Effects of Exchange Rate on Performance of Equity Funds in Kenya

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ABSTRACT

In recent years, Kenya has witnessed significant growth in both the quantity and scale of diversified equity mutual funds. Despite this expansion, their performance has not surpassed that of their benchmark, specifically the market return on a risk-adjusted basis. This assessment is based on various performance measures, including the Sharpe ratio. Poor performance of mutual funds in Kenya discourages individual and corporate investors, in addition to hindering the realization of Vision 2030. Investors believe that information on past performance can be used to predict future performance. The extent to which macro-economic variables affect the performance of mutual funds is unclear. Some scholars show a positive correlation, while others show a negative correlation between the variables. Other factors that had an impact on the overall economic climate, such as the COVID-19 pandemic, the war in Ukraine, and the uncertainty in Kenya's political environment as a result of its general elections, made the situation even more unpredictable. The purpose of this study was to examine the impact of the exchange rate on the performance of equity mutual funds in Kenya. The study adopted a descriptive and correlational research design. The target population was 23 equity funds licensed by the Capital Market Authority, of which eleven were sampled through a census. The study relied on secondary data from the Central Bank of Kenya, the Capital Markets Authority, and the Kenya National Bureau of Statistics between 2018 and 2022. Panel data analysis was used. Descriptive statistics, encompassing measures such as mean and standard deviation, were employed in the analysis. Additionally, inferential statistics, specifically panel regression, were conducted. A static linear panel model was constructed to elucidate the relationship between independent variables and the dependent variable, which in this context is financial performance. The data was organized and presented in tables. Notably, the results indicated a noteworthy negative relationship between the exchange rate and the financial performance of equity funds. The findings of this research are of great importance to policymakers, managers of equity funds, and the scholarly community at large. It will be of significance to researchers and future scholars who might need to refer to it and build on it for further research. The study recommended that equity fund managers should invest in both domestic and foreign portfolios to diversify the risk associated with exchange rates.

Key words; Capital Markets Authority, Equity Funds, Exchange Rate, Financial Performance

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I. INTRODUCTION

Mutual fund performance and the role of macroeconomic variables have attracted the attention of academics, investors, and regulators. Recent theoretical work in the field of finance has centered on the impact of inflation, the currency rate, and other macroeconomic variables on financial performance (Adjei et al., 2021). Since the COVID-19 epidemic began in March of 2020, economic stability has been in question. To what extent the economy will be hurt by the widespread lockdowns was unknown at the outset of the pandemic. Supply chain problems subsequently led to a rise in prices. The energy crisis and increasing inflation that followed Russia's invasion of Ukraine heightened the already tense situation. The general elections in Kenya added to the uncertainty of the political climate there. The GDP, the inflation rate, and the exchange rate all experienced significant volatility as a result of these occurrences (Iania et al., 2023) because of the uncertainty they introduced.

In economically efficient systems, banks provide financing to businesses for a mere 40% of the total, with the capital markets contributing the remaining 60%, as reported by the World Bank. According to the World Bank, the majority of funding for businesses in Kenya is obtained from banks, accounting for approximately 99% of their financial resources, while a negligible proportion, less than 1%, is sourced from the capital markets. It is worth noting that Kenya's ratio of mutual fund assets to GDP is significantly low at 1.1%, in contrast to an average of 56.3%

observed in various global markets. This suggests that there is potential for enhancement in this particular aspect (Cytonn, 2022). The Government of Kenya, as stated in its Vision 2030 document from 2007, emphasizes the significance of the equity market in providing financing for both the corporate and government sectors. The overarching goal is to achieve an average annual gross domestic product growth rate of 10 percent. Additionally, the vision aims to achieve a market capitalization-to-gross domestic product ratio of 90 percent. The government has demonstrated its endorsement of the capital market through the establishment of the Capital Market Authority (CMA), a financial regulatory body tasked with overseeing, licensing, and monitoring capital market operations (Government of Kenya [GoK], 2007).

Although corporations can derive benefits from capital markets by utilizing equity financing, the performance of equity funds has been lackluster. According to Shano and Ganesh (2014), empirical investigations conducted on equity mutual funds in Kenya have revealed that these funds do not exhibit superior performance compared to the whole market. This phenomenon might be attributed to the underdeveloped nature of the capital market. Theoretical understanding of the relationship between macroeconomic conditions and mutual fund performances is currently lacking in clarity. While some researchers have found a negative association between exchange rates and the performance of mutual funds (Leyian, 2017; Garg & Srivastava, 2019), others argue for a positive correlation between this macroeconomic factor and mutual fund performance (Kariuki, 2014; Njau, 2013).

The objective of this study is to fill the current empirical gap by investigating the influence of specific macroeconomic parameters on the performance of equity funds in Kenya. The motivation for this research stems from the intricacies of macroeconomic dynamics and the discrepancies observed in prior studies on the subject.

Drawing from the dynamics of macroeconomics and recognizing the inconsistencies in previous research, the present study aims to bridge the empirical gap by examining the impact of the exchange rate on the performance of equity funds in Kenya.

1.1 Objectives of the Study
Determine the effect of exchange rate on performance of equity funds in Kenya.

1.2 Research Hypothesis
H_{01}: There is no significant effect of exchange rate on performance of equity funds in Kenya.

II. LITERATURE REVIEW

2.1 Theoretical framework
2.1.1 Arbitrage Pricing Theory
Stephen Ross put forth the theory of arbitrage pricing in 1976. The assumption underlying the asset pricing model under consideration is that it is possible to forecast an asset's return by analyzing how it interacts with a variety of common risk factors (Ross, 1976). By using a linear combination of numerous independent macroeconomic variables, the theoretical framework postulates a correlation between the returns of the portfolio and the returns of a specific asset. The Arbitrage Pricing Theory (APT) provides a framework for understanding and predicting the expected price of an asset in cases where it is deemed to be mispriced. The Capital Asset Pricing Model (CAPM) establishes a relationship between the returns of individual assets and the overall market returns. However, the fundamental tenet of the Arbitrage Pricing Theory (APT) is that a wide range of unique factors influence the market's overall performance. These factors may encompass basic (macroeconomic) or statistical elements. This study examines the macroeconomic determinants of inflation, GDP, and exchange rates. If these elements are deemed crucial, then the existence of arbitrage opportunities in the investment process would be eliminated. Arbitrage refers to the process of generating a profit without assuming any risk by exploiting pricing discrepancies for identical assets occurring simultaneously. Hence, this theory serves as the primary framework for the investigation.

2.1.2 Modern Portfolio Theory (MPT)
According to Harry Markowitz's Modern Portfolio Theory (1952), investors who are risk-averse can strategically build portfolios to optimize or maximize their expected return while taking into account a predetermined level of risk. This theory underscores the notion that larger rewards are inherently associated with increased levels of risk. This implies that a comprehensive analysis of the anticipated risk and return of a single stock is insufficient. In contrast, by allocating funds to multiple stocks, an investor can effectively use the advantages of diversification, primarily manifesting in a mitigation of portfolio risk. Equity mutual funds allocate their investments towards

activities that possess inherent risk, which subsequently impacts their total performance. When engaging in investment activities, it is important to consider the potential dangers associated with inflation. In addition, the presence of currency rate risks is also prevalent in this domain. Markowitz demonstrated that in order to identify the optimal portfolio with the minimum overall risk, as measured by variance or standard deviation, for a given level of expected return and a feasible collection of stocks, it is necessary to possess information regarding the covariance or correlation between all potential combinations of assets.

2.2 Empirical review

Ahuja et al. (2012) conducted a study investigating the influence of macroeconomic variables on the volatility of mutual fund schemes in India. The results of the study indicated a substantial impact on the returns of mutual funds in response to an increase in inflation and crude oil prices. While India and Kenya are both classified as developing countries, India possesses a larger economy. Consequently, the equity fund market in India may exhibit greater dynamism due to its size. As a result, the findings related to this market may not be directly applicable to the Kenyan context. Therefore, the current study is justified in exploring this matter further.

In the exploration by Leyian (2017), the focus was on understanding the impact of macroeconomic factors on Kenyan mutual funds. The study utilized a descriptive survey design methodology and employed multiple regression analysis to assess the influence of inflation on the financial performance of mutual funds from 2011 to 2016. The study's findings indicate that interest rates exhibit a lack of constancy, and the abrupt fluctuations observed can potentially provide either favorable or unfavorable consequences for mutual funds. The examination of inflation rates on mutual funds yielded results indicating a negative correlation between inflation and the performance of those funds. The research was conducted using panel regression as a guiding methodology. Given the use of panel data, panel regression analysis will be the driving force behind this study. In addition, diagnostic tests will be conducted on the data before drawing inferences and reaching conclusions.

Adjei (2021) looked into how different macroeconomic conditions affected the performance of Ghanaian mutual funds. Long-term mutual fund financial performance is positively correlated with exchange rate, inflation, T-bill, and GDP growth in a consistent and statistically significant manner, according to the findings. Furthermore, a consistent and statistically substantial inverse correlation was identified between the long-term financial performance of mutual funds and the monetary policy rate. Additionally, the researchers identified a wide array of immediate impacts, encompassing both favorable and unfavorable trends, on the financial performance of mutual funds due to the T-Bill and monetary policy. The principal aim of this research is to analyze mutual funds in the specific context of the financial market in Kenya.

Kariuki (2014) investigated how macroeconomic factors affected the mutual fund industry's financial performance in Kenya. Five independent variables were investigated in the study: money supply, interest rate, inflation rate, and exchange rate. The results of the study revealed a statistically significant inverse relationship between exchange rates and mutual fund performance. The research employed return on investment (ROI) as a metric for evaluating performance and conducted multiple regression analysis to ascertain the association between the variables. The current investigation will assess performance using return on equity. Moreover, the present study employed panel regression, which is considered a more advanced approach due to its ability to accommodate a larger sample size.

Mohammadreza and Esmaeel (2013) undertook an examination to determine the impact of macroeconomic variables, namely the exchange rate and inflation rate, on the performance of mutual funds in Iran. Through the examination of monthly panel data comprising all mutual funds from 2008 to 2011, this study examines its hypotheses. A statistically significant and positive correlation was observed between the return on funds, the exchange rate, and the inflation rate, according to the study's findings. The study was carried out in Iran, a market characterized by a greater degree of progress in comparison to Kenya.

2.3 Conceptual Framework

The framework delineates the researcher's conception and relationships pertaining to the variables under investigation. The development of the conceptual framework will be informed by a comprehensive examination of relevant literature, which will provide valuable insights into the appropriate approach to be employed

2.4 Conceptual Review

The study is conceptualized that exchange rate (indicated by USD/KES exchange rate) which is the independent variable affects financial performance (response variable). The conceptual framework is presented in Figure 1.

Independent Variable   **Dependent Variable**

| Exchange rate
USD/KES exchange rate | Ho_1 $\longrightarrow$ | Financial Performance
• Return on equity |
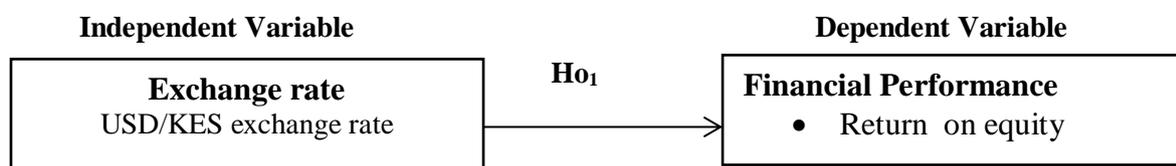
Figure 1
Conceptual Framework
Source: Self Conceptualization (2023)

III. METHODOLOGY

3.1 Research Design

A descriptive correlational research design was used to establish how exchange rate affects equity fund performance. A descriptive study is defined as any research investigation in which data is collected without altering or manipulating the environment. It describes the characteristics of a particular individual or of a group. Correlational designs involve systematic investigation of the nature of relationships, or associations between variables rather than direct cause-effect relationships. Descriptive correlational design therefore describes the variables and the relationship that occur naturally between them (Mugenda & Mugenda 2003).

3.2 Data Analysis

This section examined the statistical model or analysis employed to analyze the data, encompassing the measurements of variables. The obtained data was inputted into a spreadsheet using Microsoft Excel, where it was subsequently examined for any anomalous values. Following this step, the data was then imported into the Stata software for the purpose of conducting statistical analysis. The data was analysed utilizing both descriptive statistics and inferential statistics. The utilization of descriptive statistics, specifically the mean and standard deviation, was employed in order to enhance comprehension of the data collected in the study.

The inferential inquiry employed panel regression as its analytical approach. The study employed panel data analysis to examine the association between selected macroeconomic factors and equity mutual funds. Panel data is a type of dataset that consists of observations on several items or individuals over multiple time periods. Prior to doing inferential analysis, diagnostic tests were performed for panel regression analysis. Hence, the performance of equity funds can be represented by the following equation, which incorporates the influence of inflation, national income, and currency rate.

Therefore, performance of equity funds is displayed in the equation below as a factor on exchange rate.
Model:

$$Y_{i,t} = \beta o + \beta_1 X_{it} + e_{it}$$

Where:

i Differentiates the equity funds and ranges from 1 to N where N is the number of equity mutual funds
t differentiates the observation times under study in this case 1 to 5 years
Y= performance of Equity Fund
X=Exchange Rate

3.3 Ethical consideration

Researchers have a professional obligation to their field of study, the individuals they serve, and the participants involved in their research. It is imperative for researchers to maintain a commitment to upholding rigorous ethical standards so as to safeguard the integrity of their work and the credibility of the information they generate. The study adhered closely to ethical principles. Likewise, the avoidance of unethical actions such as falsification and fabrication was seen. The research permission was granted by the National Commission for Science, Technology, and Innovation (NACOSTI) and was utilized to facilitate the collecting of data for the study

IV. RESULTS & DISCUSSIONS

4.1 Descriptive Statistics

Descriptive statistics indicators, namely measures of central tendency and dispersion, were utilized consistently during the analysis. The preceding report exclusively provided the central tendency measures, namely the mean and median. On the contrary, additional statistical descriptors, including skewness and kurtosis, were included in the latter report. To validate the assumption of normality, the Jarque-Bera test was applied. Based on the descriptive statistics displayed in Table 1, it was determined that the mean return on equity was 0.2734, with a corresponding standard deviation of 2.749. The findings of the inquiry indicate that the average value of the currency rate was Ksh. 107.47, with a standard deviation of 6.08. For a distribution to be termed normal, the p-value of the Jaque-Bera is to be 0.05 or more. The results in the descriptive statistics indicate the residuals of the variables in the study are normally distributed.

Table 1
Descriptive Statistics

Variable	Mean	Standard deviation	Skewness	Kurtosis	Jacque Bera (p-value)
ROE	0.2734	2.749	1.6105	4.28	0.0547
Exchange rate	107.47	6.08	0.8737	2.133	0.0823

4.2 Pearson Correlation

In order to measure linear association between variables under this study, pairwise correlation analysis was used. The matrix of correlation provides previous understanding of the nature and intensity of the relationship between the variables. Table 4.3 indicates correlational results.

Table 2 indicates that foreign exchange rate (FOEXLn) had a negative significant moderate correlation with equity funds, with correlation coefficients of -0.7397 (p= 0.0309). These results suggest that the depreciation of the Kenyan currency and the presence of high inflation have an adverse impact on equity funds

Table 2
Pearson Correlation

	ROALn	FOREXLn
ROALn	1.0000	
FOREXLn	-0.7397	1.000
	(0.0309)	

4.3 Hausman Test

A Hausman test was conducted to ascertain whether the fixed effect or random effect model would be more appropriate for addressing the study's objectives. The null hypothesis posits that the relationship between the independent variables and the individual effects is not statistically significant. The null hypothesis is supported by the random effect, whereas the alternative hypothesis or rejection of the null hypothesis is in favor of the fixed effect model. The findings presented in Table 3 demonstrate that the prob>chi2 value of 0.8943 exceeds the critical P value at the 0.05 level of significance. This suggests that the random effect model was selected as the most appropriate approach. Thus, a random effect regression model was employed in the study.

Table 3
Hausman Test

	(b) Fixed	(B) Random	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
Forex	-0.0399438	-0.0402624	0.0003186	0.0053724

b = consistent under Ho and Ha; obtained from xtreg
B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

$\text{chi2(4)} = (b-B)'[(V\_b-V\_B)^{(-1)}](b-B)$
$= 0.16$
Prob>chi2 = 0.8943

4.4 Regression Random Effects of ROE on Exchange rate

The study sought to establish results on the null hypothesis Ho1: Exchange rate has no significant influence on financial performance of equity funds in Kenya. Table 4 contains the findings.

Table 4
Regression Random Effects of ROE on Exchange rate

Random-effects regression				No of observations =		55	
				No of groups =		11	
R-square:				Observation per group:			
within = 0.000					minimum =	5	
between = 0.000					average =	5.0	
overall = 0.3007					maximum =	5	
					F(2,232) =	15.96	
corr(u_i, Xb) = 0				Prob > chi2 =		0.0388	
LROA	**Coef.**	**Std. Err.**	**z**	**P>z**	**[95% Conf.**	**Interval]**	
Forex	-.6078122	.3084188	-1.97	0.49	-1.212302	.0033225	
_cons	3.667425	1.442232	2.54	0.011	.8407032	6.494147	
sigma_u	.5467952						
sigma_e	.18353696						
rho	.08152135	(variance due to u_i)					

The outcome derived from the random effect model suggested that the exchange rate had no bearing on the variability in the financial performance of equity funds (Overall R square=0.000). The corresponding p-value was less than 0.05 and is 0.049. The exchange rate value of -0.6078122 indicates that a one percent increase in the exchange rate results in a 0.6078122 decrease in performance. Statistically, this relationship was also confirmed, as the exchange rate p-value of 0.049 was less than the predetermined significance level of 0.05. The regression model is depicted as follows:

ROA=-0.6078122+ 3.667425

As a result, the research study rejected the null hypothesis that there is no substantial impact of exchange rates on the financial performance of equity funds in Kenya. Consequently, it reached the conclusion that there is a statistically significant relationship between exchange rates and financial performance. The findings are consistent with those of Kariuki (2014), who investigated the impact of macroeconomic variables on the financial performance of Kenyan mutual funds. As determined by the study, the exchange rate had a substantial and adverse impact on the performance of funds. The study, on the other hand, contradicts the findings of Gay (2008), which concluded that the exchange rate has no appreciable impact on the returns of stocks in the four largest emergent economies (Brazil, India, and China).

V. CONCLUSIONS & RECOMMENDATIONS

5.1 Conclusions

Several logical implications were drawn based on the empirical evidence. The primary aim of this study was to examine the impact of exchange rate fluctuations on the financial performance of equity funds. The findings of the study indicate that there exists a substantial negative relationship between exchange rate movements and the financial performance of equity funds in the context of Kenya. An appreciation in the exchange rate leads to a decline in the performance of stock funds. Hence, it can be observed that the exchange rate exerts a substantial impact on the performance of stock funds

5.2 Recommendations

The findings show that a negative relationship exists between performance of equity funds and exchange rate. It is therefore important for equity fund managers to diversify their portfolios in both local and international markets to mitigate such exposures so as not to run into losses.

To mitigate exchange rate exposure, equity fund managers must undertake strategies such as hedging by purchasing spot contract to cushion against any negative eventualities.

The study focused on factors affecting equity funds in Kenya. Further studies should be undertaken to study other types of mutual fund like bond funds. In addition, further studies should be undertaken on other macro-economic factors like money supply and interest rate.

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