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Intervening Effect Of Foreign Portfolio Investment On The Relationship Between Macroeconomic Factors And Stock Return Of Firms Listed At The Securities Exchanges In East Africa

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Abstract

This study examined the intervening effect of foreign portfolio investment on the relationship between macroeconomic factors and stock return of firms listed at the Securities Exchanges in East Africa over the period 2016 - 2020. The macro-economic variables were foreign exchange rate, gross domestic product, interest rate and inflation rate. Regression analysis was used to examine the relationship between the variables. The results showed that foreign portfolio investment positively and significantly affect stock returns and intervenes the relationship between macro environment and stock returns. Policies should thus be put in place to ensure a conducive macro environment in order to attract foreign investment and ensure high stock returns. We recommend that regulators and other stakeholders should establish macro prudential strategies that can attract foreign portfolio investment and boost the stock returns. We also suggest that future research may focus on data from developed and developing countries to compare and contrast the effect of macro prudential policies adopted in the various countries and its effects on foreign portfolio investment and stock returns.

Keywords: Macroeconomic, foreign portfolio investment, Rate, Gross Domestic, Foreign Exchange Product, Interest Rate, Inflation Rate, Stock Returns

1. Introduction

Security market is an institution that deals with the exchange of securities issued by publicly quoted companies and the government. The market is a crucial institution in an economy as it greatly determines and indicates the performance of an economy. The market plays a key role in the mobilization of capital in a country, leading to the growth of industry and commerce. As an economic institution, security market enhances the efficiency of capital formation and allocation. Thus the overall development of the economy is a function of how well the stock performs (Kirui, Wawire & Onono, 2014). Uncertainty in stock return has been a major concern in the financial sector globally. This is because any change in the stock return has significant effects on the stability of the economy and financial sector performance. If volatility levels go beyond a certain threshold, there is increase in the risk of investor losses leading to rise in concerns about the stability of the market as well as the wider economy (Zhang & Pan, 2018).

1.1 Macro-economic factors

Macroeconomic factors are those economic fundamentals which have the potential of affecting the performance of the country's economy. Akers & Mbiti (2010) defines macroeconomics as a branch of economics dealing with the performance, structure, behaviour and decision-making of an economy as a whole, rather than individual markets. This includes national, regional and global economies. The macroeconomics factors include Gross Domestic Product (GDP), foreign exchange rate, interest rate and inflation rate (Banda, 2018). In portfolio risk analysis, Macroeconomic factors constitute the component of unsystematic risks since they are not firm specific; hence they cannot be diversified by combing a number of investment securities in a portfolio (Kitatia, Zablonb & Maithya, 2015).

Interest rate is one of the important macroeconomic factors directly related to economic growth. Generally, interest rate is considered as a measure of the cost of capital. John (2019) revealed that the influence of long-term interest rate on stock prices and by extension stock return stems directly from the present value model. In this model, interest rate is used as a discount rate for future income streams of an asset in determining the value of the asset. Jawad and Ulhaq (2012) indicated that interest rate has a more direct effect on financial market. An increase in interest rate causes investors to make a change in the structure of their investment generally from capital market to fixed income securities.

Inflation is a sustained increase in the general price level of goods and services in an economy over a period of time. When the general price level rises, each unit of currency buys fewer goods and services. Consequently, inflation reflects a reduction in the purchasing power per unit of money (Macharia, 2018). Inflation affects economies in various positive and negative ways. The negative effects of inflation include an increase in the opportunity cost of holding money, uncertainty over future inflation which may discourage investment and savings, and if inflation were rapid enough, shortages of goods as consumers begin hoarding out of concern that prices will increase in future. Positive effects include reducing unemployment due to nominal wage rigidity, allowing the central bank more leeway in carrying out monetary policy, encouraging loans and investment instead of

money hoarding, and avoiding the inefficiencies associated with deflation (Nidhiprabha, 2018). The loss of purchasing power impacts the general cost of living for the common public which ultimately leads to a deceleration in economic growth. A high inflation rate raises the cost of living and results to a shift of resources from investments to consumption (Khan, 2019).

GDP is a measure of the market value of all final goods and services produced within a country in a given period. Rahman, Sidek, and Fauziah (2009), indicated that the level of real economic activity is a critical factor in determining stock returns. The most popular measure of real economic activity is the GDP. There is a general consensus that an increase in GDP causes stock returns to increase (Eita, 2012). Campbell, Lettau, Malkiel, and Xu (2011) suggest that stock returns have a significant predictive power for real GDP growth. The stock market affects GDP primarily by influencing financial conditions and consumer confidence. When stocks are in a bull market, there tends to be a great deal of optimism surrounding the economy and the prospects of various stocks

1.2 Foreign Portfolio Investment

Foreign portfolio investment (FPI) consists of securities and other fiscal resources inactively held by alien investors. FPI does not provide the investor with direct ownership of financial assets, and thus no direct management of a company. This kind of investment is relatively liquid, depending on the volatility of the market invested in as is usually used by investors who do not want to manage a firm abroad. FPI is an important source of investment inflows to an economy. FPI investors usually make short-term investments in domestic security of foreign country with expectation of earning return on it after weighing the expected risk (Rashid & Khalid 2017).

Foreign portfolio investment is considered as one of the important segment of growth enhancing strategies, particularly in less developed and emerging countries. It is a vital source of fund to finance investments in countries having large saving-investment disparities (Gathenya 2015). It escalates the liquidity of firms, facilitates better foreign reserves and increases the value of portfolio. It also encourages the existing business firms to enlarge their business by issuance of new securities. Indeed, the enhancement of efficiency due to internationalization leads to lower costs of capital in the host economy which may in turn influence security returns.

1.3 Securities Exchanges in East Africa

The role of security exchange is to mobilize capital to support productive investment programs by firms, diversifying investors' risks, improving the allocation of funds and improve the management of firms through corporate governance standards (Shaukat & Raisi, 2017). Securities markets in East Africa have so far not attracted a significant proportion of the global capital inflows due to challenges like political instability exposure and weak capital base (Mwangi, 2016). Currently, East Africa has four operational stock exchanges; the NSE, RSE, DSE, USE in Kenya, Rwanda, Tanzania and Uganda respectively. A total of 116 companies are listed on the four exchanges; 64 on the NSE, 7 on the RSE, 28 on the DSE and 17 on the USE.

The East African Securities Exchanges Association (EASEA) came into being in 2004, following the signing of a Memorandum of Understanding between the DSE, the USE and the NSE (African Securities Exchanges Association (ASEA), 2009). The key objective of EASEA is to oversee the creation of single or integrated and efficient market infrastructure, from the current disenfranchised markets, compatible with other markets globally

2. Theoretical Literature Review

This study adopted The Neoclassical Theory of Investments advanced by Cockcroft and Riddell, (1991). The theory asserts that the future investments flows are directly related to the package of incentives, which influence the expected rate of return; the security of the investments; the scope and speed with which companies are able to disinvest. The tax regime; investments code or guidelines; and overall macroeconomic policies are all elements affecting FPI.

The theory also explains that FPI influences income growth by increasing the amount of capital per person. It spurs long-run growth through such variables as research and development (R&D) and human capital. Through technology transfer to their affiliates and technological spill overs to unaffiliated firms in the host economy, investors can speed up the development of new intermediate product varieties, raise product quality, facilitate international collaboration on R&D, and introduce new forms of human capital (Abimbola & Dele, 2015). This theory is relevant to this study as it explains how macro-economic factors influence foreign investors when making investment decisions and how FPI inflow spurs growth in an economy and stock return.

3. Literature Review

Macroeconomic factors are major factors that influence financial performance of a firm. However, various studies found conflicting results as to the effect of the macro-economic factors on the performance of stock return. Barasa (2014) found that there is a weak positive relationship between macro-economic factors (inflation, money supply and GDP) and stock market performance. This study contradicted another study by Mumo, (2017) which found that a negative relationship exists between money supply and stock prices whereas a positive relationship exists between exchange rates, interest rates and stock prices. A study by Kirui et al (2014) found that GDP, Inflation and the Treasury bill rate has insignificant relationships. The findings are supported by another study by Hassan and El Gezery (2010) which showed that the stock market index responded positively to inflation but the coefficient was insignificant. Another study by Ochieng and Adhiambo (2012) established that inflation has a weak positive relationship with the NASI. However, these findings are contradicted by a study by Ouma and Muriu (2014) which found that money supply and inflation are significant determinants of the returns at NSE. Gatuhi (2015) also found that the relationship between the macroeconomic factors and stock market performance were either positive or negative depending on the sector the firm operates

Macroeconomic factors play a crucial role in attracting foreign investment to a country. A study by Tripathi, Seth and Bhandari (2015) found that macroeconomic factors except Exchange rate significantly affect FPI inflows. Waqas, Hashmi and Nazir (2015) found that there exists significant relationship between macroeconomic factors and FPI volatility. Thus, less volatility in international portfolio flows is associated with high interest rate, currency depreciation, lower inflation, and higher GDP growth rate of the host country.

The findings suggest that foreign investors focus on stable macroeconomic environment. The flow of foreign investment may occur through various ways which include investment in stock market which in turn influence the stock returns. A study by Malik and Amjad (2013) found that FPI had a positive impact on the Pakistani stock market. Another study by Sekhri and Haque (2015), found a strong positive correlation between FPI stock market of India.

4. Methodology

4.1 Research Design

The study adopted longitudinal research design. This design was appropriate because it allowed collection and analysis of data over several individuals and several time periods. Similar studies by Civilize (2015) and Banda (2018) adopted this research design successfully.

4.2 Target Population

Target population comprised all the ninety-six (97) listed companies in the NSE, RSE, DSE and USE which have traded for five consecutive years as at 31st December 2019. A census of all the companies which have traded in the East Africa Security Exchange in the year 2015 to 2019 was carried out.

4.3 Data Collection Instruments

The study used secondary data for five years ranging from year 2015 up to 2019. The data was obtained from reports published by the Central Banks and Capital Market Authorities of the respective countries under the study.

4.4 Operationalization and Measurement of Study Variables.

The study variables were grouped into three categories which include dependent, independent and intervening variable.

Table 1 provides details of how the study variables were translated into measurable factors and their operationalization**.**

Variable	Type of variables	Indicators	Measurement

Stock Return	Dependent	Holding period return	$\frac{Dividend+(P_1-P_0)}{P_0}$
Foreign Exchange Rate	Independent	Prevailing exchange rate at the end of the year	X to US dollar rate
Interest Rate	Independent	91 day Treasury bill (T bill) rate	Annual average of 91 day Treasury bill (T bill) rate
Inflation Rate	Independent	Consumer Price Index	$\frac{CPI_1-CPI_0}{CPI_0}$ *100
GDP	Independent	GDP growth rate	$\frac{GDP_1-GDP_0}{GDP_0}$
Foreign portfolio investment	Intervening	Percentage of shares turnover to foreign investors.	$\frac{\text{Shares turnover to foreign investors}}{\text{Total shares turnover}}$

Where
P_1 – is the price of share at the end of the year
P_0 – is the price of share at the beginning of the year
X – Is the currency of the respective Country
CPI_1 – is consumer price index at the end of the year
CPI_1 – is consumer price index at the beginning of the year
GDP_1 – Is the gross domestic product at the end of the year
GDP_0 – Is the gross domestic product at the beginning of the year
V_1 – Is the No. of shares * price as at the end of the year
V_0 - Is the No. of shares * price as at the beginning of the year

4.5 Data Processing and Analysis
Data was analyzed using both descriptive statistics (frequencies distributions, means, and standard deviations) and inferential statistics (correlation analysis, analysis of variances and regression). Karl Pearson's correlation helped in measuring the degree of association between different variables under consideration. Multiple regression analysis was used to estimate the relationship among the variables.

$$Y_{it} = \beta_0 + \beta_1 X_{1t} + \beta_2 X_{2t} + \beta_3 X_{3t} + \beta_4 X_{4t} + \beta_5 X_{5it} + \beta_6 X_{6it} + \beta_7 X_{7it} + \beta_8 X_{8it} + X_9 + \varepsilon \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots .3.1$$

Where
Y = Stock Return
t = 1,……….,5 years

i = 1, ……..,97 firms
β_0 = regression constant
β_1 …. β_4 are the coefficients for the various independent variables
β_5 …. β_8 are the coefficients for the various control variables
X_1 = Exchange rate, X_2 = Inflation, X_3 = Interest rate & X_4 = GDP growth
ε_i = Error term which is assumed to be normally distributed

To evaluate the intervening effect of FPI behavior on the relationship between macroeconomic variables and stock return of companies listed at the Nairobi Securities Exchange, four steps linear regression analysis was done.

The first step was to assess the relationship between dependent and independent variables as per equation 3.2.

$$Y_{it} = \beta_{01} + \beta_1 X_{1t} + \varepsilon_{1it} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots 3.2$$

Where
Y_{it} = is the dependent variable, X_{1t} = Composite ratio of macroeconomic factors computed as a geometric mean of the attributes of macroeconomic factors, β_1 = is the coefficient and β_{01} = is the constant

The second step was to assess the relationship between intervening variable and independent variables as per equation 3.3.

$$X_{2t} = \beta_{02} + \beta_2 X_{1t} + \varepsilon_{2it} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots .. 3.3$$

Where
X_{2t} = FPI, X_{1t} = is Composite ratio of macroeconomic factors as defined in step one, β_2 is the coefficient and β_{02} is the constant.
Step three was to assess the relationship between the intervening variable and the dependent variable as per equation 3.4.

$$Y_{it} = \beta_{03} + \beta_3 X_{3it} + \varepsilon_{3it} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots . \dots\dots\dots\dots .. 3.4$$

Where
Y_{it} = is the dependent variable, X_{3it} = is the composite ratio of investors herd behaviour as defined in step two, β_3 is the coefficient and β_{03} is the constant
Step four was to assess the relationship between dependent variable, intervening variable and independent variable as per equation 3.5.

$$Y_{it} = \beta_{04} + \beta_4 X_{1it} + \beta_5 X_{2it} + \varepsilon_{4it} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots . \dots\dots\dots\dots . \dots\dots\dots .. 3.5$$

Where
Y_{it} = is the dependent variable, X_{1it} and X_{2it} are composite ratios of macroeconomic factors and FPI respectively as defined in step one and two above, β_4 and β_5 = coefficients.

Intervention occurs if macro-economic factors predicts stock returns (β_1 is statistically significant), macro-economic factors predict foreign portfolio investment (β_2 is statistically significant), foreign portfolio investment predicts stock performance (β_3 is statistically significant) and still macro-economic factors predicts stock performance when foreign portfolio investment is in the model (β_4 is statistically significant).

5. Results and Discussion

6.1 Descriptive Statistics

The descriptive results of macro-economic factors and stock performance are presented in Table 2. The results indicate that the stock return was between -8.28 and 7.37 with a mean of 3.06.

The results suggest that majority of the firms listed in the East Africa Security Exchanges registered positive returns whereas some registered negative returns during the period under study. Foreign exchange rate was between 101 and 3713 with a mean of 1185. This implied that there has been different exchange rates and thus foreign exchange rate volatility is experienced in East Africa. The results also indicate that gross domestic product was between 0.10 and 8.70 with an average of 5.21. The results also confirm the GDP has been fluctuating. The Inflation rate was between 0.01 and 1.28 with an average of 0.26. This implied that the countries experience cases of inflation and the rate also fluctuates. The results also indicate that interest rate was between 4 and 20 with a mean of 9.30. This suggested that the countries experience changes in rate of interest from as low as 4 to as high as 20.

Foreign portfolio investment ranged between 0.62 to 0.88 with a mean of 0.76. this implies that the countries attract foreign investment and the amount is more than the investment made by the local investors.

Table 2: Descriptive Statistics

Variable	Indicator	Mean	Maximum	Minimum	Std. Dev.	Observations
Dependent	Stock Return	3.06	7.37	-8.28	1.90	480
Independent	Foreign Exchange Rate	1185	3713	101	1363	480
Independent	Gross Domestic Product	5.21	8.70	0.10	0.016	480
Independent	Inflation Rate	0.26	1.28	0.01	0.29	480
Independent	Interest Rate	9.32	20	4.0	2.80	480
Intervening	Foreign Portfolio investment	0.76	0.88	0.62	0.08	480

Control	Leverage	1.8	12.2	0.01	1.66	480
Control	Size	5.83	8.99	2.71	2.31	480

6.2 Correlation Analysis

The correlation results in Table 3 shows that the correlation between stock returns and foreign exchange rate is negative and significant (r = -0.1141, p-value < 0.01). The results imply that when the foreign exchange rate increases, the stock returns decreases. The findings also show that the correlation between stock returns and gross domestic product is positive and significant (r = 0.1579, p-value < 0.01). The findings suggest that an increase in gross domestic product leads to an increase in stock returns.

The correlation between stock return and inflation rate is negative but not significant (r = -0.0709, p-value > 0.01). The finding implies that an increase in inflation rate results to a decrease in stock returns. The findings also show that the correlation between interest rate and stock return is negative and significant (r = -2788, p-value < 0.01). The results imply that an increase in interest rate results to decrease in stock returns. The correlation between stock return and size of the firm is positive and significant (r = 0.325, p-value < 0.01). The findings suggest that when the size of a firm increases the stock returns increase.
The correlation between stock returns and leverage was negative and significant (r = -0.082, p-value < 0.01). The findings imply that increasing leverage of a firm results to decrease in stock returns. The correlation between foreign portfolio investment and stock returns is positive and significant (r = 0.2135, p-value < 0.01). This implies that an increase in foreign investment results to an increase in stock returns. The results of the correlation matrix also indicate that the correlation between the variables is below 0.80. The results suggest that there was no multi-collinearity problem. When the correlation between variables exceeds 0.80, then there may be a problem of multi-collinearity (Gujarati,1995).

Table 3. Pearson Correlation Matrix

VARIABLE	INDICATOR	SR	FER	GDP	INR	IR	SIZE	LEV
Dependent	**Stock Return (SR)**	1.0000						

Independent	**Foreign Exchange Rate (FER)**	-0.1141**	1.0000					
		0.000	-----					
Independent	**Gross Domestic Product (GDP)**	0.1579**	-0.039	1.0000				

		0.000	0.383	-----					
Independent	**Inflation Rate (INR)**	-0.0709	0.285**	-0.133**	1.0000				
		0.1205	0.000	0.003	-----				
Independent	**Interest Rate (IR)**	-0.2788**	0.086	0.307**	0.014	1.0000			
		0.000	0.057	0.000	0.759	-----			
Control	**Firm Size (SIZE)**	0.325**	0.088**	-0.339**	0.354**	-0.182**	1.0000		
		0.000	0.000	0.000	0.000	0.000	-----		
Control	**Leverage (LEV)**	-0.082**	0.109*	0.121**	0.058	0.125**	-0.041	1.0000	
		0.000	0.016	0.007	0.199	0.005	0.364	-----	
Intervening	**Foreign Portfolio Investment (FPI)**	0.2135**	0.0836**	-0.3032**	0.0955*	-0.1352**	0.0858**	0.0312	1.0000
		0.0000	0.0000	0.0000	0.0364	0.0030	0.0000	0.4948	-----

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

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

6.3 Regression Analysis

Multiple regression analysis was used to estimate the relationship among the variables. To evaluate the intervening effect of FPI behavior on the relationship between macroeconomic variables and stock return of companies listed at the Nairobi Securities Exchange, four steps linear regression analysis was done. The first step was to assess the relationship between dependent and independent variables. The regression results in Table 7 indicate that foreign exchange rate negatively and significantly affects stock returns ($\beta = -0.003201$, $p < 0.5$). The findings imply that when the foreign exchange rate of a country increases, it negatively affects stock performance and thus the returns of stocks decrease. The results were in agreement with the findings by (Pilinkus & Boguslauskas, 2009; Subburayan & Srinivasan, 2014; Ibrahim & Musah, 2014).

The results also showed that gross domestic product positively and significantly affects stock returns ($\beta = 0.27$, $p < 0.5$). The findings imply that when gross domestic product increases, stock returns increase. The results were consistent with the recommendation of other studies (Humpe & Macmilllan, 2009; Tripathy, 2011; Issakhu et al., 2013, Ho, 2017; lee & Brahmasrene, 2018). The

results also show that inflation rate negatively and significantly affects stock returns (β = -1.09, p < 0.5). The findings suggest that when inflation increases in a country it results in decrease in stock returns. The findings support the findings of other studies (Humpe & Macmilllan, 2009; Tripathy, 2011; Issakhu et al., 2013, Ho, 2017; lee & Brahmasrene, 2018).

The results also show that interest rate negatively and significantly affects stock performance (β = -0.13, p < 0.5). The results imply that when the rate of interest increases in a country, stock returns decrease. The findings were consistent with the results by (Asprem, 1989; Mukherjee, 1995; Kandir, 2008; Humpe & Macmilllan, 2009; Tripathy, 2011, Ajaz et al., 2017, Chang and Rajput, 2018). High interest rates may slow down an economy while on the other hand low interest rates may stimulate an economy (Egbune & Okerekeoti, 2018). The results also confirm that all the macro-economic factors predict stock returns as all their beta coefficients are statistically significant.

Table 7: Regression Results

Variable	Indicator	Coefficient	Std. Error	t-Statistic	Prob.
Constant	C	5.542677	1.725016	3.213117	0.0014
Independent	Foreign Exchange Rate	-0.003201	0.000652	-4.907699	0.0000
Independent	Gross Domestic Product	0.276239	0.058381	4.731633	0.0000
Independent	Inflation Rate	-1.092566	0.147547	-7.404871	0.0000
Independent	Interest Rate	-0.136044	0.026558	-5.122599	0.0000
	R^2	0.874			
	Adjusted R^2	0.840			
	F statistic	0.000			

Dependent variable is Stock Returns.

The second step was to assess the relationship between the intervening variable and the independent variables. The regression results in Table 8 indicate that foreign exchange rate positively and significantly affects foreign portfolio investment (β = 0.0000354, p < 0.5). The findings imply that when the foreign exchange rate of a country increases, it positively affects foreign portfolio investment.

The results also showed that gross domestic product negatively and significantly affects foreign portfolio investments (β = -0.013256, p < 0.5). The findings imply that when gross domestic product decrease, foreign portfolio investment decrease. The results also show that inflation rate negatively and significantly affects foreign portfolio investment (β = -0.059922, p < 0.5). The results also show that interest rate negatively and significantly affects foreign portfolio investment (β -0.002070, p < 0.5). The results imply that when the rate of interest increases in a country,

foreign portfolio investment decrease. The findings also imply that macro-economic factors predict foreign portfolio investment.

Table 8: Regression Results

Variable	Indicator	Coefficient	Std. Error	t-Statistic	Prob.
Constant	C	0.698654	0.019891	35.12373	0.0000
Independent	Foreign Exchange Rate	0.0000354	0.00000351	10.08834	0.0000
Independent	Gross Domestic Product	-0.013256	0.001884	-7.035342	0.0000
Independent	Inflation Rate	-0.059922	0.005642	-10.62138	0.0000
Independent	Interest Rate	-0.002070	0.000660	-3.135226	0.0018
Control	Leverage	0.011657	0.002225	5.238425	0.0000
Control	Size	0.001108	0.000972	1.140118	0.2548
	R^2	0.830			
	Adjusted R^2	0.820			
	F statistic	0.000			

Dependent variable is Foreign portfolio investment.

Step three was to assess the relationship between the intervening variable and the dependent. The results in Table 9 indicates that foreign portfolio investment positively affect stock returns (β = -5.646287, $p < 0.5$). The results imply that an increase in foreign portfolio investment results to increase in stock returns. The results also suggest that foreign portfolio investment predicts stock performance.

Table 9: Regression Results

Variable	Indicator	Coefficient	Std. Error	t-Statistic	Prob.
Constant	C	-0.919351	1.147851	-0.800932	0.4237
Intervening	Foreign portfolio investment	5.646287	1.623346	3.478178	0.0006
	R^2	0.610			
	Adjusted R^2	0.510			
	F statistic	0.000			

Dependent variable is Stock Returns.

The fourth step was to assess the relationship between dependent variable, intervening variable and independent variable. The results in Table 10 indicates that foreign exchange rate negatively and significantly affects stock returns (β = -0.003206, $p < 0.5$) while gross domestic product positively and significantly affects stock returns (β = 0.267555, $p < 0.5$). The results also show that inflation

rate negatively and significantly affects stock returns (β = -1.141176, $p < 0.5$) while interest rate negatively and significantly affects stock performance (β = -0.139002, $p < 0.5$).
The findings also indicate that foreign portfolio investment positively and significantly affect stock returns (β = 0.815983, $p < 0.5$). The results also imply that macro-economic factors predicts stock performance when foreign portfolio investment is in the model.

Table 10: Regression Results

Variable	Indicator	Coefficient	Std. Error	t-Statistic	Prob.
Constant	C	6.179774	1.934826	3.193969	0.0015
Independent	Foreign Exchange Rate	-0.003206	0.000653	-4.911881	0.0000
Independent	Gross Domestic Product	0.267555	0.059620	4.487652	0.0000
Independent	Inflation Rate	-1.141176	0.162006	-7.044045	0.0000
Independent	Interest Rate	-0.139002	0.026882	-5.170770	0.0000
Intervening	Foreign portfolio investment	0.815983	1.119625	-0.728800	0.0006
Control	Leverage	-0.823461	0.033741	-24.40535	0.0000
Control	Size	0.507071	0.225612	2.247539	0.0252
	R^2	0.870			
	Adjusted R^2	0.840			
	F statistic	0.000			

Dependent variable is Stock Returns.

The findings indicate that all the macro-economic factors predict stock returns as all their beta coefficients are statistically significant in step one. The findings also indicate that macro-economic factors predict foreign portfolio investment as indicated in step two while foreign portfolio investment predicts stock performance as indicated in step three and still macro-economic factors predicts stock performance when foreign portfolio investment is in the model as indicated in step four. Therefore, the results for all the steps suggest that foreign portfolio investment intervenes the relationship between macroeconomic variable and stock returns.

7. Summary and Conclusion

This study investigated the relationship between macro-economic variables and stock returns of 96 Firms listed in East Africa Securities Exchanges. The macro-economic variables were foreign exchange rate, gross domestic product, interest rate and inflation rate. Regression analysis was used to examine the relationship between the variables.

The results showed that foreign exchange rate negatively and significantly affects stock returns. The findings suggest that when the foreign exchange rate of a country increases, it negatively affects stock performance and thus the returns of stocks decrease. Policies should thus be put in place to ensure foreign exchange rate is kept constant or lower in order to attract investors and enhance stock returns.

The results also showed that gross domestic product positively and significantly affects stock returns. The findings imply that when gross domestic product of a country increases, stock returns increase. Policies should be put in place that ensure growth in gross domestic product in order to enhance stock returns. The results also show that inflation rate negatively and significantly affects stock returns. The findings suggest that when inflation increases in a country it results in decrease in stock returns. Policies should thus be established to curb inflation and enhance stock returns. The results also show that interest rate negatively and significantly affects stock returns. The results imply that when the rate of interest increases in a country, stock returns decrease. Policies that ensure low interest rates should be put in place in order to boost stock returns. The results also showed that foreign portfolio investment positively and significantly affect stock returns and intervenes the relationship between macro environment and stock returns. Policies should thus be put in place to ensure a conducive macro environment in order to attract foreign investment and ensure high stock returns.

The study recommends that regulators and other stakeholders to establish macro prudential strategies that can attract foreign portfolio investment and boost the stock returns. We suggest that future research may focus on data from developed and developing countries to compare and contrast the effect of macro prudential policies adopted in the various countries and its effects on foreign portfolio investment and stock returns.

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