



# RELATIONSHIP BETWEEN EXCHANGE RATE AND SECURITIES' MARKET RETURNS: EVIDENCE FROM COMPANIES LISTED AT NAIROBI SECURITIES EXCHANGE

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## ABSTRACT

There are a few studies with reference to companies listed at Nairobi Securities Exchange on relationship between selected macroeconomic factors and securities' market returns. This study seeks to investigate the relationship between selected macroeconomic factors and securities, market returns: Evidence from companies listed at Nairobi Securities Exchange. The study was guided by the following objective; to analyze the relationship between exchange rate and securities' market returns at Nairobi securities Exchange. This study used the following Modern Portfolio Theory (MPT). The research adopted a cross sectional design. Out of the 61 firms listed at the Nairobi Securities Exchange, data for 46 firms were obtained for the entire study period. One data collection instrument called data extraction form was used in collecting data for this study. Validity on the relationship between selected macroeconomic factors and securities' market returns at the Nairobi securities exchange was done by analysing secondary data from the Nairobi securities exchange and central bank of Kenya. Test-retest method and Parallel/Equivalent forms of the same test were used to establish reliability of measuring instrument. The findings of the study showed that interest rate plays an important role in influencing the changes or variations of the securities' market returns in Kenya albeit the fact that the study results in some sector stock Performance indicated that interest rate has insignificant influence on the direction of the stock market performance. The study concluded that the contribution of exchange rate on the securities' market returns in Kenya was found critical due to its significant influence on the securities' market returns.

## BACKGROUND OF THE STUDY

Nairobi securities exchange has over six decade's heritage in listing equity and debt securities. It offers a world class trading facility for local and international investors looking to gain exposure to Kenya and Africa's economic growth. Nairobi securities exchange plays a vital role in the growth of

Kenya's economy by encouraging savings and investment, as well as helping local and international companies' access cost-effective capital. Nairobi securities exchange operates under the jurisdiction of the Capital Markets Authority of Kenya. It is an affiliate of the World Federation of Exchange, a founder member of the African Securities Exchanges



Association (ASEA) and the East African Securities Exchanges Association (EASEA). The Nairobi securities exchange is a member of the Association of Futures Market and is a partner exchange in the United Nations-led SSE initiative (Agrawal, 2010).

The Nairobi securities exchange provides integrated report which aims to enable its stakeholders, including investors, to make highly informed assessment of the Nairobi securities exchange and its forecasts. The Nairobi securities exchange always make a deliberate choice to communicate its company's story through an integrated report as it appreciate its traditional standards for measuring value and financial growth no longer provide a comprehensive true picture of the company. Therefore Nairobi securities exchange believes that entrenching such practices in its business will help to drive improved governance practices through more inclusive identification and management of current and future opportunities and risks (Asprem, 2011).

Nairobi securities exchange uses an integrated approach to determine its financial and sustainable performance. It always look for ways of working with its stakeholders to create lasting value, while continuing its journey to deliver on its vision, To be a leading securities exchange in Africa with a global reach. The Nairobi securities exchange is a key area of measuring the performance of a given sector of the economy since the securities market remains very sensitive to various factors which will be clearly discussed here (Babak, 2012).

## STATEMENT OF THE PROBLEM

There are a few studies with reference to companies listed at Nairobi Securities Exchange on relationship between selected macroeconomic factors and securities' market returns. For example, Songole (2012) focused on the relationship between selected macroeconomic variables and stock return at the Nairobi Securities Exchange. Mwangi, Makau & Kosimbei (2014) examined the relationship between capital structure and performance of non-financial companies listed in the Nairobi Securities Exchange, Kenya. Finally, Karubari, N. T. (2017) focused on the effect of selected macro-economic variables on stock market depth at the Nairobi Securities Exchange. However, these studies provide no information on the relationship between selected macroeconomic factors and securities' market returns evident from companies listed at Nairobi Securities Exchange. In this context, the objective of the current study is to analyze the relationship between exchange rate and securities' market returns at Nairobi Securities Exchange.

## PURPOSE OF THE STUDY

The purpose of this study is to assess the

relationship between selected macroeconomic factors and securities' market returns from companies listed at Nairobi securities Exchange.

### Specific Objective of the study

The objectives of this study are;

- i. To analyze the relationship between exchange rate and securities' market

## LITERATURE REVIEW

### Exchange rate

This is the rate at which one currency will be exchanged for another. It is also regarded as the value of one country's currency in relation to currency of another country. The spot exchange rate refers to the current exchange rate. The forward exchange rate refers to an exchange rate that is quoted and traded today but for delivery and payment on a specific future date. In the retail currency exchange market, different buying and selling rates will be quoted by money dealers. Most exchanges are based on the local currency. The buying rate is the rate at which money dealers will buy foreign currency, and the selling rate is the rate at which they will sell that currency. The quoted rates will incorporate an allowance for a dealer's margin (or profit) in trading, or else the margin may be recovered in the form of a commission or in some other way. Different rates may also be quoted for cash, a documentary form or electronically. The higher rate on documentary transactions has been justified as a compensation for the additional time and cost of clearing the document. On the other hand, cash is available for resale immediately, but brings security, storage, and transportation costs, and the cost of tying up capital in securities of banknotes (bills).

In the foreign exchange market, a currency pair is the quotation of the relative value of a currency unit against the unit of another currency. The quotation EUR/USD 1.3225 means that 1 Euro will buy 1.3225 US dollars. In other words, this is the price of a unit of Euro in US dollars. Here, EUR is called the "Fixed currency", while USD is called the "Variable currency" (Chen & Jordan, 2011).

Quotation using a country's home currency as the price currency is known as direct quotation or price quotation (from that country's perspective). For example, EUR 0.8989 = USD 1.00 in the Eurozone and is used in most countries. Quotation using a country's home currency as the unit currency, (for example, USD 1.11 = EUR 1.00 in the Eurozone) is known as indirect quotation or quantity quotation and is used in British newspapers; it is also common in Australia, New Zealand and the Eurozone. Using direct quotation, if the home currency is strengthening (that is, appreciating, or becoming more valuable) then the exchange rate number decreases. Conversely, if the foreign currency is



strengthening and the home currency is depreciating, the exchange rate number increases (Chittedi, 2011)

### **Factors affecting the change of exchange rate**

1. Balance of payments. When a country has a large international balance of payments deficit or trade deficit, it means that its foreign exchange earnings are less than foreign exchange expenditures and its demand for foreign exchange exceeds its supply, so its foreign exchange rate rises, and its currency depreciates (Choi & Rajan, 2011).
2. Fiscal and monetary policy. Although the influence of monetary policy on the exchange rate changes of a country's government is indirect, it is also very important. In general, the huge fiscal revenue and expenditure deficit caused by expansionary fiscal and monetary policies and inflation will devalue the domestic currency. The tightening fiscal and monetary policies will reduce fiscal expenditures, stabilize the currency and increase the value of the domestic currency (Cooper, 2010).
3. Venture capital. If speculators expect a certain currency to appreciate, they will buy a large amount of that currency, which will cause the exchange rate of that currency to rise. Conversely, if speculators expect a certain currency to depreciate, they will sell off a large amount of the currency, resulting in speculation. The currency exchange rate immediately fell. Speculation is an important factor in the short-term fluctuations in the exchange rate of the foreign exchange market (Creswell & Clark, 2011).
4. Government market intervention. When exchange rate fluctuations in the foreign exchange market adversely affect a country's economy, trade, or the government needs to achieve certain policy goals through exchange rate adjustments, monetary authorities can participate in currency trading, buying or selling local or foreign currencies in large quantities in the market. The foreign exchange supply and demand has caused the exchange rate to change (Dhrymes, Friend & Gultekin, 2012).
5. Economic strength of a country. In general, high economic growth rates are not conducive to the local currency's performance in the foreign exchange market in the short term, but in the long run, they

strongly support the strong momentum of the local currency (Dickey & Fuller, 2009).

### **Modern Portfolio Theory (MPT)**

This is a theory presented in 1952 out of an article and in 1959 out of a book by Harry Markowitz as essentially Portfolio Theory "in light of the fact that "there is nothing current about it. Since it was first presented there have been numerous augmentations. This is a hypothesis of reserve that undertakings to increase portfolio expected return for a given measure of portfolio risk level. Similarly constrain chance for a given level of expected return, by means of carefully picking the amounts of various assets. In spite of the way that it is comprehensively used as a piece of preparing in the money related business the basic assumptions of the speculation have been by and large tried by fields, for instance, social budgetary issues.

It is a numerical arrangement of widening in contributing, with the purpose of picking a social affair of hypothesis assets that has aggregately cut down risk than any individual asset. This is possible in light of the assumption that particular sorts of advantages as often as possible modify in a motivating force in opposite course. For instance, to the degree costs in the offer market move remarkably as opposed to costs in the security exhibit, a social affair of the two sorts of points of interest can on a fundamental level face cut down general danger than either autonomously. Regardless, expanding cuts down risks paying little attention to whether assets' benefits are not inconsistently related, most likely, paying little attention to whether they are firmly related.

All the same all the more really, MPT models the benefits of an advantage as a regularly distributed limit, delineates chance as the standard deviation of return, and models a portfolio as a weighted blend of preferences, so the landing of a portfolio is the weighted mix of the benefits of the points of interest. By consolidating distinctive resources whose profits are not very well decidedly connected, MPT broadens the aggregate difference of the portfolio return. Modern portfolio theory (MPT) also accepts that investors are sound and markets are efficient. This theory was created in the 1950s through the mid-1970s and it was viewed as a vital progress in the scientific displaying of finance. Since at that point, some hypothetical and functional reactions have been leveled against it.

These incorporate confirmation that money related returns don't take after a Gaussian appropriation or for sure any symmetric dissemination and connections between benefit classes which are not settled but rather can shift depending on outer events, for example, emergencies. Further, there remains affirmation that budgetary controllers are not ordinary and markets



may not be efficient. Finally the low eccentricity inconsistency conflicts with trade off assumption of higher risk for higher return of Capital Asset Pricing Model (CAPM). It communicates that a portfolio containing low risk returns, for instance, blue chip securities gets higher risk adjusted returns than a portfolio with high instability, for instance, illiquid securities.

A study carried out by Myron Scholes, Michael Jensen and Fischer Black in 1972 recommends that the association among return and beta might be level or even negatively related.

## RESEARCH METHODOLOGY

### Research Design

This study was based on a cross sectional design. This research design was founded on one period in time particularly the year 2019. According to Kothari (2010) a research design is the game-plan of conditions for social affair and analysis of data in a way that hopes to unite enormity to the research reason. It is the theoretical framework into which the entire research is conducted. It indicates the reasons behind a research, specifies the sources of information to be gathered, and distinguishes possible limitations that may influence the research (Saunders, 2010).

### Target Population

According to Mugenda and mugenda (2008), the term target population is the complete set of individuals, cases, or objects with some characteristics to which the researcher wants to generalize the results of the study. The target population was exchange rate, inflation rate, interest rate, gross national income and coupon rate of government bonds in relation to securities market returns of 65 companies listed at the Nairobi securities exchange.

### Sample and Sampling procedures

For the exchange rate, inflation rate, interest rates, Gross national income and coupon rate of government bonds in relation to securities' market returns. This will be done in relation to all 65 companies listed at Nairobi securities exchange. The monthly time series data for the 65 companies listed at NSE covering a period of one year will be used.

### Data Collection instrument

The data was collected using data extraction form. The Month to month data rather than daily data were used to avoid duplication from some securities that most of the macroeconomic factors are fully considered in this research are released on a month to month period. In this process of extracting data from the Nairobi securities exchange.

### Data collection procedures

Data extraction was done using data extraction forms. This was used to collect secondary data from central bank of Kenya (CBK), Nairobi securities exchange (NSE) and Kenya national bureau of statistics (KNBS). The main areas of interest as far as securities' market returns are concerned include exchange rate, interest rate, Gross national income and coupon rate of government bonds. The secondary data are readily available from the other sources and as such, the researcher can obtain data from sources both internal and external to the organization which includes; company information, public records from governmental agencies, research organizations and management information system. There are several external sources where secondary data were collected. These includes; government censuses, internet, where wide knowledge about different areas is available.

### Data Analysis and Presentation

This is the stage at which the researcher begins to make deductions and inferences about data. It involves uncovering the underlying structures, extracting important variables, detecting any anomalies and testing any underlying assumptions (Kombo & Tromp, 2009). This enables the researcher to link theory with reality, that is, to test his/her research hypotheses and find answers to the study.

## RESULTS AND DISCUSSION

### Descriptive Analysis

The values for asymmetry and kurtosis between -2 and +2 are considered acceptable in order to prove normal univariate distribution (George & Mallery, 2010). In this case, it is observed that all variables of interest have an acceptable range of skewness, the highest being the coupon rate of government bonds at 1.272049, still under 2.



**Table 4.3: Kurtosis**

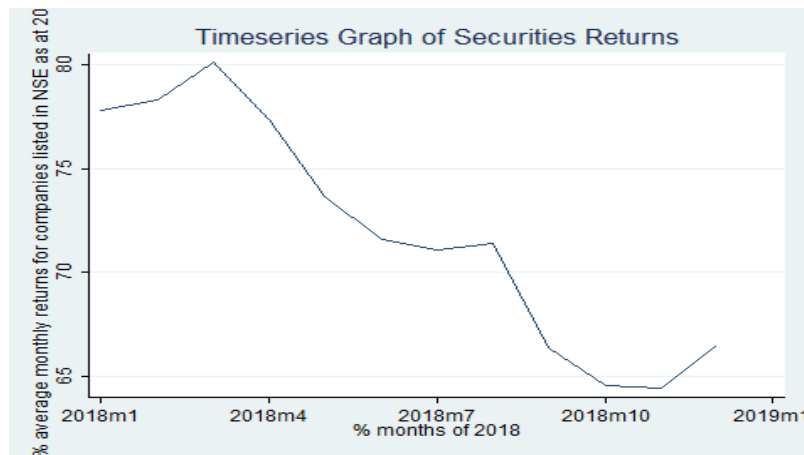
stats	securi~g	xrate	infrate	intrate	cpr	gni
mean	71.92335	101.3017	4.701667	9.333333	7.890833	8715250
max	80.09286	102.92	5.71	10	8.9	8970584
min	64.44089	100.61	3.73	9	7.34	8372820
range	15.65196	2.31	1.98	1	1.56	597764
sd	5.613767	.7895779	.7406979	.3892495	.3899757	230343.3
skewness	.0100067	.9797507	.3298306	.626099	1.272049	-.5187424
kurtosis	1.609616	2.527256	1.527137	2.04	4.939985	1.916709
p50	71.4867	101.04	4.43	9.25	7.915	8758797

As for kurtosis, three variables Exchange Rate, Interest Rate and Coupon Rate of Government Bonds fall outside the bounds of two (2). This indicates that the three variables are leptokurtic with peaks that are higher than normal.

**Securities returns**

The returns on invested securities had a mean of 71.92335 and a standard deviation of 5.6137 for the year 2018. Its lowest point was in November 2018 at 64.44089 million. The highest returns

were in March 2018 at 80.09286 most probably due to the improving political climate after the 2017 general elections. Overall, it was a steady decline in trend for the period under study.

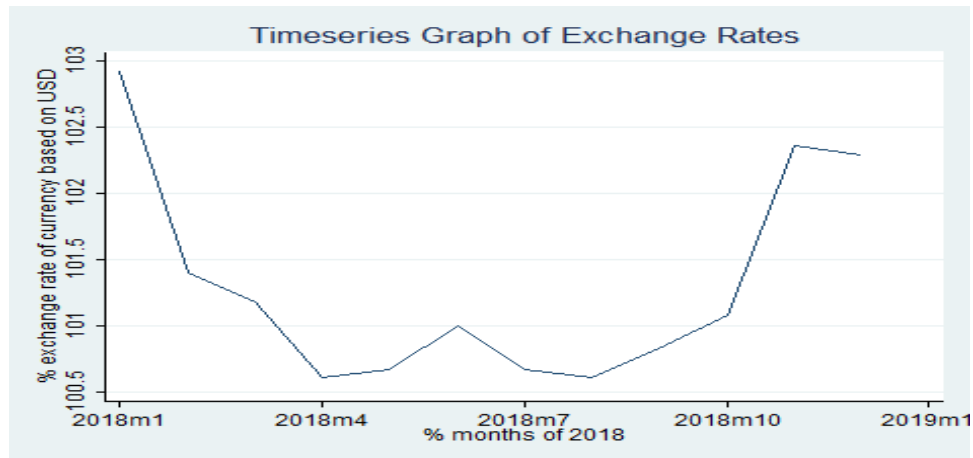


**Fig 4.2 Average Returns on Securities from Jan-Dec 2018**

**Exchange rates**

The exchange rate had a mean of 101.3017 and a standard deviation of 0.7896. It peaked in the January at 102.92 KES/USD most probably due to the weakening of the shilling against the dollar after the 2017 general elections and its subsequent unrest. What followed was a steady but marginal

strengthening of the Kenya Shilling until April, then somewhat plateaued all the way to August. April and August were the months with the lowest exchange rates at 100.61 KES/USD. This was followed by a steady rise to 102.36 KES/USD in November and the year ended with a rate of 102.29 KES/USD.



**Fig 4.5 Exchange Rates (KES/USD) from Jan - Dec 2018.**

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. regress sec_manuf xrate infrate intrate gni cpr
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Source	SS	df	MS			
Model	2419.35307	5	483.870615	Number of obs =	12	
Residual	409.993101	6	68.3321835	F( 5, 6) =	7.08	
Total	2829.34617	11	257.213289	Prob > F	= 0.0168	
				R-squared	= 0.8551	
				Adj R-squared	= 0.7343	
				Root MSE	= 8.2663	

sec_manuf	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
xrate	7.563814	6.047209	1.25	0.258	-7.233173	22.3608
infrate	-15.751	6.355047	-2.48	0.048	-31.30124	-.2007595
intrate	22.41252	10.10768	2.22	0.068	-2.320069	47.14511
gni	-.0000188	.0000201	-0.94	0.385	-.0000679	.0000303
cpr	-5.833867	7.129793	-0.82	0.444	-23.27984	11.61211
_cons	-556.2235	634.857	-0.88	0.415	-2109.663	997.2156

**Exchange Rate and Performance of Securities at the NSE**

The study sought to test hypotheses at 5% level of significance for each of the five macroeconomic variables of interest. Their individual effect on the performance of securities

invested at the NSE was checked and the following hypotheses tested,

**H01: There is no significant relationship between exchange rate and securities' market returns**



Source	SS	df	MS	Number of obs = 12		
Model	2.02262978	1	2.02262978	F( 1, 10) =	0.06	
Residual	344.635513	10	34.4635513	Prob > F =	0.8135	
Total	346.658143	11	31.5143766	R-squared =	0.0058	
				Adj R-squared =	-0.0936	
				Root MSE =	5.8706	

securities~g	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
xrate	-.5430838	2.241758	-0.24	0.813	-5.538031	4.451864
_cons	126.9386	227.1001	0.56	0.588	-379.0719	632.9492

The exchange rate alone only explains 0.58% of the variability in securities and appears to be a very weak predictor. The P-value for exchange rate at 0.8135 is much bigger than the significance level of 0.05. This means that the variability in the performance of securities could be because of factors other than exchange rate. We therefore fail to reject the null hypothesis at 0.05 level of significance and conclude that there is no significant relationship between exchange rate and securities' market returns.

## CONCLUSIONS AND RECOMMENDATIONS

### Exchange Rate and Securities' Market Returns

The findings on the first study objective on whether exchange rate has an effect on the Securities' Market Returns on various firms listed in Nairobi Securities Exchange in Kenya had varied findings dependent on the nature of sector under consideration. Specifically, the study findings revealed that exchange rate plays an important role in influencing the changes or variations of the Securities' Market Returns in Kenya albeit the fact that the study results in the various sectors market returns indicated that exchange rate has insignificant influence on the direction of the stock market performance.

### Conclusions

Based on the findings, this study concludes the following;

The contribution of exchange rate on the securities' market returns in Kenya was found critical due to its significant influence on the securities' market returns. Kenya as country experiences challenges in management of exchange rates owing to being a net importer with most of the imports being oil and machinery. Over the years, the shilling has been unstable against the hard currencies of the world implying that even the foreign debts denominated in forex end up becoming a great

burden on Kenyan economy. Terrorism attacks in Kenya and heightening level of insecurity has against affected number of tourists arrivals in Kenya due to insecurity challenges. Glut in the tea export markets have also seen Kenya receiving poor tea payments while tea is the major export earner of Kenya. All these factors among other have left the value of Kenya shilling eroded. Currency devaluation has resulted to balance of payment problems challenges for a long time in Kenya to the extent that most of the companies in Kenya suffer financial losses due to the cost of imports. Due to the great role played by exchange rate in an economy in influencing the performance of companies, the management of these companies needs to institute great measures to cushion themselves against forex losses. Such measures may include borrowing foreign denominated loans, employing hedging strategies to cushion themselves from future losses e.g. use of derivatives, setting subsidiaries in stable currency countries as well as close monitoring of movements of shilling against the major world currencies.

### Recommendations

The study recommends the following based on the findings;

The Government of Kenya need to constantly review the macroeconomic policies to ensure the country is always cushioned against the external shocks like the credit crunch as well as oil crisis. To afford this, national policies as well as regulatory frameworks governing key sectoral reforms with large external dependencies need to be instituted like the imports of oil and machinery and foreign debts and loans. Such drivers on oil exploration, minerals and food security will go a long way in ensuring the shilling remain stable, inflation is tamed, interest rates do not sky rocket while money supply is controlled by use of domestic instruments to stabilize inflation and interest rates. All brokerage firms and investment advisors need to conduct periodic research on macroeconomic environment and advise their clients accordingly on the best counters to invest



in owing to the various influences by macroeconomic environment on the stock market performance. On findings of macroeconomic trends, the investment advisors and brokerage firms need to seek redress from the relevant policy makers as well as institutions aimed at bringing stability for the well good of the stock investors.

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