

Effect of Selected Macroeconomic Variables on Performance of Securities Exchanges in the East African Community

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Abstract

Purpose - The goal of this paper was to investigate the impact of selected macroeconomic factors on the performance of securities exchanges in East African Community.

Methodology - Descriptive research design was embraced as study involves inspiring conclusions. This study relied on secondary data. The period of the study was from 2013 to 2017

Findings - This research found out that the coefficient of GDP was 0.001 meaning that GDP positively influences market capitalization. Inflation rate positively affects the market capitalization, this is clear from the coefficient value of 0.235. Money supply impacts negatively on market capitalization since its coefficient was -0.004. Interest rates influences market capitalization positively since the value of coefficient was 0.129. Exchange rates influences market capitalization negatively since the value of coefficient was -0.338. In general, macroeconomic variables affect the performance of securities exchanges in East Africa Community.

The five independent variables analyzed were able to explain their effect on the market capitalization up to 48.9% as shown by adjusted R square. This implies that they input 48.9% on the market capitalization with the rest contributed by the factors not studied. The model was fit.

Implications - Little attention has been paid to understanding the impacts of macro-economic factors on performance of securities exchanges. Understanding such effects is central to the resourceful working of the financial system in totality and for overall economic performance. The study recommends that policy makers should formulate policies geared towards stabilizing inflation, exchange and interest rates which will in turn promote foreign trade in the region

Value - This study is of pronounced significance to researchers, academicians, companies and policy makers as it gives important insights on how the macroeconomic variables affect the performance of the stock exchanges. It acts as a basis for making investment decisions by investors and policy makers can design appropriate stabilization policies in the stock markets.

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Introduction

Capital markets are markets for long-term finance. It is a market which deals with long term borrowing, lending and trading in financial instruments. Financial intermediaries involved include securities exchange, insurance firms, pension funds and mortgage companies. The stock trades are the unique commercial centers where held stocks and bonds are purchased and sold. These stocks can be in type of offers and debentures. Securities trades performance are ascribed to changes in macroeconomic factors. Large scale financial factors, for example, inflation, real exchange rate and cash supply significantly affect the securities trades performances (Bekaert & Harvey, 2000).

According to international fisher effect theory by Irving Fisher (Fisher, 1986), high interest rate in a country over time leads to high inflation rate hence currency depreciation. This arises due to the possible occurrence of a liquidity trap, a situation where very low interest rates prompts people to hold cash instead of investing in interest earning assets. Purchasing power parity theory by Coakley et al. (2005) argues that movements on exchange rates of two countries' currencies are contributed by fluctuations of relative prices over time and is reflected in the stock performances. The monetarist theory of inflation argues that, uncontrolled money supply into an economy leads to high inflation levels (Friedman, 1956). International fisher effect theory confirms that higher nominal exchange rate suggests expected inflation (Fisher, 1986).

The capital markets in East Africa face a number of challenges which are macroeconomic in nature and have significantly affected the stock market performance. Challenges such as inconsistency in the use of capital markets both domestically and regionally, weaknesses in the conduct of business by intermediaries, low financial and investment literacy and savings levels, limited innovation, inadequate supply of appropriate products are the key challenges facing the capital markets. In principle, changes in financial markets are as a result of the changes in macroeconomic environment could have a considerable impact on stock market performance (CMA, 2016).

Research Objective

The main objective of this research was to investigate the impact of selected macroeconomic variables on performance of securities exchanges in East African Community.

Literature Review

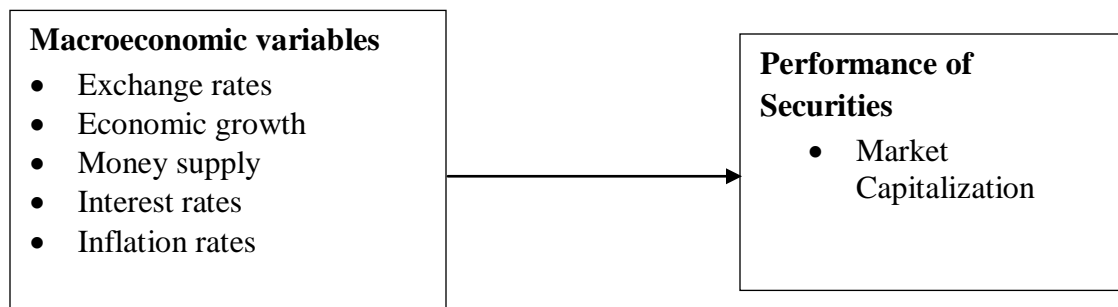
The literature review encompassed the theories that were reviewed which included, International Fisher Effect Theory, Keynesian Revolution – No self-correction, The Monetarist Theory of Inflation and Purchasing Power Parity Theory. Macroeconomic variables such as inflation rates, investment, unemployment, interest rates, money supply, exchange rates and corporate governance among others affect the performance of stock markets according to Geethaet al. (2011). The study also looked at studies by Dziwornu and Awunyo-Vitor (2013), Elly and Oriwo (2012), Otieno (2014), Maku and Atanda (2010), Pal and Mittal (2011), Patel (2012), Momanyi (2015) and Kigen (2014). From the literature reviewed, none of the studies looked at how macroeconomic factors affect the performance of securities exchanges in East African Community. This study therefore aimed at addressing those research gaps in carrying out this study

Conceptual Framework

The goal of the study was to investigate the impact of selected macroeconomic factors on the performance of securities exchanges in the East African Community. The independent variable was macroeconomic variables which were measured by economic growth, rate of inflation, interest rates, money supply and exchange rate whereas dependent variable was performance of securities which was measured by market capitalization.

Independent Variable

Dependent Variable



Methodology

Descriptive research design was embraced on the grounds that the study involves inspiring conclusions. This study relied on secondary data to investigate the association among the independent and dependent variable. The dependent factor was the performance of Securities as measured by market capitalization while the independent variables was macro-economic variables such as money supply, economic growth, inflation rates and exchange rates. This data was sourced from different sources inclusive of the IMF website, the Central Bank of Kenya website, the World Bank Website and the Securities Exchanges in East Africa namely Nairobi Securities Exchange, Uganda Securities Exchange, Rwanda Securities Exchange and Dar es Salaam Stock Exchange. The period of the study was from 2013 to 2017.

Analytical Model

The effect of selected macro-economic variables on the performance of securities exchanges in the East African Community was modeled using the following equation to obtain the estimates;

$$Y = \beta_0 + \beta_1x_1 + \beta_2x_2 + \beta_3x_3 + \beta_4x_4 + \beta_5x_5 + e$$

Where Y is the performance of the securities as measured by market capitalization, β_0 is the free term of the equation $\beta_1, \beta_2, \beta_3, \beta_4$ and β_5 are the coefficients of independent variables and they measure the responsiveness of Y to unit change in variable x.

x_1 = Economic growth= natural logarithm of GDP

x_2 = Rate of inflation = consumer price index

x_3 = Exchange rate

x_4 = Money supply=total quantity of money circulating in an economy

x_5 = Interest rates=average lending rates

e = the error term

Results and Discussions

The independent variables analyzed here included the economic growth, interest rates, inflation rates, money supply and exchange rates while the dependent variable was market capitalization.

The maximum values, minimum values, means and the standard deviations of the variables under study were tabulated as shown below

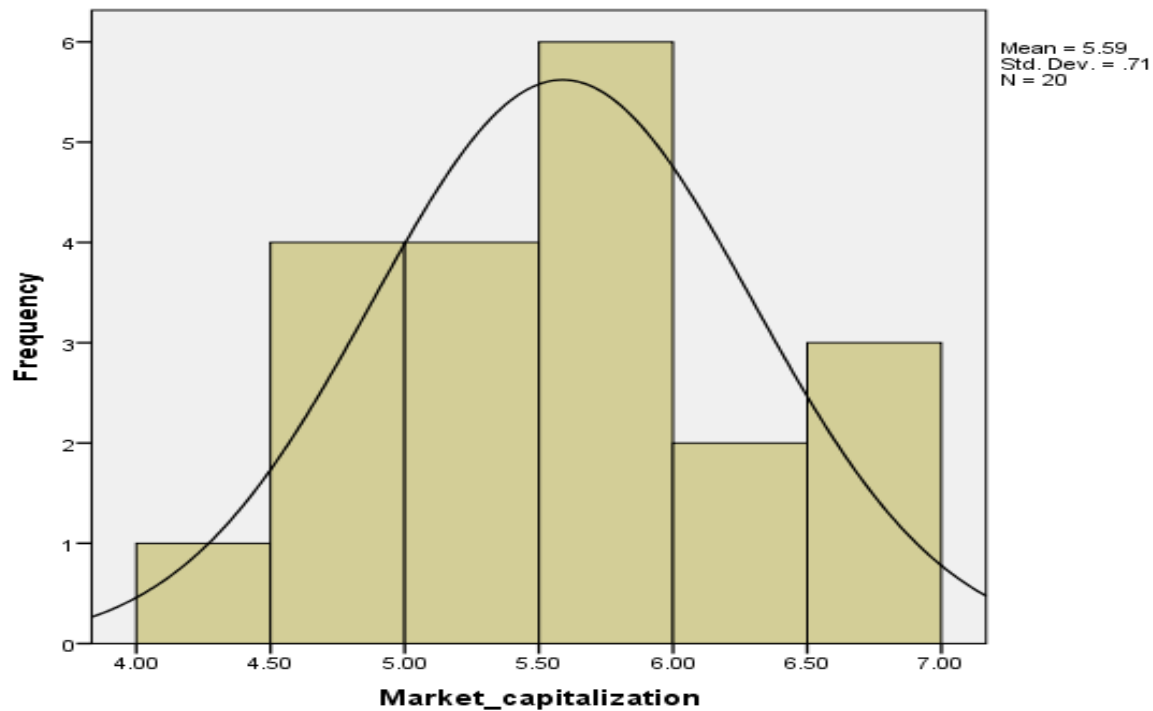
Table 1: Maximum values, Minimum values, Means and Standard deviations

	N	Minimum	Maximum	Mean	Std. Deviation
GDP	20	2.30	8.90	5.8450	1.42920
Inflation rate	20	1.80	8.00	5.3650	1.57489
Money supply	20	9.50	18.80	12.2150	4.35156
Interest rates	20	13.67	23.89	18.0985	2.83391
Exchange rates	20	4.46	8.19	6.6984	1.37580
Market capitalization	20	4.43	6.87	5.5881	.70993

From the findings, the minimum value of GDP was 2.30 the maximum number was 8.90, the mean was 5.8450 and the standard deviation was 1.42920 which shows a large variations. The minimum inflation rate was 1.80, the maximum value was 8.00, the mean was 5.3650 and the standard deviation was 1.57489 which indicated large variation in the inflation rate. The minimum money supply value was 9.50, the maximum value was 18.80, the mean was 12.2150 and the standard deviation was 4.35156 which indicate the large variations. The minimum value for interest rate was 13.67, maximum value 23.89, mean 18.0985 and standard deviation 2.83391 which implied large variations in interest rates. The minimum value of exchange rate was 4.46, the maximum value was 8.19 the mean was 6.6984 and the standard deviation was 1.37580 which shows large variations. Finally, the minimum value of market capitalization was 4.43, the maximum value was 6.87 the mean was 5.5881 and the standard deviation was 0.70993 which shows minimal variations.

Diagnostic Statistics

The histogram below represents distribution of the secondary data which was used in the analysis.



Tests for normality

Initial data assessment to find out if it has a normal distribution was done. There was no departure from an assumption of normality that was extreme as indicated by the measures as shown in table 2. Therefore this confirmed the data was suitable for analysis by the use of parametric tests.

Table 2: Tests for normality

Scale	N	Skewness		Kurtosis	
		Statistic	Std. Error	Statistic	Std. Error
GDP	20	-0.242	0.512	1.236	0.992
Rate of inflation	20	-0.611	0.512	0.638	0.992
Money supply	20	0.490	0.512	-0.240	0.992
Rates of interest	20	-2.075	0.512	2.674	0.992
Exchange rates	20	0.764	0.512	-0.999	0.992
Market capitalization	20	0.253	0.512	-0.652	0.992

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Correlation Analysis

Table 3: Correlation Matrix

		GDP	Inflation rate	Money supply	Interest rate	Exchange rate	Market capitalization
GDP	Pearson	1					
	Correlation						
	Sig.(2-tailed)						
	N	20					
Inflation rate	Pearson	-0.247	1				
	Correlation						
	Sig. (2-tailed)	0.294					
	N	20	20				
Money supply	Pearson	0.237	-0.372	1			
	Correlation						
	Sig. (2-tailed)	0.314	0.106				
	N	20	20	20			
Interest rate	Pearson	-0.568	-0.319	-0.001	1		
	Correlation						
	Sig. (2-tailed)	0.009	0.170	0.998			
	N	20	20	20	20		
Exchange rate	Pearson	-0.045	-0.343	-0.022	0.610	1	
	Correlation						
	Sig. (2-tailed)	0.850	0.139	0.926	0.004		
	N	20	20	20	20	20	
Market capitalizati on	Pearson	-0.395	0.590	-0.204	-0.052	-0.518	1
	Correlation						
	Sig. (2-tailed)	0.085	0.006	0.388	0.827	0.019	
	N	20	20	20	20	20	20

From the table above, a negative relationship exists between GDP and market capitalization however the relationship is not significant. The correlation coefficient was -0.395 and the p-value was 0.085 which is greater than 0.05. The findings showed further that inflation rate is positively related to market capitalization. The relationship was considerable because the p-value was 0.006 which is less than 0.05. Money supply is negatively related to market capitalization. The correlation coefficient was -0.204 and the p-value was 0.388 which is greater than 0.05 implying the relationship is not significant. The rates of exchange is negatively related to market capitalization. The correlation coefficient was -0.518 and the p-value was 0.019 which is less than 0.05.

Regression Analysis

Table 4: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.790	0.624	0.489	0.50725

The value of the correlation coefficient was confirmed to be 0.790, adjusted R square was confirmed to be 0.489 this implies that 48.9% of the influence of selected macroeconomic variables is explained by the model.

Table 5 Summary of One-Way ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5.974	5	1.195	4.643	0.010
	Residual	3.602	14	0.257		
	Total	9.576	19			

The outcome of ANOVA confirmed the value of F statistic of 4.643 at 5% significance level and the statistic was significant since the P-value was 0.010 which is less than 0.05 implying that the overall model was significant.

Table 6: Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients		Sig.
		B	Std. Error	Beta	t	
1	(Constant)	4.298	2.120		2.028	0.062
	GDP	0.001	0.133	0.002	0.008	0.994
	Inflation rate	0.235	0.098	0.521	2.406	0.030
	Money supply	-0.004	0.030	-0.025	-0.138	0.893
	Interest rate	0.129	0.081	0.515	1.584	0.136
	Exchange rate	-0.338	0.123	-0.654	-2.752	0.016

Regression of the variables confirmed that a unit increase in GDP would lead to a market capitalization increase by 0.001. A unit increase in inflation rate would lead to an increase in market capitalization by 0.235. A unit increase in money supply would lead to market capitalization decrease by 0.004. A unit increase in exchange rate would lead to a decrease in market capitalization by 0.338. The inflation rates along with exchange rates were confirmed to be statistically considerable whilst GDP, money supply and interest rates were not statistically significant.

The standardized beta coefficient of GDP was 0.002 meaning a small positive effect of the GDP on the market capitalization. The standardized beta coefficient of inflation rate was 0.521 which means that inflation rate has a positive impact on the market capitalization. The standardized beta coefficient of money supply was -0.025 which implies that money supply has a strong influence on the market capitalization. The standardized beta coefficient of interest rate was 0.515 indicating a moderate effect on market capitalization.

Conclusions

A change in return rates impacts the share trading system performance since investors have the data. High changes consequently rate implied high improvements of market return unsteadiness. Inflation was confirmed as pivotal in the performance of the securities exchanges. Inflation

increases competitiveness, thus increasing the economic growth which in turn leads to performance of securities exchanges. The results are supported by the Keynesian Economics Theory which confirmed that when aggregate demand increase, it causes an increase in economic growth.

Rate of interest have a positive association with market capitalization. As the interest rate in East African Community increases, investors find that it is alluring to put resources into East African Community exchanges, at that point the capital accessible for growth of East African Community will increase and this prompt increment in efficiency and monetary development. In this manner, interest rates increase is trailed by higher growth and monetary development.

GDP also showed a direct relationship with market capitalization. This indicates that an increase in the quantity of goods and services produced within an economic bloc indicates availability of more resources for investments. This draws more investors in the region which create more goods and services creating surplus. The surplus is exported to external markets increasing the value of domestic country. Increase in value of domestic country boosts the performance of the stock exchanges.

Recommendations

Low stock market turnover indicates presence of more opportunities for investors in the East Africa stock exchange. Hence, policies aimed at attracting both local and foreign investors should be developed and implemented by policy makers. For instance, policy makers can carry out awareness campaigns on investment opportunities in the stock market and tax concessions.

The study recommends that policy makers formulate policies which are geared towards the stabilization of inflation rates and interest rates as well as exchange rates which will in turn promote foreign trade in the East African Community.

The East Africa community governments should formulate policies which will stabilize the macroeconomic variables so as to attract more investors. Confidence in the system has more impact on attracting new investors as compared to the policy interests. The performance of stock markets is also affected by unforeseen events and performance of individual firms. The managers

of the firms investing in stock market should also make decisions aimed at enhancing their performance.

This study concentrated on impact of macroeconomic factors to the securities exchange performance. Therefore, there is need for future researchers to carryout studies incorporating other factors such as industry specific factors, political stability, institutional factors which may have adverse effects on performance of stocks.

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