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On the Macroeconomic Determinants of Foreign Investor Participation in the Nairobi Securities Exchange in Kenya

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ABSTRACT: The participation of foreign investors in a country's securities market plays a crucial role in the growth of any country. Kenya has continued to experience volatility of foreign investor flows leading to instability in the financial market. The study aimed to identify the macroeconomic determinants, which have a significant effect on foreign investor participation in Kenya. Secondary monthly data for the period January 2020 to December 2023 was extracted from the Central Bank of Kenya, Capital Markets Authority, and Kenya National Bureau of Statistics. The multiple regression model with the assistance of SPSS software was employed to analyze data. Findings revealed that the inflation rate, exchange rate, and GDP growth rate had a negative and statistically significant effect on the participation of foreign investors as illustrated by P-values of 0.001, 0.032, and 0.05 respectively, which are less than 0.05. The results inferred that the inflation rate, exchange rate, and GDP growth rate affect the participation of foreign investors at the Nairobi Securities Exchange. Interest rate as measured by the 365-day Treasury bill rate had a positive and statistically insignificant effect on the participation of foreign investors as presented by a P-value of 0.107. The results implied that changes in Treasury bill rates do not affect the participation of foreign investors at the Nairobi Securities Exchange. The notable fluctuations in currency rates and their volatility, along with the impact of inflation on foreign portfolio inflows, underscore the crucial role played by monetary policy. This should be accomplished by stabilizing the value of the Kenyan shilling. Maintaining the stability of the value of the shilling is crucial to boosting the participation of foreign investors.

KEYWORDS: Macroeconomic determinants, foreign investor participation, Nairobi Securities Exchange, Kenya

1. INTRODUCTION

A remarkable amount of foreign capital has been flowing into developing capital markets since the early 1990s when financial market deregulation began (Arcabic, Globan, and Rajaz, 2012). The globalization process has improved connections with mature foreign capital markets and increased the participation of foreign investors in emerging capital markets, which has contributed to the development of stock markets. Since they are based in developed nations where stock market financing is customary, multinational corporations are more likely to join local stock markets, which will contribute to the expansion of the market's size and liquidity (Soumare & Tchana, 2011).

Foreign investors significantly influence the growth of the public equities markets in emerging economies. There are often not enough domestic resources in many emerging and frontier economies to support the expansion and development of domestic public companies. The absence of an institutional investor base and an equity investment culture may prevent domestic capital from entering the local public equities market, even in areas where domestic savings are substantial This lowers the benefits of listing for domestic private companies and could lead to a decline in secondary market activity. To maintain local public companies and encourage the continued growth of local equities exchanges, emerging economies frequently require international investment. Foreign investors provide the local economy with more money and enable local investors to spread their risk among a more diversified group of players. Additionally, foreign investors add liquidity to the secondary market, which helps it flourish, particularly in periods when domestic investors are comparatively less active. In the long run, foreign investors help lower market volatility and enhance price discovery by contributing to the equilibrium between local retail and institutional involvement once a market has developed (Alderighi, 2017).

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The percentage of foreign investor activity in the stock market is measured by foreign investor participation. The Nairobi Securities Exchange measures the amount of stock traded by foreign investors as a proportion of all stock traded in the market within a specific period to gauge their level of participation (CMA, 2017). Following the Exchange Control Act's repeal in December 1995, Kenya's capital market underwent a full liberalization. In essence, direct foreign investor participation in the Nairobi Securities Exchange was made possible by the Exchange Control Act amendment, which guaranteed the total elimination of all exchange controls and permitted foreign investment in government securities (Ngugi & Nyangoro, 2005).

The percentage of foreign investors participating in the Nairobi Securities Exchange market has fluctuated greatly over time, with a low of 5.5% in the first quarter of 2008 and a top of 75% in the fourth quarter of 2018 to a low of 30.1% in March 2023 (CMA, 2023).

Foreign investor participation in Kenya has continued to drop from an average of 64.70% in the year 2020 to an average of 57.09% in the year 2021. It dropped further to an average of 54.20% in the year 2022 and registered a further slump to a minimum average of 44.35 % by the end of the third quarter in 2023 (CMA Quarterly Statistical Bulletin, 2023). Figures 1.1 and 1.2 demonstrate the amount of foreign investor purchases and sales and foreign investor participation at the NSE respectively.

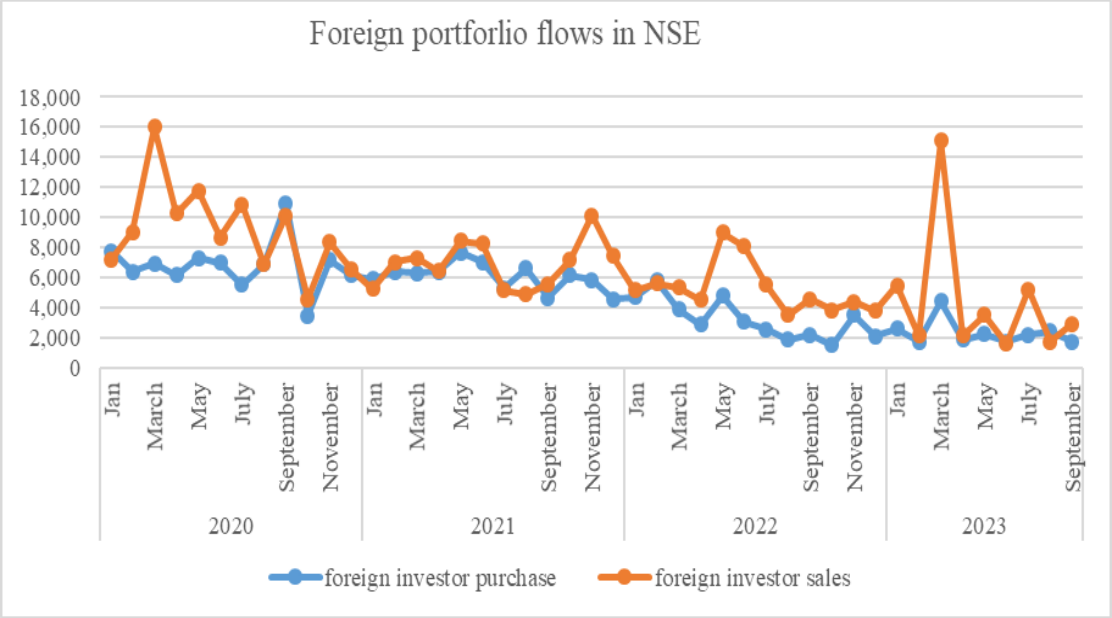

Fig 1.1 Annual trend of foreign investor purchases and sales

Source: CMA Quarterly Statistical Bulletin (2020-2023)

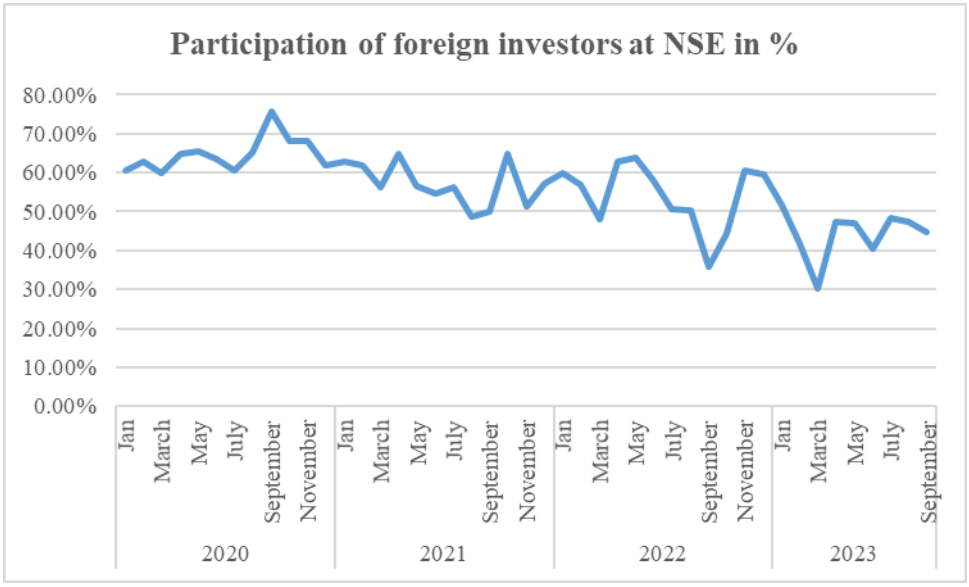

Fig 1.2 Participation of foreign investors at the NSE

Source: CMA Quarterly Statistical Bulletin (2020-2023)

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1.1 Statement of the problem

The inflow of foreign portfolio investments can support economic development by providing a significant source of money for both the public and private sectors. However, disruptions in the foreign portfolio flows can seriously affect nations. Exchange rate misalignment, loan booms, and weaknesses in the banking sector can all result from capital surges. Sudden halts, or abrupt reversals of foreign investor flows, might jeopardize borrowers' access to credit and cause asset prices to fall and currencies to depreciate significantly, thus compromising financial stability and GDP growth (Gelos, Gornicka, Koepke, Sahay, and Sgherri, 2022).

Kenya has persistently experienced foreign investor volatility beyond the post-COVID-19 pandemic. From the end of 2022 to the end of 2023, foreign investors at the Nairobi Securities Exchange (NSE) have been liquidating their portfolio holdings. In the quarter that ended in June 2022, foreign investor outflows from the NSE increased by more than six times to Sh10.8 billion as these investors looked for safer investment opportunities in the face of global uncertainties. Except for a small net inflow in September 2020 and September 2021, foreign investor sales have outpaced foreign investor purchases since March 2020. Overall, the market continued to be in a downward spiral in 2022 and until the end of 2023, underscoring the effects of growing international interest rates as developed nations tighten their monetary policies, the domestic economic environment, and difficulties inherent to individual firms (CMA,2023).

This study endeavors to bridge the gap in the literature by finding out the macroeconomic determinants of foreign investor participation at the Nairobi securities exchange in Kenya.

1.2 Objectives of the study

To identify the macroeconomic determinants of foreign investor participation in the Nairobi securities exchange in Kenya.

2. LITERATURE REVIEW

2.1 Theoretical review

2.1.1 MacDougall-Kemp Hypothesis

This hypothesis was first put forth by MacDougall (1958) and then further developed by Kemp (1964). It is based on a two-country case model, where one is the investing country and the other is the host country; the price of an asset is equal to its marginal productivity; and funds can freely move from a surplus to a deficit country, resulting in a situation where the two countries' marginal productivity of wealth tends to equilibrium. As a result, resource utilization becomes more efficient, raising welfare in the process. The outflow of foreign portfolio represented by the invested capital may cause output in the investing country to decline, but as long as the return on investment covers the shortfall, national income remains stable. Hence, the investing nation benefits from more national revenue than it does when it holds onto its capital if income from foreign investment surpasses output loss. The increase in the amount of funds brought about by the foreign portfolio inflows also increases the host nation's national revenue.

2.1.2 Neo-Classical Theory of Investment

Gordon (1992) first presented the Post Keynesian theory of investment, commonly known as the Neo-classical theory of investment. According to the hypothesis, foreign portfolio flows according to the variations in return rates between different locations. Therefore, multinational corporations are arbitragers, using the location-specific variations in interest rates across different nations to shift funds from low-return to high-return nations. This hypothesis therefore states that a securities market with a high return on equity investment is more likely to attract foreign investors than one with a low return on investment. According to Allen et al. (2010), foreign investors are primarily motivated by the need to diversify their risk portfolio and thereby capitalize on the high short-term returns found in developing economies. On the other hand, long-term market stability causes foreign portfolio flows to unexpectedly reverse. Market volatility is made more vulnerable to the global economic crisis by such unplanned reversals (Koskei, 2017).

2.2 Empirical review

Using the Autoregressive Distributed Lag (ARDL) bounds testing technique, Srinivasan and Kalaivani (2013) investigated the factors influencing foreign institutional investments in India. The empirical research was performed using quarterly time series data for the period spanning January 2004 to December 2011. The analysis indicated that FII inflows into India are significantly impacted negatively by the exchange rate in both the short and long terms, suggesting that currency depreciation hurts these inflows. According to their findings, FII inflows to India were positively impacted in the long run by returns on the Indian equity market, but negatively by them in the short term. In the short run, foreign institutional investments have a smoothing impact;

nevertheless, in the long run, they operate as a destabilizing force. This finding supports the evidence of positive and negative feedback trading hypotheses, respectively.

Using data from 1997 to 2014, Haider, Khan, and Abdulahi (2016) used the ARCH test to examine the economic determinants that drew investors to developed nations like England. They discovered that while an increase in exchange rates gave investors more confidence in a country, it also had a considerable detrimental effect on foreign portfolio flows. They also discovered that population and exchange rate significantly influenced the decisions of investors and that foreign debt and economic growth were important factors influencing FPI.

In Pakistan, China, Sri Lanka, and India, Waqas, Nazir, and Hashmi (2015) investigated the connection between macroeconomic variables and the volatility of foreign investments. Waqas et al. (2015) discovered that the macroeconomic stability of the host country has a significant impact on the FPI inflow. The study also found that if the host countries have stronger economic development, low inflation, depreciating currencies, foreign direct investment, and high-interest rates, then FPI volatility is greatly reduced in those countries. This implies that a country's stable macroeconomic conditions draw in more foreign portfolio investors, which lowers the country's FPI volatility.

Emerging market equities returns are the best indicator of foreign inflows into emerging markets, according to a 2018 study by the World Federation of Exchanges Ltd. on the characteristics that draw foreign investors to these regions. The positive correlation is evident at two levels: first, at the level of individual market returns, as determined by modifications in the broad market index for a particular market; second, at the level of emerging markets as a whole, as represented by the returns of the MSCI Emerging Markets Index, albeit with a weaker correlation for the latter.

Using static modeling on a sample of eleven developed and eight developing countries, Singhania and Saini (2017) found that the US stock market, the interest rate differential, and the performance of the host country's stock market all significantly influenced the trends of foreign portfolio investment in developed nations. On the other hand, in developing or growing economies such as China and India, factors such as the freedom index, trade openness, interest rate differential, stock market performance, and the success of the US stock market have a major impact on FPI.

Utilizing a range of macroeconomic and financial data spanning from 2000 to 2016 and employing the Ordinary Least Squares (OLS) regression analysis, Al-Smadi (2018) discovered that the following factors significantly influence the inflow of portfolio investment in Jordan: overall economic activity, inflation, risk diversification, nation creditworthiness, governance, and corruption.

Comparable research has also been done in Nigeria. For example, Osemene and Arotiba (2018) showed a positive and substantial association between exchange rate volatility and foreign portfolio investment in Nigeria using a two-stage least square (TSLS) technique. Ogundipe, Alabi, Asaleye, and Ogundipe (2019) looking at Exchange rate volatility and foreign portfolio investment in Nigeria used the VAR model to confirm this. Similarly, Ojong, Anthony, and Arikpo, (2017) discovered a positive and significant association between market capitalization and foreign portfolio investment in Nigeria using the ordinary least squares multiple regression techniques.

Nwosa and Adeleke (2017) used the E-GARCH technique on annual data from 1986 to 2016 and found that while domestic interest rate and stock market capitalization were significant determinants of FPI volatility in Nigeria, trade openness and global GDP were the significant determinants of FDI volatility. This is comparable to previous research using time series analysis, specifically the finite distributed lag model, by Nwosa and Adeleke (2017), which found a positive long-run relationship between FPI and market capitalization and trade openness in Nigeria. The outcome is consistent with Byrne and Fiess's (2016) findings that financial openness is a prerequisite for capital inflow but not a sufficient one.

Amaechi, Itodo, and Ogbonnaya (2020) used the framework of a cointegrating Autoregressive Distributed Lag (ARDL) model to perform a study to identify the major predictors of FPI in Nigeria. The study's main conclusions indicated that treasury bill rates and foreign reserves are what ultimately drive FPI. Other factors, whose model coefficients were not statistically significant, were also found to have long-term beneficial effects on FPI in Nigeria. These factors included the price of crude oil and the all-share index.

Ferry (2020) looked at the dynamics of ASEAN exchange rate connectivity and foreign portfolio flows. The study demonstrated that the macroeconomic conditions prevailing in the host country and its adjacent nations influenced the factors that draw foreign portfolio investment flow to those countries. According to Ferry's research, the host nation's economic growth, government debt ratings, and interest rate differential all significantly boost foreign inflows. The findings demonstrated how

crucial the government is in controlling the inflow of foreign investment into the nation. Additionally, the negative response of foreign portfolio investment flows to host countries as a result of inflation demonstrated the role of central banks in preserving price stability to boost foreign portfolio investment inflows into the nation. The study's model of volatility in influencing the flow of foreign portfolio investment into ASEAN countries took into account both expected and unforeseen exchange rate risks. The findings showed that ASEAN portfolio flows are not substantially influenced by changes in the exchange rates in the host nation.

3. METHODOLOGY

Time series secondary monthly data for the period January 2021 to December 2023 was extracted from the Central Bank of Kenya, Capital Markets Authority, and Kenya National Bureau of Statistics. Data analysis was carried out by descriptive and inferential statistics with the help of SPSS software. The multiple regression model was adopted to find out the statistical significance of macroeconomic factors on foreign investors' participation in the Nairobi Securities Exchange. The study adopted the following econometric model:

$$FIP_t = \beta_0 + \beta_1 EXCH + \beta_2 INF_t + \beta_3 TBR_t + \beta_4 GDP_t + \beta_4 ASI_t + \varepsilon_t$$

Where:

FIP_t = Gross non-performing loans over time t

$\beta_0, \beta_1, \beta_2, \beta_3, \beta_4$ = Beta Coefficients

$EXCH_t$ = Exchange rate over time t

INF_t= Inflation rate over time tGDP_t = Treasury Bills Rate over time t

TBR_t = Treasury bills rate over time t

GDP_t = Gross domestic product over time t

ASI_t = All share index over time t

ε_t = Error term

3.1 Measurement of variables

The variables were operationalized by use of indicators whose data is easily available at KNBS, CMA, and CBK

Table 1: Measurement of variables

Variable	Operationalization of variable
Foreign investor participation	Participation of foreign investors in %
Exchange rate	KSH/ USD
Inflation rate	Monthly consumer price index
Interest rate	Treasury bills rate
Economic growth	GDP per capita
Market return	All share index

4. RESULTS AND FINDINGS

The descriptive statistics in Table 2 revealed that the mean participation of foreign investors in NSE, Inflation rate, Exchange rate, GDP growth, and Treasury bill rates is 56, 6.7, 118.5, 4.4, and 8.6 respectively. The variations from the mean are also moderate as illustrated by the standard deviation of 9.1, 1.5, 14.2, 3.85, and 2.56 respectively.

Table 2: Descriptive statistics results

Descriptive Statistics

		Participation of foreign investors in %	Inflation	Exchange rate	GDP growth	TBR
N	Valid	48	48	48	48	48
	Missing	0	0	0	0	0
Mean		56.0075%	6.6815	118.4504	4.444	8.5608
Std. Deviation		9.10622%	1.47522	14.23533	3.8578	2.56409

Skewness	-.633	.433	1.174	-.883	1.670
Std. Error of Skewness	.343	.343	.343	.343	.343
Kurtosis	.377	-.682	.333	.618	1.965
Std. Error of Kurtosis	.674	.674	.674	.674	.674
Range	45.45%	5.39	53.30	14.4	9.78
Minimum	30.10%	4.20	100.79	-4.1	6.20
Maximum	75.55%	9.59	154.09	10.3	15.98

The model summary results in Table 3 indicated that the inflation rate, exchange rate, GDP growth rate, and treasury bills rate collectively explain the foreign investor participation in the Nairobi Securities Exchange in Kenya as exhibited by an R square of 54%.

Table 3: Model Summary Results

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.735[a]	.540	.497	6.45687%	1.467

a. Predictors: (Constant), TBR, GDP growth, Inflation, Exchange rate

b. Dependent Variable: Participation of foreign investors in %

Table 4 results of the Analysis of variance indicated that there was a statistically significant difference between macroeconomic determinants and foreign investors' participation in the Nairobi Securities Exchange as pointed out by F (4, 43) = 12.621; with a P-value of 0.001 which is less than 0.05.

There was no evidence of autocorrelation among the study variables as illustrated by a Durbin-Watson of 1.467. As a result, inferential statistics and interpretation of the study results may be made with confidence.

Table 4: Analysis of Variance Results

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2104.671	4	526.168	12.621	<.001[b]
	Residual	1792.719	43	41.691		
	Total	3897.390	47			

a. Dependent Variable: Participation of foreign investors in %

b. Predictors: (Constant), TBR, GDP growth, Inflation, Exchange rate

The coefficient of determination results in Table 5 showed that the inflation rate had a negative and statistically significant effect on the participation of foreign investors at the Nairobi Securities Exchange in Kenya as illustrated by a Beta coefficient of -0.476 and a P-value of 0.001, which is less than 0.05. The results inferred that the inflation rate affects the participation of foreign investors at the Nairobi Securities Exchange.

Exchange rate results pointed out a negative and statistically significant effect on the participation of foreign investors in Kenya as shown by a Beta coefficient of -0.587 and a P-value of 0.032, which is less than 0.05. The results implied that changes in the exchange rate as measured by the USD/KSH affect the participation of foreign investors at the Nairobi Securities Exchange

The GDP growth rate results have a negative and statistically significant effect on the participation of foreign investors at the Nairobi securities exchange as indicated by a Beta coefficient of -0.221 and a P-value of 0.05. The results implied that changes in the Gross Domestic Product as measured by the GDP growth rate influence the participation of foreign investors at the Nairobi Securities Exchange.

Interest rate as measured by the 365-day treasury bill rate had a positive and statistically insignificant effect on the participation of foreign investors in Kenya as shown by a Beta coefficient of 0.419 with a P-value of 0.107. The results implied that changes in Treasury bill rates do not affect the participation of foreign investors at the Nairobi Securities Exchange in Kenya.

Further, the variance inflation factor (VIF) was used to quantify the degree of multicollinearity for each predictor variable in the regression model. VIF results in Table 5 pointed out that the variables are less correlated as the VIF of variables is < 10.

Table 5: Coefficients

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients			95.0% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	104.231	10.198		10.221	<.001	83.666	124.797		
	Inflation	-2.941	.752	-.476	-3.911	<.001	-4.457	-1.425	.721	1.387
	Exchange rate	-.375	.170	-.587	-2.214	.032	-.717	-.033	.152	6.569
	GDP growth	-.521	.259	-.221	-2.012	.050	-1.043	.001	.889	1.125
	TBR	1.834	1.113	.419	1.648	.107	-.411	4.078	.166	6.039

a. Dependent Variable: Participation of foreign investors in %

4.1 Discussion of findings

The results of the study are consistent with the work of Al-Smadi (2018) who employed the Ordinary Least Squares (OLS) regression analysis and discovered that the overall economic activity and inflation significantly influence the inflow of portfolio investment in Jordan.

The findings of the study also support the work of Srinivasan and Kalaivani (2013) who investigated the factors influencing foreign institutional investments in India. The empirical research was performed using quarterly time series data for the period spanning January 2004 to December 2011. The analysis indicated that foreign institutional investment inflows into India are significantly impacted negatively by the exchange rate in both the short and long terms, suggesting that currency depreciation hurts these inflows.

Further, the findings of this study are in line with the study conducted by Waqas et al. (2015) in Pakistan, China, Sri Lanka, and India, which investigated the connection between macroeconomic variables and the volatility of foreign investments. They discovered that the macroeconomic stability of the host country has a significant impact on the FPI inflow. The study also found that if the host countries have stronger economic development, low inflation, depreciating currencies, foreign direct investment, and high-interest rates, then FPI volatility is greatly reduced in those countries. This implies that a country's stable macroeconomic conditions draw in more foreign portfolio investors, which lowers the country's FPI volatility.

5. CONCLUSION

This study investigated the macroeconomic determinants of foreign investors' participation in the Nairobi Securities Exchange in Kenya. Findings showed that the inflation rate had a negative and statistically significant effect on the participation inferring that the inflation rate affects the participation of foreign investors at the Nairobi Securities Exchange. Exchange rate results pointed out a negative and statistically significant effect on the participation of foreign investors implying that changes in the exchange rate as measured by the USD/KSH affect the participation of foreign investors at the Nairobi Securities Exchange. The GDP growth rate results have a negative and statistically significant effect on the participation of foreign investors at the Nairobi Securities Exchange indicating that changes in the Gross Domestic Product as measured by the GDP growth rate influence the participation of foreign investors at the Nairobi Securities Exchange. Interest rate as measured by the 365-day Treasury bill rate had a positive and statistically insignificant effect on the participation of foreign investors in Kenya. The results implied that changes in Treasury bill rates do not affect the participation of foreign investors at the Nairobi Securities Exchange in Kenya.

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