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EFFECT OF MACRO ECONOMIC VARIABLES ON MARKET CAPIATLIZATION OF FIRMS LISTED IN NAIROBI STOCK EXCHANGE

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ABSTRACT

There is a growing literature on how macro-economic variables can have effects on market capitalization in both developed and emerging stock markets. Nairobi Securities Exchange has an important part in the Kenyan Economy as it provides a platform for companies and individuals to invest. This study sought to determine the effect of macro-economic variables on market capitalization of registered firms in Nairobi stock exchange. The study was guided by the following specific objectives; to determine the effect of exchange rate on the market capitalization of firms listed in Nairobi stock exchange, to determine the effect of interest rate on the market capitalization of firms listed in Nairobi stock exchange, to determine the effect of inflation rate on the market capitalization of firms listed on Nairobi stock exchange and to determine the effect of Fuel price on the market capitalization of firms listed on Nairobi stock exchange. The target population of this study comprised of Sixty-five (65) listed companies at the Nairobi Securities Exchange and whose data is available for the period from January 2010 to November 2015. The study used secondary data covering a five-year period from 2010 to 2015. The study used mixed research design encompassing both descriptive and correlational research techniques. Under the descriptive statistics, important metrics including the mean, standard deviation and variance of each of the key variables was obtained and analyzed across the listed companies in Nairobi security exchange. The study found that Exchange rate had a positive influence on the market capitalization in Agricultural, Industrial allied sectors and a negative influence on Finance and investment sectors and commercial and services sectors. Inflation had a positive influence on the stock market Performance in investment sector and a negative influence on all the other sectors. Interest rate had a positive influence on the market capitalization in Agricultural and Commercial, sectors and a negative influence on Investment sectors. The study also found that fuel prices had a negative influence on the market capitalization in the Automobile sectors while having a positive influence on the market capitalization in all the other sectors. The findings showed that the type of sector characteristics had a moderating effect on the relationship between macroeconomic variables of exchange rate, Interest rate, Inflation, fuel prices and the market capitalization at the NSE.

Key words: Exchange rate, Interest rate, Inflation, fuel prices and the market capitalization

1.1 Background of Study

Globally throughout the financial history, stock markets are known to play an important role in the economy growth (Eston, 2016). Stock market has a fundamental part in raising capital for both private and government entities to support growth in their projects. Savers are attracted into the stock market by the opportunities available for returns in terms of value increase and bonuses (Ologunde, Elumilade, & Asaolu, 2006). Fisher (1930) and Solomon (2012) studies indicated that there has been a great interest of the relation regarding the macro-economic variables and the stock market.

Efficient capital market reflects all public and private information and quickly adjusts to new information in the market. (Ramin et al.2005). This means the price of a stock at any one time reflects all the information of that stock. The effect of macro-economic variables such as exchange rate, inflation, oil prices and interest rates, the efficient market Hypothesis (Fama 1970) indicate that competition among investors who maximize profit ensured all relevant macroeconomic variables information is reflected on daily stock prices (Chong & Koh 2003).

The proceeds and payments of international trade are settled in different currencies which have to be converted to local currency of the exporting and importing countries. Mainly the most accepted international currencies are Dollars, Euros and Britain pound. As a result of exchanging from one currency to another, firms are exposed to foreign exchange risk due to local currency volatility against the major currencies. The exposure affects the financial performance of the firm and market capitalization. Foreign exchange exposure is the risk that firms are exposed to as result of movement in local currency against the major international currencies that are generally accepted as medium of exchange (these currencies include Great Britain Pound, United states Dollar, Euro and Swiss Franc. In 2014, import and exports of goods worth US Dollar 18.6 trillion was exchanged. Out of this amount, US$ 438 billion was traded in Sub Saharan Africa (United nations statistics 2015).

According to the study by El-nader & Alarimony, (2012) financial economists argues that financial asset prices responded to such indicators as production index, unemployment rate, dividends yield, interest rate, inflation rate, foreign exchange, GDP, and so forth. Findings revealed the tendency for macroeconomic variables to predict variations of stock market; however, several disagreements were reported on the sign and direction of causality in the financially advanced economies (Karim *et al*, 2010).

A study by Abedallat & Shabib (2012), on the impact of macroeconomic indicators like change in investment and gross domestic product (GDP) as the independent variables and the movement of Amman Stock Exchange index as dependent variable for the data period of 1990- 2009 Showed that the two macroeconomic indicators (the investment and GDP) and the Amman Stock Exchange index, and also between each of them separately and the stock index, which means that the movement of prices in the Amman Stock Exchange affected by the movement of these two variables, and there is the effect of both variables on the movement of Amman Stock Exchange index. Further they found the impact of the change in investments was greater than the impact of change in GDP on the Amman Stock Exchange index.

The Nairobi Securities Exchange is registered and controlled by the Capital Markets Authority. It has the obligation to watch over the listed firms as well as to offer a platform for transacting of securities. The Nairobi Securities Exchange was established in 1954 as a deliberate association of securities broker listed under the Societies Act (Ngugi, 2005). Ngugi, (2005) also noted that trading of shares at the NSE was opened to all people to transact when Kenya became an independent country in 1963.

The NSE plays important role in the Kenya economy as it facilitates the mobilization of savings, makes available a platform for the development of the economic services and increases enhanced financing source

to companies (NSE,2016). Through the NSE the government also has a platform to increase its funding for its projects through long-term
borrowing by issue of bonds. It therefore allows for the trade and industry improvement of a country as a whole. The NSE however is still at the development stage as compared to the security markets in America, Europe, Asia and Australia. Since the year 1964, the NSE 20 share index has been in operational assessing the performance of the top 20 companies that attains positive financial outcomes NSE (2016). The index is a value load of the market performance in terms of a company's market capitalization, the number of successful agreements, the gross revenue and the shares traded at a particular period in review. For a company to be included in the determination of the NSE 20 share index, it must have at minimum 20% of its shares listed at the NSE, be a topnotch company and have at least Kshs 20million worth of its outstanding shares. It should also have a notable dividend record.

1.2 Statement of the Problem

Since 2007, the Kenya shilling has lost 64% of its value against the US Dollar,24% against the Euro and Sterling pound and 102% against the Swiss Franc (Central bank historical data 2016). These are huge fluctuation which in turn affects the market capitalization due to volatility in share prices.

According to the Kenya Economic survey (2015) in the year 2015 alone, the Nairobi stock exchange market capitalization dropped by US$ 2.5 billion. This meant loss to the investors and serious image damage to Kenya as a conducive investment destination. This drop was attributed by experts to volatility of the Kenya shilling against the Dollar which depreciated by 12.92% in year 2015 alone. In 2015 only 13 companies out of 65 registered a gain in Nairobi stock exchange.18 of the firms issued profit warnings indicating their profits would reduce by more than 25% compared to 2014 financial performance.

Ouma and Muriu (2014) study in Kenya concluded that the stock market in Kenya was affected by the variations in the exchange rate, money supply, and inflation. The inflation and the fuel pricecontinued to be a major cause of drop in the earnings at the NSE. However, the exchange rate had an adverse bearing on the stock market return. Stock market returns are known to be influenced by the key macro-economic variables such as the GDP, inflation rate, and exchange rate, Ouma and Muriu (2014), Talla (2013) and Barasa (2014). Kalui (2004), study on the firms which are listed and transact at the concluded that there has been a high stock returns volatility.
There is knowledge gap as to what is the effect of foreign exchange volatility on the market capitalization. The previous studies on this area have shown certain gaps that have created researchable problem. These include the following: There is no differentiation between realized and unrealized foreign exchange losses. In reality, unrealized gains and losses though booked in financial statements, these have no impact on the cash flow of the firm since these are provisions which are reversible in future by which time favorable exchange rates could be in the market or the management could have invested in derivatives by the time the foreign loss is to be realized.

The true value of the firm is best reflected through its market value since it is driven by forces of demand and supply and subscribes to the modern concept of shareholders wealth maximization. This research will therefore fill the following gaps identified in previous studies. Include four Macro economic variables (Interest rates, Inflation rates, Fuel price and exchange rate).

1.3 Research Objectives

1.3.1 General Objective

The general objective of this study was to determine the effect of macro-economic variables on market capitalization of registered firms in Nairobi stock exchange.

1.3.2 Specific Objectives

The following specific objectives guided the study:

1. To determine the effect of exchange rate on the market capitalization of firms listed in Nairobi stock exchange.
2. To determine the effect of interest rate on the market capitalization of firms listed in Nairobi stock exchange.
3. To determine the effect of inflation rate on the market capitalization of firms listed on Nairobi stock exchange.
4. To determine the effect of Fuel price on the market capitalization of firms listed on Nairobi stock exchange.

1.4 Research Questions

The research sought to answer the following questions.

1. What is the effect of exchange rate volatility on the market capitalization of firms listed in Nairobi stock exchange?
2. Does interest rate affect market capitalization of firms listed in Nairobi stock exchange?
3. What is the effect of inflation rate on the market capitalization of firms listed on Nairobi stock exchange?
4. Do fuel price affect market capitalization of firms listed in Nairobi stock exchange?

2.0 Conceptual framework

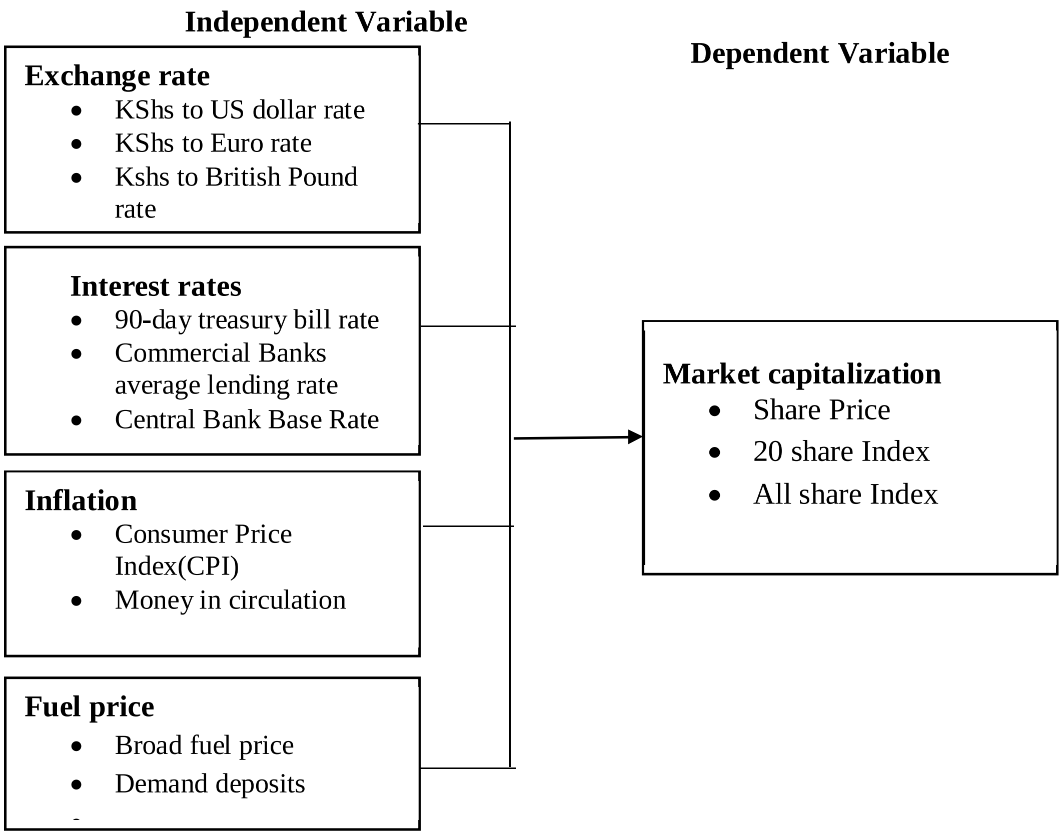

Figure 2.9: Conceptual framework

2.1 Critique of the Existing Literature

The objective of the study will be to determine the relationship between the macroeconomic environment and stock market capitalizationat the Nairobi Securities Exchange. From the literature reviewed, empirical studies have sought to explain the relationship between various macroeconomic variables and stock market Performance. However, the study posits that macroeconomic variables would affect different industries or sectors differently to the extent that while stock Performance in some industries would be negatively related to a macroeconomic variable, others would be positively related to the same macroeconomic variable in the same market and this was in agreement with Gunsel and Cukur(2007). Kurtan and Aksoy(2006) found that inflation and interest rates had a high influence on stock market capitalizationin Turkey. This contradicted the findings of Adrangi, Charath and Sharma(2000) who found a weak relationship between inflation and stock market capitalizationof Chile and Peru. Chen et all(2001) found a strong positive relationship between inflation and stock market capitalizationin Chile further contradicting the findings of Adrangi et all(2000). This study was meant to investigate how the stock Performance at the Nairobi Securities Exchange is influenced by the macroeconomic variables and we could not rely on the contradicting past studies to explain the relationship. Joseph 2012 studied the influence of macroeconomic variables on stock market capitalizationat the London stock exchange and found that both exchange rate and interest rate had a negative influence on the stock market Performance. This contradicted the findings of Ratanapokarn and Sharma(2007) who studied the relationship between macroeconomic variables and stock market capitalizationin the US. Ratanapokarn and Sharma (2007) had found that exchange rate, fuel priceand inflation had a positive influence on stock market capitalizationwhile interest had a negative influence. Only the result on interest rate was in line with the findings of Joseph (2012). Spyrou (2001) had also found a negative strong relationship between inflation and stock market capitalizationin Greece. This again contradicts with the findings of Ratanapokarn et al. (2007). It is clear from past studies that there is no clear agreement on the relationship between the macroeconomic variables and stock market capitalizationand that stock Performance in each market responds differently to changes in macroeconomic variables. Most of the past studies have tended to investigate the effect of one or a combination of two macroeconomic variables on the stock market capitalizationand a study combining more than two variables would contribute greatly in explaining the stock market Performance. It is also clear that no attempt has been made to find out how stock Performance of different sectors in the same market is influenced by the macroeconomic variables and if those influences are any different from the overall market Performance. This study was therefore meant to bridge this literature gap.

3.0 Target Population

According to Borg and Gall (2007) a target population consists of all members of a real or hypothetical set of people, events or objects from which a researcher wishes to generalize the results of their research while accessible population consists of all the individuals who realistically could be included in the sample. The target population for this study comprised of Sixty-five (65) listed companies at the Nairobi Securities Exchange for the period from January 2010 to November 2015.

3.4. Sample Size and Sampling Technique

Kothari (2004) describes a sample as a collection of units chosen from the universe to represent it. Black (2004, 2011) defines sampling as the selection of individuals from within a population to yield some knowledge about the whole population, especially for the purpose of making predictions based on statistical inference. Gay (2003) recommends that where the target population is less than 100, the whole population should be included in the study and a census survey undertaken. For this study, a census survey was undertaken since the target population is less than 100, hence no sampling was done.

4.0 Market Analysis

Table 28 ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	120.450	5	20.075	35.037	.000[b]
	Residual	32.659	32	.573		
	Total	153.109	37			

a. Dependent Variable: Market capitalization

b. Predictors: (Constant), Exchange rates, Interest Rates, Inflation Rates, and fuel prices

From the ANOVA analysis results Table 4.1 Exchange rates, Interest Rates, Inflation Rates, and fuel prices have a combined significant influence on market capitalization at the NSE given that the overall p value is equal to 0.000 is less than the confidence level equal to 0.05 in this study. The regression analysis results in the ANOVA output table indicates that the overall regression model predicts the market capitalization significantly well at 95% confidence level which indicates that statistically, the model applied can significantly predict the changes in the market capitalization.

Table 4.29: Model Coefficients of Macroeconomic variables and Market Capitalization

Model		**Unstandardized Coefficients**		**Standardized Coefficient**	**t**	**Sig.**
		B	**Std. Error**	**Beta**		
1	(Constant)	18.765	.428		4.125	.000
	Exchange rates	-2.189	.156	-.163	-3.215	.000
	Interest rates	-.355	.136	-.349	-2.875	.006
	Inflation	-4.243	.113	-0.046	-2.381	.000
	Fuel price	.426	.117	.444	3.639	.000

From the coefficient in Table 2 when all the variables are regressed together, the four macroeconomic variables have significant influence on the market capitalization at the NSE. Exchange rate, Interest rate and Inflation rate have a negative influence on the market capitalization while fuel price has a positive influence on the market capitalization at the NSE. On a simple regression relationship, the constant had a positive coefficient of 18.765, implying holding Exchange rates, Interest Rates, Inflation Rates, and fuel prices constant, there are other factors influencing market capitalization at the NSE.

From the coefficients of the exchange rate were generated from the data analyzed as presented in Table 3 which shows that exchange rate significantly contributes to the model since the p-value equal to .000 is less than .05 significance level. Negative coefficient equal to -2.189 shows that exchange rate and market capitalization move in the opposite direction at the NSE and that a unit change in exchange rate would lead to 2.409 units change in the stock market capitalization. The study findings on the effect of exchange rate on the stock market capitalization at the NSE indicated that exchange rates have significant negative effect on stock market capitalization corroborating research findings of Adjasi (2008) who found that there is negative relationship between exchange rate volatility and stock market capitalization in Ghana stock market and that depreciation in the local currency leads to an increase in stock market capitalization in the long run. However, the results contradict the findings of Desislava Dimitrova (2005) who studied the link between the stock market and exchange rates and found that in the short run, an upward trend in the stock market may cause currency depreciation, whereas weak currency may cause decline in the stock market.

The coefficients of interest rate as presented in Table 3 shows that interest rate significantly contributes to the model since their p-values equal to .000 is less than .05 significance level. Negative coefficient of interest rate equal to -0.355 shows that, interest rate and market capitalization move in the opposite direction at the NSE. A unit change in interest rate would lead to 0.355 units change in the stock market performance. The findings also support those of Kyereboah-Coleman and Agyire (2008) who also found that interest rates have significant effect on stock market Performance. The findings however contradict those of Kuwornu and Owusu-Nantwi (2011) who found that interest rate has no significant effect on market capitalization. The relationship between stock Performance and interest rates reflects the ability of an investor to change the structure of her portfolio (Apergis and Eleftheriou, 2002). The findings can be explained by the substitution effect in the market. Higher interest rates mean that investors tend to invest in other available securities that offer better Performance therefore pushing the stock prices down (Hsing, 2004).

The coefficients of inflation rate as shown in Table 4.3 indicates that inflation rate has a significant Negative influence stock market capitalization because their p-value equal to .006 is less than .05 significance level.

The coefficient of inflation rate equal to -4.243 shows that inflation rate and market capitalization at the Nairobi Securities Exchange move in the opposite direction. A unit change in inflation rate would lead to 4.243 units change in the market capitalization at the NSE. The results of this study on effects of inflation on stock market capitalization are very coherent with the findings of Floros (2004), Ugur (2005), Pesaran et al (2001), Crosby (2001), Spyros (2001), who found a negative relationship between inflation and stock market Performance.

The coefficients of fuel prices as presented in Table 4.3 shows that fuel price significantly contributes to the model since their p-values equal to .000 is less than .05 significance level. Positive coefficient of interest rate equal to .426 shows that, fuel price and market capitalization move in the same direction at the NSE. A unit change in fuel price would lead to .426 units change in the market capitalization. The findings of this study corroborates the findings of selling (2001), Bernake and Kuttner(2005), Ibrahim (2003) and Corrado and Jordan 2005) who found that a significant positive relationship exists between fuel price and market capitalization. The findings also corroborate those of Bulmash and Trivoli (1991) who found a positive relationship between stock Performance and fuel price.

Table 30: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.695[a]	.483	.432	.000

a. Dependent Variable: Market capitalization

b. Predictors: (Constant), Exchange rates, Interest Rates, Inflation Rates, and fuel prices

As shown in Table 4, the model is significant and 95% level and is a good fit with a value of R Square of 0.483 indicating that the model is able to explain 48.3% of the market capitalization at the NSE and is therefore a good estimate. After ascertaining that a significant relationship exists between, exchange rate, inflation rate, interest rate, fuel price and market capitalization at the NSE, the study evaluated the model results as presented in the ANOVA Table 2. The fitted model is thus summarized in equation

MR=18.765-2.189ER-0.355IR-4.243IR+4.26FP

where;

MR= Market capitalization at the NSE

ER=Exchange Rate

IR=Interest rate

IF= Inflation Rate

FP= Fuel price

5.1 Conclusions

Based on the findings, this study concludes the following;

5.1.1 Exchange Rate and market capitalization

The contribution of exchange rate on the market capitalization in Kenya was found critical due to its significant influence on the market capitalization. Kenya as country experiences challenges in management of exchange rates owing to be a net importer with most of the imports being oil and machinery. Over the years, the shilling has been unstable against the hard currencies of the world implying that even the foreign debts denominated in forex end up becoming a great burden on Kenyan economy. Terrorism attacks in Kenya and heightening level of insecurity has against affected number of tourists' arrivals in Kenya due to insecurity challenges. Glut in the tea export markets have also seen Kenya receiving poor tea payments while tea is the major export earner of Kenya. All these factors among other have left the value of Kenya shilling eroded. Currency devaluation has resulted to balance of payment problems challenges for a long time in Kenya to the extent that most of the companies in Kenya suffer financial losses due to the cost of imports. Due to the great role played by exchange rate in an economy in influencing market capitalization of companies, the management of these companies needs to institute great measures to cushion themselves against forex losses. Such measures may include borrowing foreign denominated loans, employing hedging strategies to cushion themselves from future losses e.g. use of derivatives, setting subsidiaries in stable currency countries as well as close monitoring of movements of shilling against the major world currencies.

5.1.2 Interest Rates and market capitalization

The findings revealed that interest rate plays an important role in influencing the changes or variations of the market capitalization in Kenya albeit the fact that the study results in some sector market capitalization indicated that interest rate has insignificant influence on the direction of the market capitalization. Interest rates in Kenya have been spiraling for a while since the global credit crunch of 2008 and this has seen many companies either report losses or reduced profits especially because interest rates repaid on the loans and other debts ended up expensive resulting to additional financial expense in the books of accounts of these companies. To cushion market capitalization of the company's against increased financial expenses the companies need to understand market dynamics influencing long term and short term changes in interest rates and align their strategies accordingly. The companies need to constantly review interest rate trends announcements by the Central Bank of Kenya in order to align the liabilities accordingly. During the periods of high interest regimes, the companies need to repay off their loans and other debts to reduce financial expenses while offshore borrowing can be done where interest rates are competitively priced. The management of companies need also to be good negotiators owing to whole sale borrowing which would enable them enjoy competitively priced debts with favorable covenants and terms. The Finance Managers of the companies listed in NSE need to update the senior management and the board of directors with the recent market trends to enable them negotiate repricing of their assets and deposits held in money market.

5.1.3 Inflation Rate and market capitalization

The study findings reveal that inflation rate affects the market capitalization in Kenya and hence there is a great need of ensuring that companies understand the inflation dynamics. Kenya experiences a number of challenges in managing the headline inflation owing to a number of external shocks the country exposed to especially from world oil prices, war and uprising which distort potential markets of our limited exports, droughts and other natural disasters as well as reliance on foreign debts. As a result of Kenya being exposed to oil and food inflation which affect the production and consumption capacity of the citizens, disposable income shrinks as well as affecting the purchasing power parity. Companies need to constantly keep reviewing their strategies to operate excellently during periods of high inflation to remain on track in their market capitalization which guarantees a growing market capitalization to the investors. The Central Bank being the monetary authority in Kenya also requires instituting and review monetary and fiscal policy measures to which are good anti-inflationary measures suitable for a growing economy.

5.1.4 Fuel price and market capitalization

The study findings revealed that fuel prices play a pivotal role in an economy and more so market capitalization of companies in Kenya are greatly influenced by the level of fuel prices. The Central Bank as well as the Capital Markets Authority needs to consider financial sector reforms to avail alternative sources of fuel which shall provide flexible, competitive and alternative sources of financing of listed companies.

5.2. Recommendations

The study recommends the following based on the findings;

The Government of Kenya need to constantly review the macroeconomic policies to ensure the country is always cushioned against the external shocks like the credit crunch as well as oil crisis. To afford this, national policies as well as regulatory frameworks governing key sectoral reforms with large external dependencies need to be instituted like the imports of oil and machinery and foreign debts and loans. Concerted efforts between various governments as well as policy makers need to be grounded on the policy to drive crucial enablers of the country towards self-sustenance curbing heavy import impacting on our balance of payment problems. Such drivers on oil exploration, minerals and food security will go a long way in ensuring the shilling remain stable, inflation is tamed, interest rates do not sky rocket while money supply is controlled by use of domestic instruments to stabilize inflation and interest rates.

On findings of macroeconomic trends, the investment advisors and brokerage firms need to seek redress from the relevant policy makers as well as institutions aimed at bringing stability for the well good of the stock investors. The Central Bank of Kenya being the monetary authority in Kenya need to constantly be reviewing the interest rate trends, inflation rates, levels of money supply as well as the exchange rate by comparing them with the developed economies. CBK need to institute strong measures in place that govern the monetary policy of Kenya geared towards ensuring a stable macroeconomic environment suitable to steer economic growth of Kenya which directly impacts on the performance of stock market Performance.

The monetary regulations should further be benchmarked against the international best practices to bring stability on the macro environment to assure shareholders of maximum Performance from their investment in the stock market in the various industries listed in the NSE. The Capital Market Authority of Kenya as the regulator of NSE need to ensure that the listed companies not only adhere to their dividend policy but also provides a profit warning as a corporate governance practice aimed at cushioning shareholders against possible losses resulting from such omissions and commissions.

CMA need also to play a leading role in advising Government on the impact of macroeconomic factors based on the overall performance at the bourse as key indicators like market capitalization are used by foreign investors as a barometer for profitability upon investment in the Kenyan market. The management and the board of directors of listed companies need to constantly make strategic decisions based on research findings to ensure high impact on companies ‘performance based on existing macroeconomic environments in order to positively influence the market capitalization. The managements need to staff their strategic departments with strategic thinkers to advice on sustainable and profitable new markets which shall strategically remain useful in increasing shareholders value across different markets with stable macroeconomic environments. The shareholders should consider other factors besides macro-economic factors while making their investment decisions like portfolio diversification, GDP performance, political factors etc while making investment decisions. All these may explain the direction of stock market capitalization which consequently affects their value in the securities market.

5.3. Areas for further research

Based on the conclusions and findings of the study, the following areas were suggested for further research:

A study can be designed to find out the impact of country economic growth on the firm value of mutual funds companies. This will give an indication on the effects of country economic growth on mutual funds.

It would be important to carry out a study with a bias to determining the relationship between market development and fund performance. This will assist more knowledge on the strength of impact of market development on fund performance.

In order to better understand the effects of legislation on fund performance, it would be interesting to carry out a study to determine effects of fund legislation on the performance of mutual fund in Kenya.

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