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Influence of Exchange Rate on the Growth of Bond Markets in Kenya

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Abstract:
The bond market plays an vital role in the Kenyan`s economy by providing a platform for companies and individuals to invest. The study examined the influence of exchange rate on the growth of the bond market in Kenya. Additionally, the study established the moderating influence of diaspora remittance on the relationship between exchange rate and bond market growth in Kenya. The data used in the study was acquired from the CBK, KNBS and NSE. Descriptive research design was adopted in the study and the statistical time series regression model was employed. The findings from the study concluded that, exchange rate variable had a positive significant influence (p-value- 0.000) on bond market growth within the study period. The study further concluded that diaspora is a worthy moderator as a well as a good control variable. The study recommended that the CBK which is a policy maker through the government of Kenya should put up adequate measures to ensure that exchange rate in the country are stabilized. Further, the study recommended that additional studies should also be carried out, to include other macroeconomic variables not focused in the current study like inflation rate, interest rate which might have great influence on the growth of bond markets in Kenya.

Key words: *Bond market growth, Exchange Rate and Diaspora Remittances*

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I. Introduction

1.1 Background of the Study

The financial market that is well functioning forms a key feature in producing high economic growth in a country (Dow & Jones 2018). The bond market refers to a sector in the financial market where trading of debt securities take place. Bond market sector is the main constituent of any developed financial market as it promotes greater economic efficiency by transferring money from the people who have it in excess to those who have a shortage of the available funds (Fabella & Madhur, 2003). According to a study by Ngugi and Agoti (2014) they found that the initiatives to maintain high growth rate in the bond markets in East Asia, a country should focus on supporting a steady macroeconomic environment such as maintaining stable exchange rates. The phase of financial advancement, the receptiveness of an economy, the size of an economy, the exchange rates fluctuation and money supply also influences the bond market growth in a country (Bhattacharyay , 2013), Bond market growth has a positive influence on the economy and financial systems of a country and also provides various benefits in the sector. Consequently, it is crucial for a country to ensure that their bond market growth is desirable. (Ngugi & Agoti, 2014).

The global bond market size as at 2021 was anticipated to be 119 trillion US Dollars out of which 46 trillion US Dollars were from United States market (SIFA, 2021). The European bond capital market was estimated to comprise of 802.6 billion US dollars out of these 2 billion US dollars were from United Kingdom market (ECM, 2021). Whilst in sub-Saharan Africa, bond markets were estimated to have a size of 300 billion US dollars, out of which only 6.9186 billon comes from the bond market in Kenya (CMA, 2020). In Africa, sub-Saharan countries Kenyan bond market is rated third, after the bond markets of Nigeria and South Africa that trade an approximate daily volume of 70 million US dollars to 100 Million US dollars. However, since the year 2015 secondary trading in Kenya has been experiencing slow growth rate due to unstable macroeconomic environment such as exchange rate variability (CMA, 2015). A study conducted by Nkwende,.(2017) found that the bond market in Nigeria experiences challenges of exchange rate volatility and interest rate variability and exchange rate remained volatile which is a major problem of poor growth in the Nigerian bond market and other African countries. (CBN, 2011).

In the year 2020, monthly turnover in bond market between July and December 2020 was 69.99, 70.46, 87.41, 62.68, 48.52 and 58.06 Billion Kenyan shillings respectively. From the analysis of this information it was found that, the turnover increased by 0.68% and 24% between July & September respectively. Then the turnover decreased by 28% between September and November respectively, finally it increased by 19% between November and December (CMA, 2020). Thus the Kenyan bond market has been growing very slowly as a result of mismatch of macroeconomic variables which is evidenced from the above recorded data. However, bond yields differentials generally move in cycle with currency pairs (Fredrick, 2014)). As a matter of fact, the macroeconomic variables significantly influence the growth of bond market and investors in this market needs enough data to rely on for making wise decisions (Njihia, 2015) and (Riungi, 2012).

Exchange rate is a key variable that influence the bond market. It plays a very important role when it comes to the trade and investment aspects in an economy (Adelegan & Radzewicz-Bak, 2013). According to a study by Ndungu (2013) the foreign exchange rate plays a crucial role on the returns to foreign investors who choose to invest in the local market, and local investors who choose to invest in the foreign markets. Further foreign exchange increases do affect all aspects of an open economy as well as its financial markets. The exchange rate, interest rate and bank credit variables negatively influence the growth of the bond market and these calls for execution of sound investment policies (Kahn, 2005).

Diaspora Remittances form an important element that influences the bond market. Diaspora remittances are an external source of finance which is a more stable and reliable source of financing for developing countries. They are transfers of money, goods and services by migrants or migrant groups back to their countries of origin (Oucho, 2008). Therefore, this money could be used for investments and to support family members of the migrants among other reasons (Muiruri, 2015). They are an important external source of finance for developing countries like Kenya, and there is a theoretical positive relationship existing, between Diaspora Remittances and bond market growth. However, a study conducted by Alajekwu, 2012 confirmed diminutive proof on any causal association between the growths of various sectors in Nairobi Stock Exchange and the inflows of remittances. Nationally, Kenyan market has seen numerous changes being instituted over years to enhance the rate of growth in bond markets. These changes include deliberate efforts by the Kenya government taken to boost growth of the bonds market since 2001, (Galang & Kalui, 2015).

There is always scarcity of financial resources available for funding infrastructure projects on a long term basis in Kenya. This serves as a justification that there is need to rely on other sources like concessions derived from private sector bonds market participation. Consequently, it is vibrant that growth of both the government and corporate bond market is critical in stimulating the growth of the economy in Kenya. The study therefore sought to find the insights of these phenomena by carrying out a research to establish the correlation between exchange rates and bond market growth in Kenya.

1.2 Statement of the Problem

Bond market growth is the main focus of the world utmost economies. The growth bond market is an main element in the performance of an economic financial system and the economy of a country, since it widens the financing options and enables the government to shift its domestic debt to longer-term securities (Mishkin, 2010). In Kenya the growth of bond markets remains poor compared to other bond markets in Africa and all over the World. This scenario is attributable to continued changeably of the macroeconomic variables particularly exchange rate volatility and interest rate variability (Bhattacharyay, 2013).

A large body of literature has surveyed the influence of exchange rate on bond markets growth around the worldwide (Jiang, Tang, & Law, 2002; Githinji, 2013; Ogilo, 2014; Riungui, 2012, Longei, 2017; Mwangi, 2013; Siele, 2009; Ngugi & Agoti, 2014). However, the practical implementation of such policies by the bond market authorities offers mixed outcomes. For instance, while Githinji (2013) reported a positive outcome of exchange rates, interest rates and GDP on development of bond markets, Longei and Ali (2017) found a negative and significant impact of those variables on bond market. Moreover, Githinji (2013) covered a period of four years, Longei & Ali (2017) covered a period of ten years.

The Kenyan bond market continues to witness poor growth as compared to other markets in Africa as demonstrated by contemporary recorded data of 2016 to 2019.In East Africa, Ethiopia had a bond growth of 29%, 9%, 2017, 23%, and 25% respectively. In West Africa, Cameroun had bond growth of 27%, 28%, 51%, and 30% respectively. In North Africa, Tunisia had bond growth of 19%, 7%, 12%, and 23% respectively. In the same period Kenya bond market recorded growth rate of 8%, 2%, 7%, and 18% respectively. The level of growth rate in Kenyan bond market indicates that the country is far from developing this market. This is evidence that investors in this sector lack enough data to rely on to make wise decisions on investment portfolios (ADB, 2016).

The bond market registration of companies in Kenya stood at 24 as at December 2019, and 32 and 48 companies in South Africa and East Asian countries like Malaysia respectively (Yahya, Rahi & Rashid, 2016). This depicts low participation in Kenyan bond market industry. As a matter of fact, this occurs as a result of

unstable macroeconomic variables like foreign exchange volatility and it may lead to poor growth at the bond market. This is evidence that investors in this sector lack enough data to rely on to make wise decision on investment portfolios.

In addition, there are also noticeable challenges such as interest rate variability, exchange rate volatility and deficiency of studies on diaspora remittance on the growth of bond market in Kenya. Due to the problems mentioned above, bond market continues to witness poor growth rate. Based on the unresolved questions and inconclusive reports above regarding the growth of Kenyan bond market, this study was inspired to explore the influence of exchange rate on the bond market growth in Kenya. The study was carried out to fill the existing gap in knowledge as identified in the literature reviewed by including Diaspora remittances as a moderating variable in the study.

1.3 Study Objectives

The general objective of the study was to establish influence of macroeconomic variables on bond market growth in Kenya.

The specific objectives of the study include the following;

i. To assess the influence of exchange rates on the bond market growth in Kenya
ii. To determine the moderating influence of diaspora remittances on the relationship between the exchange rates and the bond market growth in Kenya.

1.4 Literature Review

Francová (2018) provided an overview on the analysis of the impact of selected factors on the bond market. The study employed the linear regression analysis method that is OLS with fixed effects. The study proposed an empirical model to apply this theory using corporate bonds. The study used a rich dataset from Morningstar in the period 2001-2017. The study concludes that the factors influence bond price differently for each yield and time-series. The study confirms that currency movements significantly affect the bond prices.

Nkwende (2013) investigated on factors that influence the development of bond market in Nigeria. Using time series data over the period of 32 years with ordinary least square regression techniques involving multiple regressions the study revealed that exchange rate, interest rate, inflation rate and banking sector development had a negative and significant influence on the Nigerian bond market capitalization.

Longei and Ali (2017) observed key variables as interest rate, inflation and exchange rate that influence bond market index at N.S.E. and they were found to be satisfactory variables to determine the direction of bond market index. Regression coefficients in their study indicated that interest rate and bond market index had a negative relationship. The study concluded that exchange rate and bond market index were inversely related to the bond market index.

Bhattacharyay (2011) conducted a study on empirical analysis of major determinants on the development of Asian bond markets. The study was based on the multivariate regression model of time series and cross-section panel data for a period of ten years from 1998 to 2008. The study revealed that exchange rate variability has significant negative relationship with total bond issuance under the GLE model. However, it has an insignificant positive relationship with total (for other models) and government bonds, and a negative sign with corporate bonds, but its positive relationship is not consistent with the hypothesis, as shown in the literature. To develop well-functioning domestic and regional bond markets, Asian economies and the region as a whole needs to reduce exchange rate volatility within and across economies.

Yieand and Chen (2019) conducted a study to identify the determinants of Malaysian government bond yield. They employed a few tests in their study that includes; the descriptive analysis, normality test, unit root test and the Autoregressive Distributed Lag (ARDL) model to test on data range from 2006(Q1) to 2016(Q4). Their findings indicated that all the explanatory variables, namely exchange rate, foreign interest rate and GDP growth rate are significant in explaining the variation in Malaysian government bond yield except the current account balance to GDP ratio.

Meyer and Hassan (2020) empirically investigated the impact of exchange rate volatility on the South African bond market. The study employed qantitative technique with a Johansen cointegration estimation technique. Their study employed monthly datasets from January 2000 to December 2018. Their study used the GARCH model to generate exchange rate volatility from the rand/US dollar exchange rate series. The findings of the study revealed that exchange rate volatility is a major factor limiting the potential of the economy's bond market.

Ogilo (2014) observed that bank size, exports and fiscal policy had no effect on bond market development and there was a positive effect on the exchange rate, interest rate and GDP per capita. However, there was a negative effect on the economic size measured as GDP at purchasing power parity. In conclusion

that exchange rate, interest rate, GDP per capita and GDP at purchasing power parity do affect bond market development.

Githinji (2013) sought to investigate the effect of selected macroeconomic variables on bond market development in Kenya. The study used a causal research design to find out the effect of macroeconomic variables on data for the period 2008-2012 (4 years). The study on the exchange rate, interest rate and the gross domestic product found a positive effect on bond market development. The study, therefore, concluded that exchange rate, interest rate, a gross domestic product affected bond market development.

1.5 Conceptual Framework.

The conceptual framework illustrates what is expected to find through the research study. It defines the relevant variables for the study and plots out how they relate to each other. It explains graphically or in narrative form the main study objective, the variables and the relationship that exists among them (Kothari, 2012).

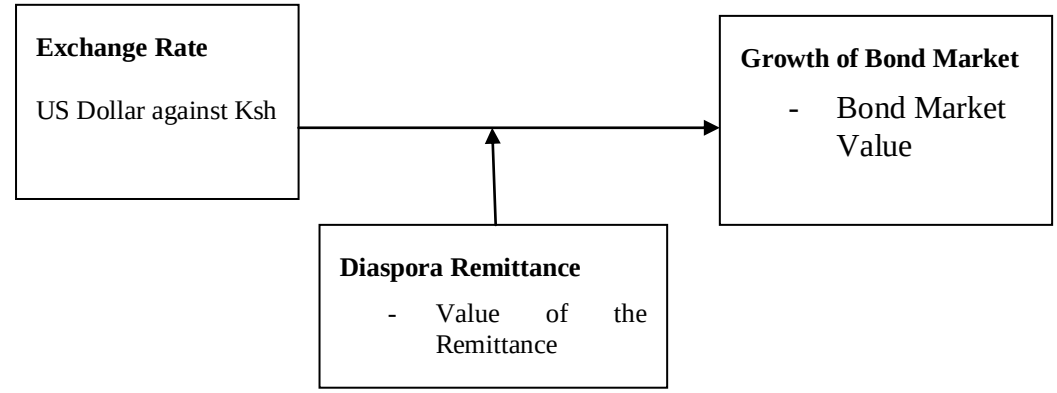

Fig 1: Conceptual Framework

II. Research Methodology

The descriptive research design was adopted in this study. The population of the study consists of 24 corporate bonds and 67 government bonds that had been issued and are being traded at Nairobi Securities Exchange within the period of the study. A census survey was conducted in this study. The sampling frame of the study constituted the macroeconomic data from the Central Bank of Kenya, Kenya National Bureau of Statistics and Nairobi Securities Exchange that covered a period of 20 years between January 2000 and December 2019. The following were the diagnostic tests that were applied in this study; stationarity test, normality tests, autocorrelation test and heteroscedasticity test. The data collected was cleaned, edited, coded and stored before being analyzed. The collected data was analyzed through the e-views and Stata software.

The analysis was also guided by time series regression equations specified below.

Model I (without diaspora remittance interaction)

$Y_t = \beta_0 + \beta_1 X_{1t} + \beta_2 Z_{1t} + \varepsilon_t$

Model 2 (with diaspora remittance interaction)

$Y_t = \beta_0 + \beta_1 X_{1t} + \beta_2 Z_{1t} + \beta_3 Z_{1t} * X_{1t} + \varepsilon_t$

Where: B_o= is the constant term (intercept), Y_t = Value of the Bond Market Growth at time t, β – are the parameters to be estimated while β_1, is a coefficient function of the independent variable, X_{1t}= Exchange Rate at a time t, Z_{1t}=diaspora remittances, ε_t = Error term or Stochastic error at time t.

III. Diagnostic Tests

3.1 Stationary Test

Stationary test was performed by the use of ADF test statistical method. The method handles more complex models and also is more powerful compared to other methods used in testing stationarity. According to ADF test statistics, the rule of thumb states that in the null hypothesis the series is non-stationary while in the alternative hypothesis the series is stationary. If the p values are less than 0.05, the null hypothesis is rejected. The more negative is the value of ADF test statistics the stronger the rejection of the null hypothesis.

In table 1, it can be observed that the calculated t-statistic is less negative than the tabulated t-values and the associated p-value is also high than the cut-off value of 0.05. This implies that this variable is not stationary at the level. This value, therefore, confirms that after including one lag the variable does not accomplish stationary

Table 1: Stationary Test of Bond Market Growth at Level

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-2.152809	0.2340
Test critical values:	1% level	-3.457865	
	5% level	-2.873543	
	10% level	-2.573242	
One-sided p-values *MacKinnon (1996).			

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From the results in table 2, it`s revealed that the calculated t-statistic is more negative than the tabulated t-values and the associated p-value is also less than the cut-off value of 0.05. This implies that the residuals are stationary at the first difference and therefore the residuals were used as the error correction term and an error correction formulation was adopted. Additionally, the data is also converted to natural logarithms. This value confirms that after including at most 12 lags the variable achieves stationary process when using the Augmented Dickey-Fuller test. This implies that the variable is integrated at order one.

Table 2: Stationary Test of Bond Market Growth at First Difference

		t-Statistic	P-value
Augmented Dickey-Fuller test statistic		-15.01529	0.0000
Test critical values:	1% level	-3.457865	
	5% level	-2.873543	
	10% level	-2.573242	
One-sided p-values*MacKinnon (1996)			

The findings in Table 3, showed that the calculated t-statistic is less negative than the tabulated t-values and the associated p-value is also more than the cut-off value of 0.05. This implies that the exchange rate variable is non-stationary at the level which indicates differencing may be a viable option. The p-values used to make the decision are those developed by MacKinnon (1996) rather than the ones from the standards tables due to the presence of sleekness characteristics in the variable under study.

Table 3: Stationary Test of Exchange Rate at Level

		t-Statistic	P-value
Augmented Dickey-Fuller test statistic		-0.913631	0.7828
Test critical values:	1% level	-3.457865	
	5% level	-2.873543	
	10% level	-2.573242	
One-sided p-values, *MacKinnon (1996)			

From Table 4 results above the Augmented Dickey-Fuller test statistic for the stationary test of the exchange rate. It shows that the calculated t-statistic is more negative than the tabulated t-values at 1%, 5% and 10% confidence levels. This denotes that the exchange rate variable is stationary after the first difference action. Also, it is noted that the associated p-value is less than the cut-off value of 0.05. This value indicates that after including 12 lags, the exchange rate variable achieves a stationary process when using the Augmented Dickey-Fuller test.

Table 4: Stationary Test of Exchange Rate at First Difference

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-10.74917	0.0000
Test critical values:	1% level	-3.457865	
	5% level	-2.873543	
	10% level	-2.573242	
One-sided p-values*MacKinnon (1996),			

Table 5 shows the Augmented Dickey-Fuller test statistic for the stationary test. The calculated t-statistic is less negative than the tabulated t-values. This implies that the Diaspora Remittances variable is non-stationary at the level which implies differencing may be a viable option. The associated p-value is also more than the cut-off value of 0.05. The p-values used to make the decision are those developed by (MacKinnon, 1996) rather than the ones from the standards tables due to the presence of skewness characteristics in the study variables

Table 5: Stationary Test of Diaspora Remittance at Level

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-0.153908	0.9408
Test critical values:	1% level	-3.458104	
	5% level	-2.873648	
	10% level	-2.573298	
*MacKinnon (1996) one-sided p-values.			

From the results in table 6, it can be observed that the calculated t-statistic is now more negative than the tabulated t-values. This implies that the Remittances variable is stationary after the first difference action. The associated p-value is also less than the cut-off value of 0.05. The p-values used to make the decision are those developed by (MacKinnon, 1996) rather than the ones from the standards tables due to the presence of skewness in the data. This value confirms that after including one lag the Remittances variable achieves a stationary process when using the Augmented Dickey-Fuller test.

Table 6: Stationary Test of Diaspora Remittance at First Difference

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-13.07468	0.0000
Test critical values:	1% level	-3.458104	
	5% level	-2.873648	
	10% level	-2.573298	
One-sided p-values, *MacKinnon (1996).			

3.2 Normality Test

Figure 2, presents the output results of the Normality test for residuals to determine whether the model follows a normal distribution. The study adopted the asymptotic test Jarque Bera statistical method. The asymptotic test was applied because it captures both skewness and kurtosis. The value of the skewness is 0 and kurtosis is 3 which imply that the residuals are normally distributed and thus the model was optimally identified.

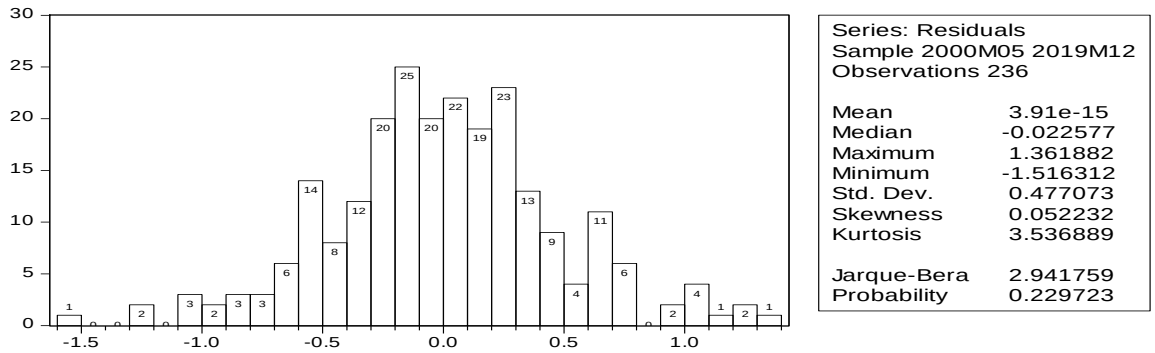

Figure 2: Residuals Normality Test Results

3.3 Autocorrelation Test

Table 7 presents the results of the autocorrelation test on the residuals. The first column presents the number of lags used. The second column presents the respective autocorrelation coefficients. The third column presents the partial correlations all at less than 0.05. The fourth column presents the Q-statistic, while the last column presents the probability statistics all of which are insignificant (p-value is greater than 0.05). The test results show that there is no autocorrelation problem in the residuals meaning that the model is well identified. In conclusion, the test results revealed that there was no evidence of autocorrelation among the residuals meaning that the model is optimally identified.

Table 7: Autocorrelation Test Results

Lags	Autocorrelation	Partial Correlation	Q-Stat	Probability
1	0.072	0.012	1.2429	0.265
2	-0.069	-0.075	2.4173	0.299
3	0.028	0.039	2.6038	0.457
4	0.009	-0.001	2.6237	0.623
5	0.073	0.028	3.9317	0.559

3.4 Heteroscedasticity Test

The output results in Table 8 revealed that the problem of heteroskedasticity does not exist in the residuals indicating that the model is well identified. The test indicates that the variance and the mean of all the estimates are constant regardless of timeline and that the model can be used to predict or forecast future movements. The probability statistics of both the F-statistic and the Chi-square probabilities of F (1,237)

0.2662 and Prob. Chi-Square (1) 0.2643 are insignificant. This shows that the model specified is optimal.

Table 8: Heteroscedasticity Test Results

Heteroscedasticity Test: ARCH			
F-statistic	1.241889	Prob. F(1,237)	0.2632
Obs*R-squared	1.245851	Prob. Chi-Square(1)	0.2653

IV. Empirical Results and Findings

4.1 Correlation Analysis

The linear association of explanatory variables was determined using a correlation matrix. This determines the strengths and nature of the association between exchange rate, diaspora remittance and bond market growth.

Table 9 shows the results on the correlation between the variables. The findings reported above indicates that exchange rate and bond markets growth displayed a positive relationship rate (r=0.414, p value=0.000). Also, the diaspora remittance showed a positive relationship with bond market growth (rate (r=0.633, p value=0.000). Further, the results indicate the positive significant relationship between diaspora remittance and exchange rate (r=0.565, p value=0.000). From the correlation matrix output results, it can be concluded that a strong positive significant correlation exists between the study variables.

Table 9: Correlation Matrix Test Results

ility	of the bond market	ge rate	ra remittance
of the bond market			
ge rate			
ra remittance			

4.2 Model Summary

Table 10 presents the results on the fitness statistics. From the results, it can be observed that R^2 in model 1 was 0.748 and model 2 was 0.816 and the associated P values in both models were significant. This implies that 74.8% in model 1 and 81.6% in model 2 of bond market growth could be explained by exchange rate. However, 25.2% in model 1 and 18.4% in model 2 of bond market growth could not be explained by exchange rate. The results further reveal that the R- square change and F-change are statistically significant between models one and two. This implies that the moderation influence of diaspora remittances on the relationship between exchange rate and growth of bond markets in Kenya is significant.

Table 10: Model Summary for Moderation of Exchange Rate

Model	**R**	**R Square**	**Adjusted R Square**	**Std. The error of the Estimate**	**Change Statistics**				
					R Square Change	**F Change**	**df1**	**df2**	**Sig. F Change**
1	.865	.748	.746	.748479	.326	307.250	1	237	.000
2	.903	.816	.813	.6414753	.068	86.662	1	236	.000

4.3 Analysis of Variance

Table 11 presents the results on the fitness statistics. From the results, it can be observed that all the p-values are statistically significant. All the p-values are less than 0.05. This is further reinforcement that the addition of variables was relevant to the explanation in the bond market. The output results in model 1 and 2 revealed that the variables used are appropriate in explaining the bond market growth with significant p values.

Table 11: ANOVA Table for Moderation of Exchange Rate

Model		Sum of Squares	df	Mean Square	F	p-value
1	Regression	394.465	2	197.328	352.05	0.001
	Residual	132.782	237	.560		
	Total	527.228	239			
2	Regression	430.126	3	143.372	348.42	0.000
	Residual	97.112	236	.411		
	Total	527.228	239			

4.4 Overall Regression Model

The result from model one in table 12 shows the regression coefficients of the exchange rate as an independent variable and the diaspora remittance as a control variable. The study findings revealed that both diaspora remittances and the exchange rate had a strong direct influence on the growth of the bond markets with the coefficient of 1.969 and 1.560 and the p values of 0.002 and 0.000 and were significant. The second model shows that when the diaspora remittance was introduced as an interaction term the results show that there is a statistically significant effect of diaspora remittances as a moderator. The positive coefficient of 112.362 for exchange rate after moderation is larger than for the control model of 1.969 and a significant p-value. Thus this section concludes that the diaspora remittance variable is a relevant moderator for the exchange rate. These results agree with the results found by Francová (2017) and also contradicts those of Ochieng (2016).

Table 12: Coefficients for Moderation of Exchange Rate

Model		Coefficients		t-statistics	p-value
		B	Std. Error		
1	(Constant)	-3.075	1.615	-1.905	.058
	Exchange rate	1.969	.631	3.122	.002
	Diaspora remittances	1.560	.089	17.529	.000
2	(Constant)	-509.165	54.382	-9.363	.000
	Exchange rate	112.362	12.293	9.140	.000
	Diaspora remittances	23.868	2.397	9.955	.000
	Diaspora remittances *Exchange rate	-5.034	.541	-9.309	.000

V. Conclusions

Based on the analyzed data results it was concluded that there was a strong positive relationship between diaspora remittance, exchange rate and bond market growth in Kenya. The study concluded that the exchange rate had a positive significance influence on the growth of bond markets in Kenya. If the exchange rate increases, the bond market growth also improves. The study found that exchange rate was a relevant variable in determining the direction of growth rate in the bond market. Finally, the study also concluded that diaspora is a worthy moderator as well as a good control variable. The results support the findings of Le, Nguyen and Nguyen (2015) and contradict with the findings of Bhattacharyay (2013).

VI. Recommendations

The study recommended that the government through their policymakers should put up adequate measures to ensure that exchange rates are stabilized. The state of stability may lead to increased confidence and predictability particularly by corporate and individual investors who are shareholders in the bond market sector and this promotes the economic growth in our country Kenya. The study recommends further investigations to be done on other macroeconomics variables not investigated in this study. Other studies to be conducted on other developing countries may help them to formulate policy structures that help them improve the growth rate of their bond markets.

References

[1]. Adelegan, O. J., & Radzewicz-Bak, B. (2009). *What determines bond market development in sub-Saharan Africa?* International Monetary Fund.

[2]. Bhattacharyay, B. N. (2011). Bond market development in Asia: An empirical analysis of major determinants.

[3]. Bhattacharyay, B. N. (2013). Determinants of bond market development in Asia. *Journal of Asian Economics*, *24*, 124-137.

[4]. Blumberg, B., Cooper, D., & Schindler, P. (2014). *EBOOK: Business Research Methods*. McGraw Hill.

[5]. Cooper, D.R., & Schindler, P.S. (2021). *Business Research Methods* (9th ed). New York: Mc-Graw Hill.

[6]. Creswell, J. W. (2021). *A concise introduction to mixed methods research*. SAGE publications.

[7]. Fabella, R. V. (2019). Bond market development in East Asia: issues and challenges.

[8]. Francová, B. (2018). An analysis of the impact of selected factors on the bond market. *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis*, *66*(6), 1451–1458.

[9]. Francová, B. (2017). Valuation of government bonds: The exchange rate is an important aspect. *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis*, *65*(6), 1911-1916.

[10]. Fredrick, O. (2014). The Effect of Selected Macro-Economic Variables on Bond Market Development in Kenya. *DBA Africa Management Review*, *4*(2).

[11]. Githinji, G. W. (2013). *The effect of selected macro-economic variables on bond market development in Kenya* (Doctoral dissertation, University of Nairobi).
[12]. Hennink, M., Hutter, I., & Bailey, A. (2020). *Qualitative research methods*. Sage.
[13]. Ishak, N. M., Bakar, A., & Yazid, A. (2014). Developing Sampling Frame for Case Study: Challenges and Conditions. *World Journal of Education*, *4*(3), 29-35.
[14]. Kemboi, J. K. & Tarus, D. N. (2012). Macroeconomic determinants of stock market development in emerging markets: Evidence from Kenya. *Research Journal of Finance and Accounting*, *3*(5). 160-198.
[15]. Kothari, C. R. (2012). *Research methodology: Methods and techniques* (2nd Ed.) New Delhi: New Age International.
[16]. Le, D. P., Nguyen, Q. T., & Nguyen, T. M. (2015). The development of corporate bond markets: A cross-country analysis. *International Journal of Economics and Finance*, *8*(1), 50.
[17]. Lee, C. F. (2020). Financial econometrics, mathematics, statistics, and financial technology: an overall view. *Review of Quantitative Finance and Accounting*, *54*(4), 1529-1578.
[18]. Leshem, S., & Trafford, V. (2007). Overlooking the conceptual framework. *Innovations in education and Teaching International*, *44*(1), 93-105.
[19]. Longei, H. (2017). Determinants of a bond market index at the Nairobi securities exchange in Kenya. *Strategic journal of business & change management*, *4*(4), 58-69.
[20]. Mayer, I. (2015). Qualitative research with a focus on qualitative data analysis. *International Journal of Sales, Retailing & Marketing*, *4*(9), 53-67.
[21]. Mbithi, A. (2013). *The effect of foreign exchange rates on the financial performance of firms listed at the Nairobi Securities Exchange*. Unpublished MBA Project, Nairobi: University of Nairobi.
[22]. Meyer, D. F., & Hassan, A. S. (2020). Analysis of The Impact of Exchange Rate Volatility on the South African Government Bond Market. *International Journal of Economics and Finance*, *12*(2).
[23]. Mishkin, F. S. (2007). *The economics of money, banking, and financial markets*. Pearson education.
[24]. Ndung'u, N. (2013). Challenges in developing a successful bond market in Kenya Remarks by Governor of the Central Bank of Kenya. at the Market Leaders Forum dinner.
[25]. Newing, H., Eagle, C. M., Puri, R. K., & Watson, C. W. (2011). Researching conservation: a social science perspective. Abingdon.
[26]. Ngugi, D.M. (2013). The Effect of Regulation on Infrastructure Bonds Uptake in Kenya. *Review of Financial Studies*, *2*(3), 297
[27]. Ngugi, R. W. and Agoti, J. (2014). Microstructure elements of bond markets in Kenya. *African conference paper*, 46 KIPPRA Discussion Paper No.027, Nairobi: Kenya Institute for Public Policy
[28]. Nkwende,E. F.(2017). Selected Macroeconomic Factors versus Bond Market. Development in Nigeria. *International Journal of Business and Management Invention*, *6*(4), 88-97.
[29]. Nymoen, R. (2020). *Dynamic Econometrics for Empirical Macroeconomic Modelling*.
[30]. Ochenge, R. O. (2014). Essays on the Microstructure of Government Bonds Market in Kenya. *Review of Finance*, *18*(1), 387-452.
[31]. Ochieng, O. (2016). *The Effect of Exchange Rate Movement on the Performance of the Nairobi Securities Exchange* (Doctoral dissertation, University of Nairobi).
[32]. Podobnik, B., & Stanley, H. E. (2008). Detrended cross-correlation analysis: a new method for analyzing two nonstationary time series. *Physical review letters*, *100*(8), 084102.
[33]. Sekaran, U., & Bougie, R. (2011). Business Research Methods: A skill-building approach. *Chichester: John Wiley& Sons Ltd*.
[34]. Shapiro, A. C., & Rutenberg, D. P. (1976). Managing exchange risks in a floating world. *Financial Management*, 48-58.
[35]. Shiller, R. J. (2008). *Derivatives markets for home prices* (No. w13962). National Bureau of Economic Research.
[36]. Siele, W. (2009). *Study on the relationship between bond market return and some selected macroeconomic variables in Kenya*. Unpublished MBA Thesis, Juja: JKUAT.
[37]. Sprčić, D. M., & Wilson, I. (2007). The development of the corporate bond market in Croatia. *EuroMed Journal of Business*.
[38]. Tabachnick, B. G., Fidell, L. S., & Ullman, J. B. (2007). *Using multivariate statistics* (Vol. 5, pp. 481-498). Boston, MA: Pearson.
[39]. Tolliver, C., Keeley, A. R., & Managi, S. (2020). Drivers of green bond market growth: The importance of Nationally Determined Contributions to the Paris Agreement and implications for sustainability. *Journal of cleaner production*, *244*, 118643.
[40]. Ventresca, M. J., & Mohr, J. W. (2017). Archival research methods. *The Blackwell companion to organizations*, 805-828.
[41]. Were, J. M. (2010). *An investigation of the factors influencing the development of corporate bonds market: the case of Kenyan Financial Market* (Doctoral dissertation, University of Nairobi, Kenya).
[42]. World Bank Group. (2016). *Kenya Economic Update, October 2016: Beyond Resilience--Increasing Productivity of Public Investments*. World Bank.
[43]. Yahya, Rahi & Rashi (2016) Determinants of corporate bond yield in Malaysia bond market. *International Journal of Business and Society, 17(2), 245-258.*
[44]. Yieand, C. V., & Chen, N. H. (2019). Determinants of bond yield. *International Journal of Recent Technology and Engineering*, *7*(5), 238–244.

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