/USD. Exchange rates declined between 2011 fourth quarter and 2012 first quarter to KShs. 84/USD and thereafter remained stable at a range of KShs. 84/USD and KShs. 90/USD. Exchange rate movements are detailed in figure 5 below.

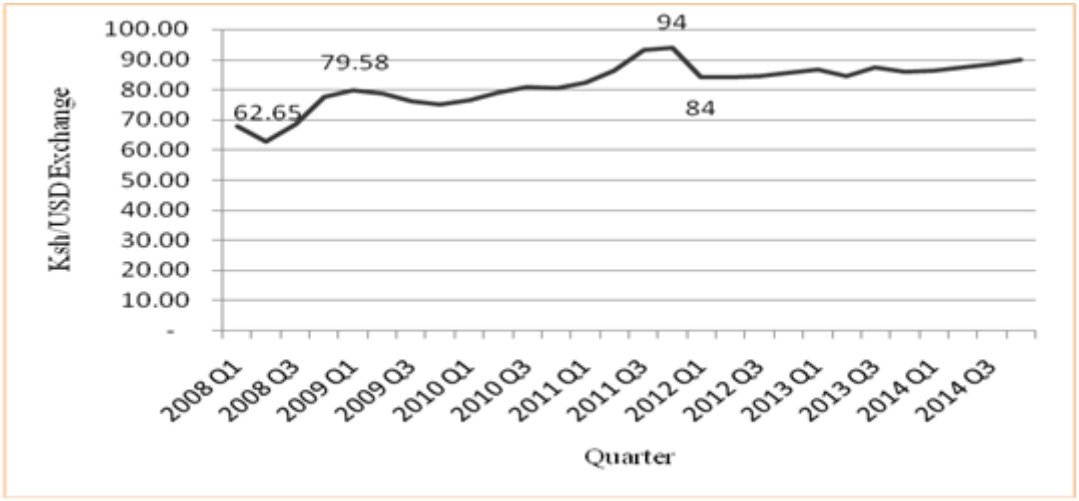

Figure 5: Exchange Rate Movements

5.4 Inflation and Interest Rates

As shown in figure 6 below, both inflation and interest rates were rising in first and second quarters 2008. However, from quarter three 2008, inflation and interest rates were declining from 17.53 to 5.65 and 7.61 to 6.25 between quarter one 2008 and quarter one 2010 respectively. However, inflation and interest rates started to rise in fourth quarter 2010 with inflation rising from 3.84% to 19.19% in 2011 fourth quarter representing a 399% increase in one year. Interest rate rose from 2.61% in 2011 quarter one to 19.35% in first quarter 2012 representing 641% increase in one year period. These statistics indicate the unfavourable macroeconomic environment that was prevailing in Kenya between 2011 and 2012.

Notably, between 2010 quarter three and 2011 quarter four, inflation rates were exceeding the Interest rate. This indicates the magnitude of the increase in prices per quarter compared to the Interest rates. However, by fourth quarter 2014, both inflation rates and Interest rate had significantly reduced and have remained relatively stable.

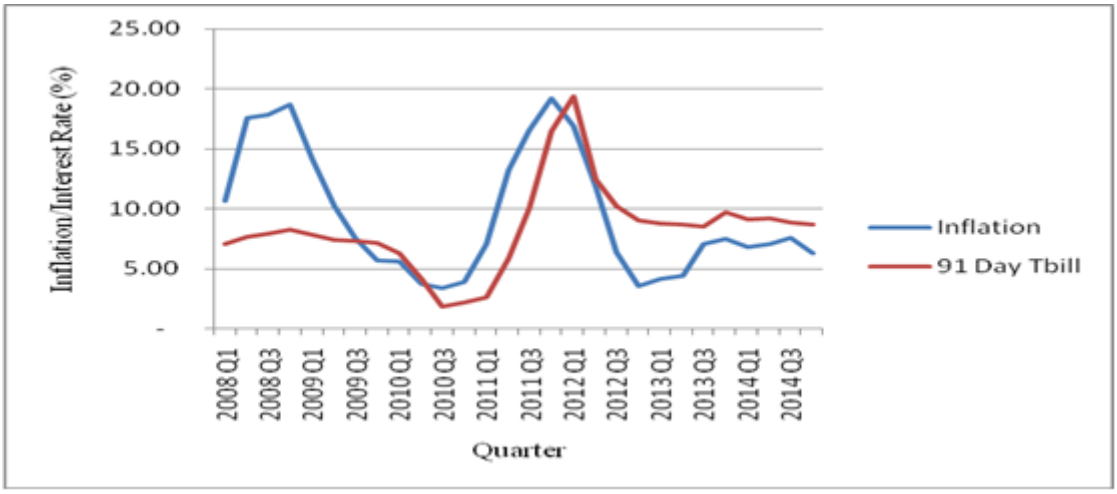

Figure 6: Inflation and Interest

5.5 Descriptive Statistics

Distribution of study variables over the period being studied (2008-2014) is shown in table 1.

Table 1: Distribution of Study Variables

	N	Minimum	Maximum	Mean	Standard Deviation	Skewness	Kurtosis
Share Price	28	59.83	161.80	98.93	29.25	0.7756	-0.3170
GDP	28	635,536	1,059,612	824,837	109,045	0.2617	-0.5365
Foreign exchange	28	62.65	94.00	81.90	7.28	-0.8646	0.8642
Inflation	28	3.33	19.19	9.41	5.24	0.6898	-0.9638
Interest rate	28	1.82	19.35	8.29	3.66	0.9747	1.2717

5.6 Correlation Analysis

To determine whether there was any relationship between study variables, Pearson product moment correlation coefficient was used. As seen in the table 2 below, GDP has a positive and strong relationship with share prices as shown by correlation coefficient of 0.74947 (and coefficient of determination of 0.5617. The findings indicate that growth in GDP lead to significant increase in NSE all share index. Therefore, as GDP rise by one unit, NSE all share index rise by 56.17% as indicated by coefficient of determination.

Table 2: Pearson's correlation coefficient matrix

		NSE All Share index	GDP	Foreign exchange	Inflation	Interest Rate
NSE All Share index	Pearson Correlation	1				
GDP	Pearson Correlation	0.74947**				
	Sig. (2-tailed)	0.00000				
Foreign exchange	Pearson Correlation	0.27914	0.1911**	1		
	Sig. (2-tailed)	0.15030	0.0000			
Inflation	Pearson Correlation	-0.39395*	-0.3672	-0.1715	1	
	Sig. (2-tailed)	0.03806	0.0546	0.3829		
Interest Rate	Pearson Correlation	-0.09363*	0.2612	0.3589*	0.5052**	1
	Sig. (2-tailed)	0.03558	0.1794	0.0067	0.0061	

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

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

5.7 Regression Analysis

To achieve the general objective of the study which was to determine whether there is a relationship between the selected macroeconomic variables and share prices at the NSE multiple regression analysis was used. The study found that the relationship between dependent (NSE all share index) and independent variables (GDP, interest rate, inflation and foreign exchange) was positive with a coefficient of correlation of 0.9326. The coefficient of determination obtained of 0.8697 implied that the model predictors (independent variables) could accounted for 86.97% of changes in NSE all-share price index. Therefore, macroeconomic variables studied have strong effect on performance of Nairobi Securities Exchange. The model summary is presented in table 4.3 below.

Table 3: Model summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
0.9326	0.8697	0.8471	11.4385

a. Predictors: (Constant), Interest rate, GDP, Foreign exchange, Inflation

The results on analysis of the variance (ANOVA) are shown table 4 below. The table indicates that the model P-value is 0.0000. This implies that the model developed is significant at 99% and 95% confidence level since the P-values are less than 0.01 and 0.05 respectively. Therefore, the model could be used for prediction. The results were confirmed by the F-test results where the F-statistic obtained was 38.3881 which is higher than the critical F at 95% confidence level of 2.36143. This implies that in the hypothesis;

Table 4: Analysis of the variance

	Sum of Squares	df	Mean Square	F	Sig.
Regression	20,090.83	4	5,022.7074	38.3881	0.0000
Residual	3,009.33	23	130.8403		
Total	23,100.16	27			

a. Predictors: (Constant), Interest rate, GDP, Foreign exchange (USD/KES), Inflation

b. Dependent Variable: NSE All Share Index

The model coefficients are shown in table 5 below. The coefficients with positive sign (GDP=0.0004 and inflation 0.9835) indicates that increase in the variables lead to increase in NSE all share index. Variables with negative sign (Foreign exchange and Interest rate) have negative relationship on NSE all share index when joined with other variables. The significance of the results was also confirmed by the t statistics where the critical t value at 95% (two tailed) is 2.052. The obtained t values for constant, GDP, foreign exchange, inflation, interest rate were -10.8622, -6.0668, 2.6147 and -2.7992 respectively; all of which are falling in the rejection area implying that all the coefficients were significant. The model developed by the study is St =31.1246 + 0.9835IF+ -2.3799INTR + -3.1073FR + 0.0004 GDP, where St is share price as measured by NSE all share index, FR is Foreign exchange rate (USD/KES), INTR is Interest rate (Interest rate), IFR is inflation rate and GDP is Gross domestic product.

Table 5: Model coefficients

	Unstandardized Coefficients	Std. Error	Beta	T	Sig.
Constant	31.1246	28.7899		1.0811	0.0009
GDP	0.0004	0.0000	1.5040	10.8622	0.0000
Foreign exchange	-3.1073	0.5122	-0.7736	-6.0668	0.0000
Inflation	0.9835	0.6091	0.1761	2.6147	0.0012
Interest rate	-2.3799	0.8502	-0.2978	-2.7992	0.0102

a. Dependent Variable: NSE All Share Index

5.8 Collinearity Analysis

As indicated in table 6, the VIFs for all variables are less than 10 and tolerance for all variables is greater than 0.1. Hence, the multicollinearity does not exist. Notably, as indicated in table 6, interest rates and foreign rates have a significant positive relationship as shown by coefficient of correlation of 0.5318. However, the correlation is not strong and hence the reason why multicollinearity does not exist as shown by tolerance and VIF. Multicollinearity will only occur where independent variables are strongly correlated to each other with a coefficient of correlation of at least +/-0.8 (Wooldridge, 2011).

Table 6: Ccollinearity statistics

Variable	Tolerance	VIF
GDP	0.2955	3.3847
Foreign Exchange	0.3483	2.8710
Inflation	0.4761	2.1004
Interest Rates	0.5006	1.9977

VI. Discussion

The overall purpose of the study was to assess the relationship between macroeconomic variables and share prices in Kenya. Multiple regression analysis results indicated that there was a strong positive relationship between share price and macroeconomic variables (GDP, interest rates, inflation and foreign exchange) with a coefficient of correlation of 0.9326 and coefficient of determination of 0.8697. The relationship was significant at 95% confidence level with a -value of 0.0000.

The findings are similar to those of Nyamute (1998) who investigated the relationship between financial variables like interest rates, inflation, exchange rates, money supply and stock prices and a positive relationship was revealed. Also, Abugri (2008) carried out a study in four Latin America countries to determine whether selected macroeconomic variables significantly affect the market returns. The macro economic factors considered in the study were; exchange rates, interest rate, industrial production and money supply. In all the markets the findings indicated that these factors are consistently significant in explaining the returns. The findings contradict those of Mohiuddin,

Alam and Shahid (2008) who observed that there was no significant relationship between the stock prices and the macroeconomic variables in Bangladesh.

The first specific objective of the study was to examine the nature of the relationship between foreign exchange rate and share prices. The findings of the study indicated that foreign exchange rates and share prices had a weak positive relationship. However, the relationship was found not to be significant at 95% with a p-value of 0.15030 which was more than 0.05. The positive relationship implies that depreciation of Kenya shilling in relation to foreign currencies would lead to rise in share prices but the rise will not be significant. The positive relationship between share prices and foreign exchange rate was due to the fact that as Kenya shilling depreciate, foreign investors will be able to get more shillings to invest in stocks hence rise in prices. However, the effect is minimal and insignificant since the depreciation of local currency will lead to unfavourable macroeconomic variables which will reduce domestic demand for the stocks. According to Sifunjo and Mwasaru (2003) devaluation in the national currency helps domestic firms to boost output and profit by reducing the cost of export. This increases competitiveness causing a rise in the stock prices. A too strong national currency erodes the competitiveness of the domestic firms causing a decline in stock prices.

The findings agree with those of Tabak (2006) who investigated the relationship between the stock prices and exchange rates in Brazil and found that there was no long run relationship between the two. Linear granger causality from the stock prices to exchange rate was found and these findings support the portfolio adjustment theory. A nonlinear causality tests revealed causality from exchange rate to stock prices which is in line with the traditional approach. The findings contradict those of Chirchir (2013) who found that exchange rates had negative relationship with stock prices in Kenya with the two variables having bidirectional relationship. The findings are also consistent with findings of Maina (2011) who found a positive relationship between the share prices and exchange rate.

The second specific objective was to investigate the relationship between interest rate and share prices. Interest rates were found to be negatively related to share price with a coefficient of correlation of -0.09363. However, the relationship was weak but significant at 95% confidence level as indicated by the p-value of 0.03558 which is less than 0.05. This implies that as the interest rate increases the share prices will decrease. The finding could be explained by the fact that as interest rates rises, investors who rely on borrowed funds for investment will find it difficult to borrow and invest in shares. Reduced demand for shares lead to reduced share prices supply remaining constant. In addition, the cost of borrowing will be high and this will affect the profit of companies. The expected returns in form of dividend will also decline and the price the investors will be willing to pay for the shares will decline.

According to Reilly and Brown (2006) the profitability and the value of quoted companies can be influenced by the interest rate. If a company has borrowed funds at very high interest rate, then its earnings will decline. The price that investors are willing to pay for the stocks in anticipation of future divided is influenced by the company's profitability which in turn is influenced by the interest rate. Therefore, if a company's cost of capital is high, investors will mark down its value since its earnings potential has been eroded by increased cost of borrowing.The findings were similar to that of Ochieng and Oriwo (2012) who established a negative relationship between the 91-day T bill rate and the NASI. Dan (2014) argue that there may be a vice versa relationship between stock prices and interest rates and if stock prices lead to interest rate, then to stabilize the stock market the government can focus on domestic economic policies.

The third specific objective was to analyze the relationship between the inflation rate and share prices. Inflation was found to have negative relationship with share prices as shown by correlation coefficient of -0.39395. The relationship was significant at 95% as indicated by p-value of 0.03806. This means that an increase in the inflation rate will lead to reduction in the share price. The fact that inflation lowers people's purchasing power and hence ability to invest in stocks could explain this finding. When there is an increase in the inflation rate the lenders will increase the lending rate in a bid to caution themselves against increased inflation. The high interest rate will discourage borrowing of funds for investment and this will negatively affect the growth of the stock markets and the share prices (Kimani & Mutuku, 2013).

The finding was similar to that of Kimani and Mutuku (2013) who found that that the overall performance of the NSE was negatively affected by an increase in the inflation rate. However, the finding contradicted that of Ochieng and Oriwo (2012) who found a weak positive relationship between the inflation rate and the NASI. In a different study

on the relationship between stock prices and inflation levels, Wahid, Shahbaz and Azim (2011) established that the level of inflation affects shares price index both in the short and long run.

The final specific objective was to examine the relationship between GDP and share prices. The study found that GDP had positive relationship with share prices with a coefficient of correlation of 0.74947. The positive relationship was found to be significant at 99% and 95% confidence level with P-value of 0.0000 which is less than 0.01 and 0.05 respectively. This implies that growth in GDP lead to significant increase in share prices as a result of increased income to citizens hence ability to invest in shares. Increased demand for shares supply held constant lead to rise in share prices. According to Gitman and Joehnk (2002), an upward movement in GDP indicates a healthy business climate and this may cause the equity prices to rise due to the potential for higher profits. A decline in the GDP will result to decrease in the share price as people anticipate poor performance of companies and decline in profits. A positive GDP boost investor confidence encouraging them to invest in the stock market and this causes the price of the stocks to rise.

The finding agrees to that of Maina (2011) which showed that the NSE 20 share index is affected by macroeconomic variables and GDP has a positive relationship with the share prices. Also, Lumir (2013) studied the relationship between the stock market and GDP in Central and Eastern Europe with the aim of establishing both the long run and short run relationship between the two variables. The finding of the study revealed a positive long run relationship between the variables.

VII. Conclusions and Recommendations

Numerous studies have been done in attempt to finding out the nature of the relationship between macroeconomic factors and share prices in both developed and emerging markets. However, the results have been contradicting hence making the actual relationship between the variables more confusing. The differences in the results could be as a result of inefficiencies in the markets due to their level of development and the data used for analysis either daily, monthly, quarterly or yearly.

Based on the study findings, the study concludes that GDP has significant positive and strong relationship with NSE share prices. The relationship lies on the fact that GDP growth increases resources held by corporate and individuals hence increasing their ability to invest at NSE. The study also concludes that exchange rate has an insignificant positive relationship on share prices. Therefore, deprecation of Kenya shillings against the Dollar for example will lead to an insignificant increase in share prices. This is due to the crowding out of the other macroeconomic variables whose effect will reduce the effect on flow of foreign investment at NSE.

Further, the study concludes that inflation rate has significant negative relationship with share prices. This is explained by the fact that inflation erodes purchasing power of money which in turn reduces investors' ability to invest at NSE hence low share prices. The study also concludes that interest rate has negative relationship with share prices due to the increase in cost of finance to invest in shares. Finally, the study concludes that the macroeconomic variables (interest rates, GDP inflation and foreign exchange) combined account for over 87% of movements in share prices. Combined with other variables, GDP and inflation have positive relationship with share prices while interest rates and foreign exchange have negative relationship with share prices.

In general, the study recommends and tasks the regulators who include central bank of Kenya and other parties involved to project, adequately plan and ensure a stable macroeconomic environment in the country for optimal performance of shares. Further, this study therefore recommends that inflation should be cubed as it negatively affects the stock prices. However, very low inflation rates will also not be healthy to the share prices and hence reasonable inflation rates ought to be defined and maintained by the regulators.

Similarly, to improve NSE performance, this study recommends that the government to endeavour formulate policies and measures aimed at fostering economic growth. This will significantly affect performance of stock market. In addition, the Government of Kenya should strengthen the Capital Markets Authority by developing mitigation measures to control the activities of foreign investors in cases of Kenyan shilling depreciation to ensure that optimal share prices are maintained. The control of interest rates by Central Bank of Kenya will also be vital in ensuring that optimal share prices are maintained and hence further improving performance of NSE.

VIII. Limitations and Recommendations for Further Research

From the study limitations, the researcher recommends that further research should be devoted to the relationship between macroeconomic variables and share price but use different measure of foreign exchange rather than the USD rate. A different major currency can be chosen. Further study can also be done but using daily statistics for all the companies listed at NSE. This will eradicate the challenge presented by use of all share index and quarterly data which has removed the movements in macroeconomic variables. The present research can also be extended to cover longer time periods and include more macroeconomic variables other than the four variables studied. Variables like money supply, use of real GDP would also be important to be studied. Also, further studies can be conducted to establish other variables that influence share price.

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