The Relationship between Economic Growth and Stock Market Performance in Kenya

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Abstract

The interaction between stock price movements and real economic activities has been a debated issue in majority of economic studies. In this connection, two crucial questions have become the main focus of attention. First, are stock prices or share price movements influenced by economic change or are they determined on the basis of speculative bubbles? Second, to what extent does the stock market performance as a macroeconomic indicator affect the prospects for economic growth? The purpose of this study is to establish the relationship between Economic Growth and Stock Market Performance in Kenya. The study used secondary data from the Nairobi Stock Exchange (NSE) databases on the NSE 20 share Index. Annual real Gross Domestic Product (GDP) data was also collected from Central Bank of Kenya (CBK). The NSE data and GDP data was for the period between the year 1997 and 2015. Regression of coefficients results shows that GDP and NSE performance are positively and significant related (r=363.23, p=0.001). The study concluded that GDP and NSE performance are positively and significant related. GDP would lead to increase in stock market performance. The study recommends that investors should look at the GDP performance to determine when to invest by buying or selling shares in the stock market. That is, buy shares when GDP performs poorly and sell when the GDP performs well. This would help them get value for their investments in stock market.

Keywords: *Economic Growth, Stock Market, Performance, Kenya*

1.1 Introduction

The stock market is a crucial contributor to the economy. From a purely theoretical perspective it would seem an obvious observation to state that strong GDP growth would lead to greater earnings for listed companies and thus spur good performance of the stock market. Recently many emerging market economies have demonstrated spectacular economic growth, therefore should investors place a higher weighting of their allocations to these countries? This paper has been written with the intention of empirically establishing the supposition of correlation, and possible causation between the two mentioned variables (Shahbaz et al., 2008).

Capital markets are intended to bring savers and borrowers together, and by doing so allow for institutions to obtain capital. This capital is then used to drive the business of the borrowers, thus

resulting in economic activity. In addition, it is common practice for any investor to consider the economic prospects of an institution or country before deciding where to purchase stock. This points to a kind of cyclical relationship where the capital market influences the economy and vice versa. Moreover, countries with the great economic performance will generally possess strong capital markets which are characterized by a large market capitalization, reduced informational asymmetry and a high liquidity among others (Ritter, 2004). This would therefore improve the speed at which institutions obtain capital and utilize it to reach their economic goals. As we venture to explore this issue, we shall look at existing theories behind the hypothesis, and look at past empirical studies in order to gain proper perspective on the matter before analyzing data collected in Kenya. While it may seem that the two issues are strongly linked, numerous studies have shown that the stock market performance and economic performance are not necessarily correlated.

The relationship between market return and economic growth has been a subject of many studies. This study aimed at exploring and finding out the contribution of the securities market on economic growth of an economy. There are several theories by different researchers who explain the link between the stock market return and economic growth (Ritter, 2004)..

Accordingly, GDP is also the expansionary effect of a country's output or income due to investment measures by various stakeholders. Thus, normal intuition dictates that most of the business earnings or profits including listed companies, which distribute dividends and/ or reinvest earnings. Thus, results in expansion of the stock markets and subsequently the economy. Financial analysts view economic growth as a good indicator for buying stocks and for investors, economic forecasts are used to determine where to invest in (Hui, 2000).

1.2 Statement of the Problem

The interaction between stock price movements and real economic activities has been a debated issue in majority of economic studies. In this connection, two crucial questions have become the main focus of attention. First, are stock prices or share price movements influenced by economic change or are they determined on the basis of speculative bubbles? Second, to what extent does the stock market performance as a macroeconomic indicator affect the prospects for economic growth? (Fama, 1990; Ferson and Harvey, 1993; Cheung and Ng, 1998; Mauro, 2003; Ritter, 2004; Liu and Sinclair, 2008; Shahbaz et al., 2008).

The research findings (Fama, 1990; Ferson and Harvey, 1993; Cheung and Ng, 1998; Mauro, 2003; Ritter, 2004; Liu and Sinclair, 2008; Shahbaz et al., 2008) have inferred a relationship between Economic Growth and Stock Market Performance in Kenya. This shows that there is a gap of knowledge as to whether Kenya's economic growth and Stock Market Performance have a relation. There has been little study on the subject to directly and specifically underscore and define the relationship. Thus, the purpose for this study is to define the relationship between stock market return and economic growth in Kenya. Thus, the research question is: Does the Economic Growth have any relations with Stock Market Performance in Kenya?

1.3 Objective of the study

The purpose of this study is to establish the relationship between Economic Growth and Stock Market Performance in Kenya.

2.0 Literature Review

2.1 Theoretical Framework

There have been numerous theories that have spawned over time with the purpose of showing the relationship between the stock market and the economy. Many have pointed to the fact that the most outstanding economic failures to date in the modern, industrialized world have largely been credited to significant drops in the stock market. The best example of this would be the Great Depression of the United States which was largely attributed to a great stock market crash in October 1929, and which caused in a huge drop in consumption, saving and investment as well as a rapid rise in unemployment (The Great Depression).

According to Damoradan, there are two main approaches to valuation: by intrinsic or relative value (Damoradan, 2001). Following an intrinsic approach, stock prices can be determined through the discounting of a firm's payout. Furthermore, payouts can be clearly stated to be a product of the economic activity of the firm in question thus meaning that it is very possible that stock prices are strongly related to the economic prosperity of a firm and one a larger scale, a country.

Even more theories have come up on the subject. Tobin's Q Theory, brought forth by James Tobin, attempts to show the relation between capital stock and investment. The theory adopts the argument that firms make their decisions on investment depending on the price that the market places on the firm's assets, in relation to the cost of the replacing those assets.

$$Tobins\ Q = \frac{MARKET\ VALUE\ OF\ THE\ FIRMS\ CAPITAL\ STOCK}{REPLACEMENT\ VALUE\ OF\ THE\ CAPITAL\ STOCK}$$

As per the equation, a firm's assets are either undervalued or overvalued depending on the value of Q. If Q is greater than one, the firm's assets are overvalued and vice versa. Simply put if a company's assets are overvalued, then they will get more for their assets than what it takes to replace them, thus leaving them with surplus funds which are then directed towards their investments and therefore, economic activity. If undervalued, the will be limited in the way of making investments (Tobin's Q of Investment).

In addition, there is strong implication as to why the best economies seem to be founded on strong economic markets. As mentioned before, strong stock markets are characterized by a high liquidity (Nazir, Nawaz, & Gilani, 2010). Highly liquid markets ensure that investors feel same when it comes to where they place their money. This is crucial; in such markets, investors are a lot more willing to invest in long term projects because they can easily get back their money at any given time due to the prevailing liquidity of the market. This would then make the financing of long term projects simpler giving boosts to productivity and by direct extension, economic growth in the long term.

Also, According to Modigliani (Also Malkiel) increased security prices lead to increased holdings. That is to say that, increased prices lead to an increased ownership by investors in whichever firms

are in question. Increased holdings would therefore mean that investors or shareholders stand to earn higher returns in the way of dividends. This points an increased level of permanent income. This then translates to increased consumption, saving, and even investment which would mean only positive things for the economy.

It also could be pointed out the ability of markets to help diversify risk is an important pointer to capital markets on economic growth as well. When a the stock market offers the investors a wide variety of investments to make, then the investors are given even more incentive to purchase stock on the market, because there is a wide variety of investments to chose from, giving them the ability to further diversify away the risk faced in making these investments. This would therefore encourage more and more investments across the market which would the lead to increased productivity and economic activity.

2.2 Empirical Studies

2.2.1 Global Perspectives

Jay Ritter of the University of Florida also conducted a similar study where he poses the question does economic growth benefit stockholders? According to his findings the answer is no. This has profound implications on asset allocation as many asset allocation decisions internationally are partially based on the relative economic prospects of the countries. He found that there is a cross-sectional correlation of -0.37 for the compounded real return on equities and the compounded real per capita growth in GDP for 16 countries over the period of 1990 to 2002.

Jay goes on to say "But I think that there is a general tendency for markets to assign higher P / E and price-to-dividend multiples when economic growth is expected to be high, which has the effect of lowering realized returns because more capital must be committed by investors to receive the same dividends. So far, I have not discussed corporate governance. One reason that GDP growth does not necessarily translate into high returns for minority stockholders is that managers may expropriate profits via sweetheart deals, tunneling, etc. whereas this article is arguing that the cash flows accruing to the shareholders of existing corporations will not necessarily increase at a higher rate, even when economy-wide growth accelerates. But although consumers and workers may benefit from economic growth, the owners of capital do not necessarily benefit. Unless technological change comes from existing firms with monopoly power, improvements in productivity raise the per capita income of consumers. Furthermore, a country can grow rapidly by applying more capital and labor without the owners of capital earning higher returns."

He concludes thus "Over the 1900–2002 period, for sixteen countries representing perhaps 90% of world market capitalization in 1900, there is a negative correlation between per capita income growth and real equity returns. Most people would think that this correlation should be positive. This article argues that there is at best only weak theoretical support for expecting a positive correlation."The figure below shows the real growth rate of GDP per capita and the rates of return on stocks in 19 highly developed countries between 1900 and 2011 as per the analysis carried out by Ritter in 2012.

Figure 1: Real growth rate of GDP per capital

Economic growth can occur for two broad reasons—productivity growth or increased inputs. Krugman (1994) and Young (1995) have argued that the high growth in East Asia that has occurred in the last 50 years has been due largely to increased factor inputs—a high personal savings rate and increased labor force participation, combined with rapid improvements in health and educational attainment. Neither of these necessarily benefit the owners of capital.

As Warren Buffet (1999) and Jeremy Siegel (1999, 2000) have pointed out, in a competitive economy technological change largely benefits consumers through a higher standard of living, rather than benefiting the owners of capital. And if individuals save more and invest their savings, the increased amount of capital per worker will result in higher real wage rates, which is of no benefit to the owners of shares in existing corporations. The point is that economic growth does result in a higher standard of living for consumers, but it does not necessarily translate into a higher present value of dividends per share for the owners of the existing capital stock. Thus, whether future economic growth is high or low in a given country has little to do with future equity returns in that country."

Estrada carried out a similar study as well, looking at the correlation between the real GDP growth between real GDP and real GDP per capita and the annualized real equity returns of 24 developed countries and 21 emerging markets between 1987 and 2010. The study yielded the following results.

	Developed		Emerging		All countries	
	R-L	R-$	R-L	R-$	R-L	R-$
GDP	0.01 (0.96)	−0.06 (0.77)	−0.12 (0.60)	−0.13 (0.59)	0.25 (0.09)	0.20 (0.18)
GDP per capita	−0.09 (0.69)	−0.13 (0.54)	−0.19 (0.41)	−0.14 (0.54)	0.20 (0.20)	0.17 (0.25)

Markings: R-L – returns in local currency, R-$ – returns in USD, *p*-values (in parentheses)

The results largely indicated negative correlation, while in the cases that it did not, the figures seemed too small to be significant in pinning down any real evidence towards a show of

correlation. Estrada attributes this to investor behavior. When economic growth is on the rise, investors are 'blinded' and in turn buy stocks that are overpriced because they are misguided by the expectations of positive economic growth.

Foresti (2006) indicates that stock market prices can be used in order to predict growth, but the opposite is not true. Fama (1990) reports that a large fraction of the variation of stock returns (the NYSE) can be explained primarily by time-varying expected returns and forecasts of real GDP activity.

Nardari and Scruggs (2005) report that stock market (CRSP NYSE) volatility changes over time primarily because of changes in the volatility of "news about future returns". Errunza and Hogan (1998) show that industrial growth rate volatility does Granger cause return volatility for Italy and the Netherlands but not for Germany, France, UK, Switzerland and Belgium.

The findings of Flannery and Protopapadakis (2001) indicate that three real factor variables (Balance of Trade, Employment/Unemployment, and Housing Starts) are strong risk factor candidates, and these real factor candidates affect only the returns' conditional volatility for NYSE-AMEX-NASD. Furthermore, it is reported that remarkably, two popular measures of aggregate economic activity (Real GNP and Industrial Production) do not appear as risk factors, as well as that Real GNP announcements are associated with lower rather than higher return volatility. Humpe and Macmillan (2007) indicate both US and Japan stock prices are positively related to industrial production.

According to the result of Kaplan (2008), the stock prices have a positive and statistically significant long-run effect on out level implying that stock prices lead real economic activity in Turkey. Furthermore, the direction of the causality between variables is only from stock market price to real economic activity.

Erbaykal et al. (2008) reveal a positive and statistically significant long term relationship between stock prices and independent variables which are industrial price index, employment level and fixed investments under "Proxy hypothesis" developed by Fama (1981). The study concludes that under the light of this evidence, Proxy hypothesis developed by Fama (1981) is valid for Turkey and that the variables which are the indicators of real economic activity such as industrial production index, employment level and fixed investments are effective on stock prices via inflation.

2.2.2 Local Context

In a local context, Aduda at al., (2012) in their study of the determinants of stock market development in Kenya used secondary data for the period 2005-2009 to model the factors influencing the development of the NSE. Their findings from the regression analysis indicated that macro-economic factors such as stock market liquidity, institutional quality, income per capita, domestic savings and bank development are important determinants of stock market development in the Nairobi Stock Exchange. They also found that there is no relationship between stock market development and macroeconomic stability - inflation and private capital flows. This infers that there could be no relationship between stock market return and economic growth.

Nkukuu (2012) in her study to define the relationship between government budget balance and stock market return mentioned that there is a relationship between the economic environment and profitability of the companies in the stock market due to the growth that had been seen through the years and the economic growth of Kenya. Moreover, in her study she discovered that there's a weak correlation between budget balances and stock market performance. The budget balances does not impact on the performance of the stock market. This is an indicator that some of the macroeconomic factors such as budget balances might have weak relations with stock market return. It is also a possibility that the study may reveal similar results. However, Nkukuu (2012) mentions that most of the other macroeconomic factors exert more pressure on the stock market performance. This gives more possibilities of the results as to whether market return is positively or negatively correlated to the economic growth of Kenya.

Ndung'u (2011) in his study of the relationship between economic growth and stock market development, mentions Munga (1974) who argued that the NSE had failed as a vehicle for mobilizing capital for development thereby resulting to its failure to perform successfully the classical functions of a stock exchange. Thus, Munga (1974) concludes that the NSE is an unimportant to Kenya's economic growth. However, Ndung'u (2011) in his study found out that there is a positive relationship between economic growth and the measures of the stock market development. Moreover, his findings give evidence that market liquidity has a strong relationship with the economic growth as compared to market size.

Ndege (2012) in his study of the impact of the financial sector deepening on the economic growth in Kenya mentioned that either a positive or a negative relation exists between stock market returns and the economic growth. This makes this study vital to determine its current relations. In his study, he found out that financial sector deepening improved the economic growth by increasing accessibility in the economy. Thus, suggesting that this sector which is also within the stock market, will also influence stock market returns and ensure economic growth.

3.0 Research Methodology

This study was conducted through a descriptive survey method. The study used secondary data from the Nairobi Stock Exchange (NSE) databases on the NSE 20 share Index. Annual real Gross Domestic Product (GDP) data was also collected from Central Bank of Kenya (CBK). The NSE data and GDP data was for the period between the year 1997 and 2015. The data was analyzed with the help of Statistical Package for Social Sciences (SPSS). Normality tests and test for autocorrelation were conducted. In the empirical analysis, the following model which shows the relationship between real quarterly stock prices and real quarterly GDP was estimated.

The model specification was as follows:

$Y = \beta_0 + \beta_1 X + \epsilon$
Where:

Y = Market index, for Kenya, it is gauged by the NSE Index

β_0 = Y intercept

β_1 = a vector of coefficients on the variables in X

X = Real growth rate measured by the real GDP per capita

€ = The Error term

4.0 Data Analysis, Results and Discussions of Findings

4.1 Descriptive Statistics

This section provides the descriptive analysis of the data. The means, standard deviations, minimum and maximum statistics are reported in the following table 1. The mean for NSE index for the year between 1997 to 2015 was 3493.63 and a standard deviation of 1278.22. The minimum and maximum values for the same period were 1355 and 5646 respectively. Further, results showed that the mean %GDP for the same period was 4.081% with a std deviation of 2.422%. It's minimum and maximum amount for the same period were -0.23% and 8.4% respectively.

Table 1: Descriptive statistics

| Descriptive	NSE Index	GDP
Minimum	1355.00	0.230
Maximum	5646.00	8.400
Mean	3493.63	4.081
Std. Deviation	1278.22	2.422

4.2 Trend analysis

4.2.1 GDP Growth

The study sought to establish the trend in the movement of average %GDP in Kenya over the study period. The findings were as shown in the Figure 2. Results indicates that real GDP gradually increased from1997 to 2007. The results further indicated that in the subsequent year i.e. from 2008 to 2009, the real GDP significantly dropped. This drastic decline in the real GDP was mainly due to the low performance within the economy due to the post-election violence which occurred in the years 2007/2008 and thus this trickled down to the performance of individual sectors and thus negatively impacting on the real GDP of the country. Following the recovery of the economy the real GDP then rose in 2009 to 2011 and a slight decline in 2012 and this decline was mainly attributable to the state of affairs in the country which was awaiting its elections and thus at this time the investor confidences were negatively impacted for fear of the repeat of a state of political instability in the country, then stabilizing in the year 2014 and 2015.
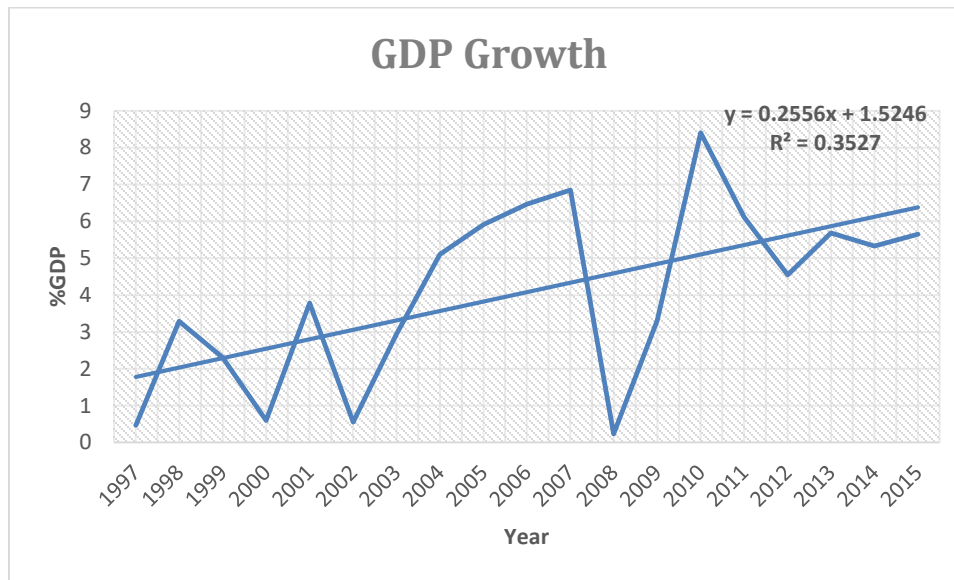
Figure 2: GDP (%) trend analysis from 1997 to 2015

4.2.1 NSE Index

The study sought to find out the trend in the movement of average NSE index over the study period 1997 to 2015. The findings were as shown in the Figure 3. The trend analysis shows an increasing trend in the NSE index. According to Ritter, (2004), countries with the great economic performance will generally possess strong capital markets which are characterized by a large market capitalization, reduced informational asymmetry and a high liquidity among others. This would therefore improve the speed at which institutions obtain capital and utilize it to reach their economic goals.
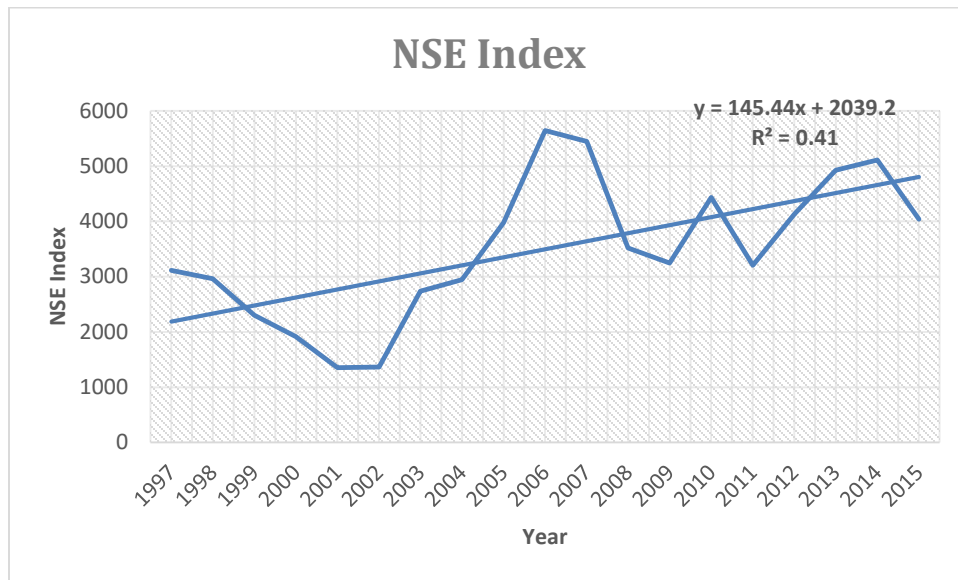
Figure 3: NSE index trend analysis from 1997 to 2015

4.3 Diagnostic Tests

Before estimating a regression model, it is recommended that test for diagnostics should be performed so as to avoid spurious results. The study conducted various tests and these tests included test for normality and test for autocorrelation

4.3.1 Test for Normality

The study sought to establish whether the data is normally distributed using the graphical method approach. The results showed a bell-shaped indicating that the residuals are normally distributed thus the data is normally distributed as shown in the Figure 4
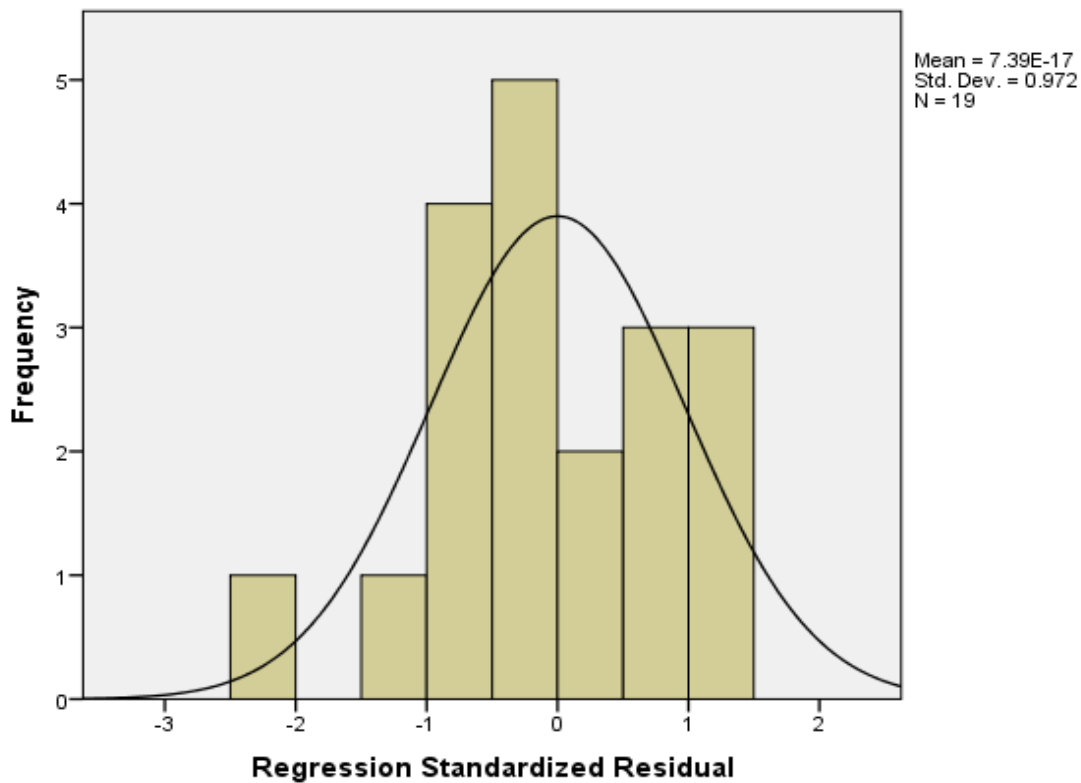
Figure 4: Test for Normality

4.3.1 Test for Autocorrelation

Autocorrelation test was performed using Durbin Watson test. Results were then presented as shown in table 2. The rule of thumb is that if the Durbin Watson value falls between -2 and 4 then an indication of no autocorrelations. Therefore, since the value was 1.028 in this study, then an indication of no autocorrelation.

Table 2: Test for Autocorrelation

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.688a	0.474	0.443	954.0149	1.028

a Predictors: (Constant), GDP

b Dependent Variable: NSE_index

4.4 Correlation Analysis

Correlation analysis is the statistical tool that can be utilized to determine the level of association between two variables (Levin & Rubin, 1998). This analysis can be seen as the initial step in statistical modelling to determine the relationship between the dependent and independent variables. Prior to carrying out a regression analysis, a correlation matrix was developed to analyze the level of strenght between the variables as this would assist in developing a prediction model which will reveal no relationship in cases where the value of the correlation is 0. On the other hand, a correlation of ±1.0 means there is a perfect positive or negative relationship (Hair et al., 2010). The values are interpreted between 0 (no relationship) and 1 (perfect relationship). Also, the relationship is considered small when r = ±0.1 to ±0.29, while the relationship is considered medium when r = ±0.30 to ±0.49, and when r is ±0.50 and above, the relationship can be considered strong.

Table 3 presents the results of the correlation analysis. The results revealed that GDP and NSE index are positively and significant related (r=0.688, p=0.001). This finding is consistent with that of Fama (1990) who reports that a large fraction of the variation of stock returns (the NYSE) can be explained primarily by time-varying expected returns and forecasts of real GDP activity.

Table 3: Correlation matrix

		NSE index	GDP
NSE index	Pearson Correlation	1.000	
	Sig. (2-tailed)		
GDP	Pearson Correlation	.688**	1.000
	Sig. (2-tailed)	0.001	
** Correlation is significant at the 0.01 level (2-tailed).			

4.5 Regression Analysis

The results presented in table 4 present the fitness of model used of the regression model in explaining the study phenomena. GDP was found to be satisfactory variable in explaining NSE performance. This is supported by coefficient of determination also known as the R square of 47.4%. This means that GDP explain 47.4% of the variations in the dependent variable which is performance of NSE. This results further means that the model applied to link the relationship of the variables was satisfactory.

Table 4: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.688[a]	.474	.443	954.01491

a. Predictors: (Constant), GDP

In statistics significance testing the p-value indicates the level of relation of the independent variable to the dependent variable. If the significance number found is less than the critical value also known as the probability value (p) which is statistically set at 0.05, then the conclusion would

be that the model is significant in explaining the relationship; else the model would be regarded as non-significant.

Table 5 provides the results on the analysis of the variance (ANOVA). The results indicate that the overall model was statistically significant. Further, the results imply that GDP is a good predictors of NSE performance. This was supported by an F statistic of 15.313 and the reported p value (0.001) which was less than the conventional probability of 0.05 significance level.

Table 5: Analysis of Variance[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	13936676.865	1	13936676.865	15.313	.001[b]
1	Residual	15472455.556	17	910144.444		
	Total	29409132.421	18			

a. Dependent Variable: NSE index

b. Predictors: (Constant), GDP

Regression of coefficients results in table 6 shows that GDP and NSE performance are positively and significant related (r=363.23, p=0.001). From the regression model, when real GDP value is zero or without consideration of the GDP, stock market would be 2011.134. It is also established that a unit increase in real GDP, would result in a 363.234 increase in stock market performance as measured by NSE-20 share index. This depicts that while real GDP would increase stock market performance, the relationship is significant.

Table 6: Regression of Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2011.134	437.528		4.597	.000
	GDP	363.234	92.824	.688	3.913	.001

a. Dependent Variable: NSE_index

5.0 Conclusion

The study concluded that GDP and NSE performance are positively and significant related. GDP would lead to increase in stock market performance. It is common practice for any investor to consider the economic prospects of an institution or country before deciding where to purchase stock. Moreover, countries with the great economic performance will generally possess strong capital markets which are characterized by a large market capitalization, reduced informational asymmetry and a high liquidity among others.

6.0 Recommendations

The study recommends that investors should look at the GDP performance to determine when to invest by buying or selling shares in the stock market. That is, buy shares when GDP performs poorly and sell when the GDP performs well. This would help them get value for their investments in stock market.

7.0 References

Aduda, J., Masila, J.M. & Onsongo, E.N. (2012). The determinants of stock market development: The case for the Nairobi Stock Exchange. *International Journal of Humanities and Social Science,*2 (9), 214-230.

Cheung, Y. and L. Ng, 1998). International evidence on the stock market and aggregate economic activity. *J. Emp. Finance*, 5: 281-96.

Damoradan, A. (2001). *The Little Book of Valuation.* John Wiley & Sons.

Nazir, S. M., Nawaz, M. M., & Gilani, J. U. (2010). Relationship between economic growth and stock returns. *African Journal of Business Management* , 3473-3479.

Ritter (2005), Henry and Kannan (2007), and Dimson, Marsh, and Staunton (2011).

MSCI/Barra (2010), *Is there a link between GDP growth and Equity Returns?cFA Institute Level III Volume 3 Capital Market Expectations, Market Valuation, and Asset Allocation*. Wiley Global Finance, 2013-07-12

Edward O.(2004) "Overview and Evolution of Investment Instruments In Sub-Saharan africa With Special Reference To Kenya" (Nairobi, Retirement Benefits Authority).

Erbaykal, E., Okuyan, H. A., Kadioglu, O. Real (2008), "Macro Economic Variables and Stock Prices: Test of Proxy Hypothesis In Turkey", *Yeditepe International Research Conference on Business Strategies, Istanbul, Turkey, June 13-15, 2008*

Fama, E. F. (1981), "Stock Returns, Real Activity, Inflation, and Money", *The American economic Review*, Vol. 71, No. 4, pp. 545-565

Ferson, W. and C. Harvey, 1993. "The risk and predictability of international equity returns" rev. Fin. Stud., 6: 527-66. http://econpapers.repec.org/article/ouprfinst/default 6.htm

Foresti, P. (2006), "Testing for Granger causality between stock prices and economic growth", MPRA Paper No. 2962.

Humpe, A. and Macmillan, P. (2007), "Can macroeconomic variables explain long term stock market movements? A comparison of the US and Japan", Centre for Dynamic Macroeconomic Analysis Working Paper Series

Kaplan, M. (2008), "The Impact of Stock Market on Real Activity: Evidence Turkey", *journal of Applied Sciences*, 8 (2), pp 374-378.

Muga, D.N. (1974). The Nairobi Stock Exchange: It's history, organization and role in the Kenyan economy. *Unpublished MBA Project*, University of Nairobi.

Ndege, F. (2012). The impact of financial sector deepening on economic growth in Kenya. *Unpublished MBA Project*, University of Nairobi.

Ndung'u, D.K. (2011). The relationship between economic growth and stock market development: The case of Nairobi Stock Exchange. *Unpublished MBA Project*, University of Nairobi.

Nkukuu, E.N. (2012). Relationship between government budget balance and stock market return for companies listed on the Nairobi Securities Exchange. *Unpublished MBA Project*, University of Nairobi.

Ritter, J.R. (2004). Economic growth and equity returns. *Pacific Basin Finance Journal,* 13 (2005), 489-503

Tobin's Q of Investment. (n.d.)(2009) Retrieved from Economics Discussion: http://www.economicsdiscussion.net/investment/tobins-q-theory-of-investment-with-diagram/3275