INVESTORS' SENTIMENTS, MARKET DYNAMICS AND STOCK MARKET RETURNS IN NIGERIA

[1]Nnoje, Andrew Izuchukwu, [2]Okonkwo, Jisike Jude (Ph.D) and [3]Anachedo, Chima Kenneth

[1, 2, 3]Department of Banking & Finance. Nnamdi Azikiwe University Awka. Anambra State.

Abstract

This work studied the effects of investors' sentiments, real exchange rate and real interest rate on Nigeria's stock market returns 1985-2017. The study used secondary data from annual reports of Nigeria Stock Exchange. Regression analysis, unit roots and diagnostic test were used in the analysis. The Granger Causality test was applied to determine the direction of causality. The results from all our analysis show that investors' sentiment had a statistically positive significant relationship with stock market returns in Nigeria. Governments should support the stock exchange and securities commission with capital market policy guidelines and supports that would prevent extreme investors' sentiments that would lead to massive losses for retail and institutional investors. Investors' portfolio managers and other investing stakeholders should develop sentiment period market strategies and regularly review their investment sentiment biases in order to effectively manage investors' emotion biases. Policy makers such as Securities and Exchange Commission (SEC) should sensitize and enlighten investors on the negative consequences of psychology bias on the performance of the market in general and the performance of the investments in particular. The novelty of this research lies on the fact that it considered macroeconomic variables of real exchange rates and real interest rates on stock market returns as against the few empirical studies that focused only on investment sentiment.

Keywords: Investors' Sentiments, Real Exchange Rate, Real Interest Rate, Stock Market Returns

Introduction

The influence of a company's fundamentals cause stock prices to rise and fall. It is argued that in behavioural finance theory, investors are not necessarily rational, and may be prone to exogenous sentiment waves (Naik and Padhi, 2016; Pandey & Sehgal, 2019; Bolaman & Evrim-Mandaci, 2014). Investor's perception about the market lead them to a predisposition of illogicalities in an investment decision. Anusakumar and Wooi (2017) stated that sentiment is purported to affect returns as investors' optimism or pessimism may induce mispricing to occur in the stock market. During investment, investors behave differently according to their propensity to the risk and the future expectations which may be rational or irrational (Concetto & Ravazzolo, 2019; Ahmed, 2018).

The normal capital asset-pricing models denote that capital asset prices are an impartial process, which is founded on investors' approach towards risk and the realization of expected utility. Rashid, Fayyaz and Karim (2019) stated that however, it has been widely argued that the standard asset-pricing models cannot fully explain stylized patterns of stock returns due to the existence of a huge gap in theory and practice. Principally, these models are based on several unrealistic assumptions. These assumptions include financial markets are efficient and frictionless, investors are rational and risk-averse whose utility functions are better approximated by quadratic utility functions. With the development of the financial market, behavioural finance rejected the assumption of investors' perfect rationality and holds that investors tend to be affected by their sentiment while making decisions, which leads to a bias of irrationalities in investment decisions (Huang, Yang, Yang, & Hu, 2014; Rupande, Muguto, & Muzindutsi, 2019; Sayim & Rahman, 2015).

There is a prevalence of noise traders in every stock market but their effect is determined by the disposition of the market (emerging or stable) to contain such conditions instigated by these noise traders. If the effect of these noise traders does not cancel out in aggregate, then the risk for arbitragers increases. Noise traders have a major role in the disruption of regularity to the rational investors as their non-fundamental knowledge makes it riskier for the arbitrager, thus having a noise impact on the stock market returns and vice versa (Rehman, 2013; Khan & Ahmad, 2018). This means that the noise traders may survive in the market for protracted periods. Further, rational investors demand a risk premium to trade stocks that are prone to noise trading. This is because the unpredictability of the noise traders' beliefs creates a risk—termed as noise trader risk—in the price of the asset that deters rational arbitrageurs from aggressively betting against them.

Both fundamental and technical approaches to determining stock return most times reflect in the macroeconomic variables like real interest rate and real exchange rate. The likely effect of sentiment on returns is deduced from the investigation of other variables (Anusakumar and Wooi, 2017 as cited by Kurov, 2010; Kaplanski & Levy, 2012; Kaustia & Knupfer, 2012). Baker and Wurgler (2006) recognized investors' psychology as a vital component in the market pricing process of financial assets. This is because the sentiment of investors' may also reflect their risk profile and investors' emotion are displayed in different forms. Bormann, (2013) has unearthed strong evidence for the mispricing theory, discovering that market-wide investor sentiment is a key influence.

There has been a lot of work on investors' sentiment which focuses on the US and other developed stock markets (Bolaman & Evrim-Mandaci, 2014; Pandey & Sehgal, 2019; Xavier & Machado, 2017; Sayim & Rahman, 2015; Oprea & Brad 2014). Most of these works have been in controversies with regards to what triggers movement in equity prices in emerging equity markets. This disagreement among researchers have

taken a new dimension since the computation of indices for measuring investors' sentiment. The introduction of investors' sentiment as an explanatory variable in predicting equity price movement is being considered in emerging economies and could be useful if applied to Nigeria. Thus, the objective of the study is to examine the effect of investors' sentiment in conjunction with macroeconomic variables of real exchange rates and real interest rates on stock market returns.

Literature Review

Conceptual Review

Investors' Sentiment

Investors' sentiment in a general term refers to the attitude, emotions and biases that exhibit in the course of investment decisions. Baker and Wurgler (2006) explained it as the propensity to speculate optimism or pessimism of a given asset. Barker and Stein (2004) described investors' sentiment as the misevaluation that is created by a group of investors. Brown and Cliff (2005) opined that investors' sentiment is the discrepancy that exists between rational and irrational investors. This, therefore, means that investors' heterogeneity can also be called investors' sentiment. Prior empirical studies on investors' sentiment and how the concept can be measured have generated the issue of whether investors' sentiment is directly observable or not. This is why investors' sentiment is viewed by some researchers from a normative perspective. The definition of Baker and Wurgler (2007) confirms the subjective nature of investors' sentiment. They described investors' sentiment as what asset prices should be and not what it is.

Theoretical Framework

This study is anchored on the theory of Efficient Market Hypotheses (EMH) because of its disposition to changes in the information, noise, hearsay and bandwagon effect all of which are part of investors' sentiment. EMH equity prices would always reflect their true values and any deviation is immediately restored but this restoration process might be limited by information asymmetry and investors' irrationality. Rehman (2013) mentioned that the traditional concept of efficient market hypothesis is based on the principle that the prices of stock incorporate all available information and no investor can earn abnormal returns based on some private information has prevailed for a long time in explaining the stock returns. Information asymmetry and investors' irrationality are components of investors' sentiments. The Efficient Market Hypothesis (EMH) is one of the fundamental equity price models used to explain the movement of prices around their fundamental values. The theory relates important worth to the possible pay of stocks and that the current prices of any equity traded are based on its essential price. The fundamental value of equity in the theory was related to all forms of new information and any discrepancies between the current prices and the fundamental values would be random and short-lived. The basic theme of the random walk hypothesis theory of equity prices determination is traced to the assumption that

the fundamental value of equity is determined by new information and when this new information gets to the market, the current prices would adjust to them immediately.

Empirical Review

Xavier and Machado (2017) studied the relationship between investor sentiment and value anomalies in Brazil. The sample included all non-financial firms listed on the B3 (*Brasil, Bolsa, Balcão*) stock exchange from July 1999 to June 2014. We used the Principal Component Analysis multivariate technique to capture the component common to four different proxies for investor sentiment. The study empirically tested the index series and its variation on the return series of Long-Short portfolios of 12 anomaly-based strategies. The study found that the measure of the sentiment index had a partial explanatory power for the anomalies only when included in the CAPM and when analyzing average returns after optimistic and pessimistic periods, the values in the empirical test were not statistically significant enough to infer the possible existence of short-sale constraints.

In a related study, Pandey and Sehgal (2019) determined investor sentiment and its role in asset pricing in India. The study experiment with the construction of alternative investor sentiment indices. It evaluates the role of the sentiment-based factor in asset pricing to explain prominent equity market anomalies such as size, value, and price momentum for India. Based on the findings, the Composite Sentiment index leads other sentiment indices currently in vogue in investment literature. The asset pricing models, including the more recent Fama French 5 factor model, are not fully able to explain the small firm effect which is captured by our sentiment-based factor which seems to proxy for the price over-reactions

Rupande, Muguto and Muzindutsi (2019) assessed investor sentiment and stock return volatility in South Africa. The study hypothesized that there are movements in risk that are driven by volatility linked to sentiment-driven noise trader activity whose patterns are irreconcilable with changes in fundamental factors. This assertion is tested using a daily sentiment composite index constructed from a set of proxies and Generalized Autoregressive Conditional Heteroscedasticity models on the South African market over a period spanning July 2002 to June 2018. The results show that there is a significant connection between investor sentiment and stock return volatility which shows that behavioural finance can significantly explain the behaviour of stock returns on the Johannesburg Stock Exchange. It is, thus, recommended that due to the inadequacies of popular asset pricing models such as the Capital Asset Pricing Model, consideration should be made towards augmenting these asset pricing models with a sentiment risk factor.

Rashid, Fayyaz and Karim (2019) evaluated investor sentiment, momentum, and stock returns as an examination for direct and indirect effects using sentiment and

momentum factors on market risk, size, and value premiums by estimating the interacted asset-pricing model. To carry out the empirical analysis, monthly stock returns of firms listed on the Pakistan Stock Exchange are used for the period 2000–2013. The empirical results indicate that both investor sentiment and momentum factors have a significant impact on the required rate of returns. Specifically, it is found that the premium for both factors is positive and statistically significant. Further, the estimated results provide evidence that the inclusion of these two factors in the Fama-French three-factor model considerably increases the prediction power of the model. The results also reveal that the inclusion of the sentiment factor in the Carhart four-factor model significantly increases the prediction power of the model. The results of the interacted model provide evidence of a significant impact of investor sentiment and momentum factors on market risk, size, and value premiums.

Pei-En (2019) determined if investor sentiment and investor behaviour have considerable influence on the stock return. The study searched for predictable indicators and measure them based on two approaches: One is the investor behaviour indicator measured by using proxy variables (such as short-term rate of return, the long-term average rate of return, turnover rate, and earning-to-price ratio) and the other is the investor sentiment measured by using proxy variables (investor sentiment index, the consumer confidence index, and the market volatility index). In addition, this study creates a stock prediction using the neural networks technique and examines whether the predicted returns reflect the actual returns. Finally, this study expects that the empirical results not only provide important academic value in the financial field but also provide efficiently an investment strategy for investors and financial institutions.

In a related study, Concetto and Ravazzolo (2019) investigated how investor sentiment affects stock market returns and evaluates the predictability power of sentiment indices on U.S. and EU stock market returns. As regards the American example, evidence shows that investor sentiment indices have an economic and statistical predictability power on stock market returns. Concerning the European market instead, the investigation provides weak results. Moreover, comparing the two markets, where investor sentiment of U.S. market tries to predict the European stock market returns, and vice versa, the analyses indicate a spillover effect from the U.S. to Europe.

Another study on the emerging markets by Khan and Ahmad (2018) examines bi-directional contemporaneous and lead-lag relationships between investor sentiment and market returns of Pakistan from 2006 to 2016. The study employed a direct proxy namely Google search volume index (GSVI) and nine other indirect proxies. Besides conventional regression and the VAR model, the study applies Geweke's (1982) tests to investigate the nature of relationships between sentiment and returns. The results indicate a substantive role of sentiment in dragging the stock market away from its sustainable path as implied by economic fundamentals.

Ahmed (2018) conducted a study on the Pakistan stock market to find the relationship between stock market return and volatility. Different market proxies are used to examine the investor sentiments like Stock traded volume, first-day return on IPOs, Dividend Premium, Mutual Funds Flow, and Close Ends Funds Discount, Margin Borrowings, Stock Turnover Ratio. Investor sentiments are used as an independent variable and stocks market volatility is used as a dependent variable. The ARCH regression model was used to examine the association among dependent (Stocks Market Volatility) and independent variables (Investors sentiments). Arch regression model effect that it is a good fit to our research model, and according to results show that Stock Traded Volume Negative and insignificant relationship with volatility, First-day return on IPO have a positive but insignificant relationship with stock market volatility; Dividend Premium has a positive and significant relation with stock market volatility, Margin Funds Flow have a positive and significant impact on stock market volatility, Closed-end Funds Discount has a positive but insignificant effect on stock market volatility, Margin Borrowings have a negative and insignificant impact on stock market volatility, Stock Turnover Ratio have a positive and significant relationship with stock market volatility.

Anusakumar, Ali and Wooi (2017) explored the link between investor sentiment and stock returns in emerging Asian markets. Two dimensions of sentiment are examined: stock-specific sentiment and market-wide sentiment. Using panel regression with firm fixed effects shows that stock-specific sentiment strongly and positively affects stock returns after controlling for firm characteristics. Overall, there is a positive relationship between market-wide sentiment and returns but the relationship does not hold at the country level. For individual countries, there are substantial country-to-country variations in the influence of market-wide sentiment on returns. The evidence also suggests that stock-specific sentiment may have a greater influence on returns than market-specific sentiment. Furthermore, the effect of investor sentiment on stock returns in emerging Asian markets generally persists after accounting for macroeconomic factors.

Sayim and Rahman (2015) evaluated the effect of rational and irrational components of U.S. institutional and individual investor sentiment on Istanbul Stock Market (ISE) return and volatility. The results show that there is a significant spillover effect of U.S. investor sentiment on stock return and volatility of ISE. A breakdown of sentiment by the type of investor shows that the impact of institutional sentiment is greater than that of individual sentiment. A breakdown of sentiment by rationality shows that the effect of rational sentiment on ISE return is faster though not necessarily greater than that of irrational sentiment. The conclusion from these results is that the effect of U.S. investor sentiment is systemic and cannot be diversified away. U.S. investor sentiment, therefore, constitutes a priced risk factor and must be accounted for accordingly in international asset pricing models. The findings also provide some evidence of a negative relationship between U.S. investor sentiment and ISE return volatility.

Ahmed and Ullah (2012) investigated investors' sentiment and stock market dynamics in Pakistan. Their major purpose was to confirm whether investors' sentiments had any impact on the return of the Karachi Stock Exchange (KSE). Time series analysis of autoregressive distributive lag (ARDL) is used in this study. Their results on investor sentiments were proven to have a positive and significant coefficient that indicates its impact on KSE returns. The study proved that investor sentiments have a positive significant coefficient when it comes to explaining market returns.

Finter, Ruenzi and Ruenzi (2010) examined the impact of investor sentiment on the German stock market. Using a principal component analysis, they constructed a sentiment indicator that condenses information of several well-known sentiment proxies and their results show that this indicator explains the return spread between sentiment stocks and stocks that are not sensitive to sentiment fluctuations. However, the model did not have much predictive power of sentiment for future stock returns. Their findings were consistent with sentiment being of minor importance on the German stock market that is characterized by a low fraction of retail investors.

Fisher and Statman (2003) examined whether the consumer confidence index is a good proxy for the individual investors' sentiment and if the consumer confidence index predicts stock returns. Their result shows that changes in the consumer confidence index were accompanied by statistically significant changes in the individual investor sentiment about the stock market. The contemporaneous relationship between changes in consumer confidence and S&P 500 returns is positive. It observed that high consumer confidence is generally followed by low future S&P 500, NASDAQ and small stock returns.

Methodology

Research Design

The study adopts the ex post facto research design and utilises time-series data from secondary sources for this research includes the Central Bank of Nigeria (CBN) Statistical Bulletins of the relevant periods, Securities and Exchange Commission (SEC) and Nigerian Stock Exchange (NSE).

Model Specification

In this study, a multiple regression analysis is used with Stock Market Return as the dependent variable, Investors' sentiment, Real Exchange Rate and Real Interest Rate as independent variables. The model is adopted from the model of Zubairu (2014) and is presented thus as:

Smr = *f* (Sentpca +Exrt + Intr)…….(i)
Explicitly, the model could be stated in logarithm form as:
$LogSmr = \beta_0 + Log\beta_1 Sentpca + Log\beta_2 Rexrt + Log\beta_3 Rintr + e$ ……(ii)

Where = Smr is dependent variable, Sentpca, Rexrt, Rintr = independent variables, Smr = Stock Market Return, LogSentpca = logarithms of Investor' Sentiment, LogRexrt = logarithms Real Exchange Rate, LogRintr = logarithms Real Interest Rate, B's = parameters to be estimated, e = error term. Using the principal component analysis, investors' sentiment was proxied by turnover ratio.

Analysis and Results
The descriptive statistics show the description of the mean, standard deviation and normality test. Below is the descriptive statistics of the variables under the period of 1985 to 2017.

Table 1: Descriptive statistics

Variables	Mean	Standard Dev	Jarque-Bera	Observation
SMR	0.056	0.12	10.173(0.0)	120
SENTP	-0.00058	0.126	9.654(0.0)	120
CA	20.471	4.657	9.813(0.0)	120
RINTR	77.01	61.95	15.857(0.0)	120
REXRT				

Source: Computer Output using E-Views 10.0.

The historically average Stock Market Returns (SMR) was 0.056 and a standard deviation of 0.12. The high standard deviation of stock market returns when compared to the mean shows that there have been stock market uncertainty in Nigeria. The historically average level of investors' sentiment (SENTPCA) was -0.00058 and a standard deviation of 0.126. The high standard deviation of the level of investors' sentiment when compared to the mean shows that there has been a presence of variation in investors' behaviour/sentiment in Nigeria (Amedu, 2010 & Oyetan, 2013). The real exchange rate (REXRT) had an average value of N77.01 and the standard deviation was 61.95. This means that the period under study was also characterized by exchange rate variations. In the case of the real interest rate (RINTR), its historical average was 20.4% from 1985 to 2017. This high-interest rate has been a major concern for users of borrowed funds in Nigeria. The standard deviation of 4.657 shows that there is low variation in the high real interest rate. The standard deviation (7.14) shows that there was dispersion in the variables over the period.

Figure 1: All Share Price Index from 1984 to 2017

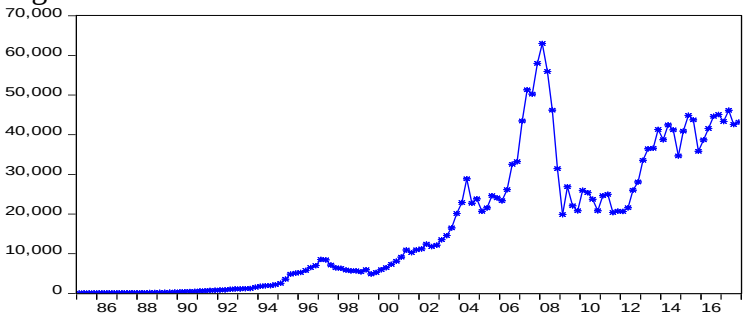
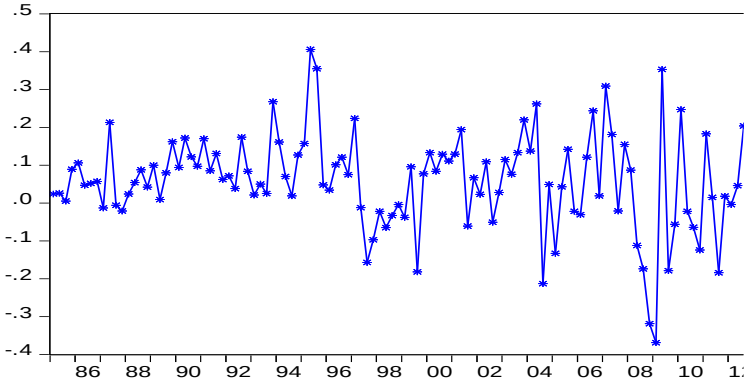
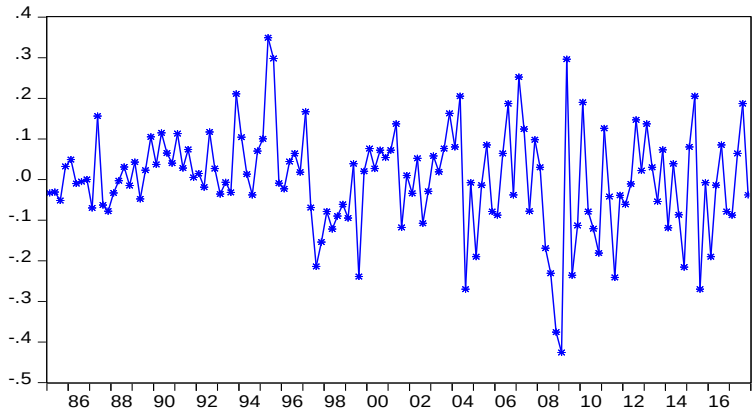


Figure 2: All Share Price Index Returns from 1984 to 2017



The All Share Price Index of Nigeria in the period shows a zero low-level movement until 1995 when the index began to improve for the first time in the period studied. It came to its peak in 2008 when share prices in Nigeria went to their all-time high levels before its crash in 2009. However, the index began to pick up again. The All Share Price Index Return graph is full of positive and negative movements. The same with that of the Investors' sentiment index. This dynamism has a lot of impact on the research methodology to determine the relationships among the variables.

Figure 3: Investors' Sentiment Index from 1984 to 2017



A cursory look at the graphs shows that the variables are dynamic especially all share price index returns and investors sentiment index. This, therefore, means a time series dynamic model will be more appropriate to study the relationship among our variables. The graphs also show that the unit root and co-integration tests will also be needed to test for stationarity and long-run equilibrium relationship.

Correlation Matrix

	SMR	**SENTPCA**	**REXRT**	**RINTR**
SMR	1.00			
SENTPCA	0.99	1.00		
REXRT	0.13	0.13	1.00	
RINTR	0.07	0.08	0.33	1.00

Source: Computer Output using E-Views 10.0.

Table 2 shows that Stock Market Returns (SMR) has a weak positive correlation relationship with real interest rate (RINTR =0.07). A close look at the value of the correlation coefficient results revealed that Stock Market Returns (SMR) had a relatively higher positive relationship with the exchange rate (EXRT= 0.13). This means that stock market investors in Nigeria are more likely to respond to exchange rate variations than to interest rates. The table also shows that Stock Market Returns (SMR) has a high positive correlation with the level of investors' sentiment (SENTPCA =0.99). This means that market sentiment/psychology is highly associated with stock market returns.

Unit Root Test

Table 3: Augmented Dickey-Fuller Unit Root Test at Level

	Variable	ADF Statistics	ADF (95%)	Order of Integration	Remark
Level	SMR	-8.819	-2.885	I(0)	Stationarity
	SENTPCA	-8.819	-2.885	I(0)	Stationarity
	EXRT	-0.264	-2.885	I(0)	Non-Stationarity
	INTR	-2.724	-2.885	I(0)	Non-Stationarity

Source: Computer Output using E-Views 10.0.

The empirical findings from the table above reveal that stock market returns (SMR) and investors' sentiment (SENTPCA) were stationary at level. While real interest rate (RINTR) and real exchange rate (REXRT) were not stationary at level. This, therefore, means that using the OLS regression techniques at levels in estimating our formulated model would lead to spurious regression results since some of the variables were not stationary at level. To resolve this problem, the first differences of the variables were taken and they were subjected to ADF Unit root test. Table 3, shows the results of the Unit root test at the first difference using the ADF test.

Table 4: Augmented Dickey-Fuller Unit Root Test at First Difference

	Variable	ADF Statistics	ADF (95%)	Order of Integration	Remark
First Difference	ΔSMR	-13.157	-2.886	I(1)	Stationarity
	ΔSENTPCA	-13.157	-2.886	I(1)	Stationarity
	ΔEXRT	-9.714	-2.886	I(1)	Stationarity
	ΔINTR	-10.178	-2.886	I(1)	Stationarity

Source: Computer Output using E-Views 10.0.

The empirical findings from table 4 above reveal that Stock Market Returns (ΔSMR), investors' sentiment (ΔSENTPCA), real interest rate (ΔRINTR) and real exchange rate (ΔREXRT) were stationary at first difference. This, therefore, means that using the OLS regression techniques at levels in estimating our formulated model would lead to spurious regression results since some of the variables were not stationary at level. This in other words means that after taking the first difference of the variables and testing for their stationarity property, they all became stationary. Thus, the best regression results were obtained when the first differences of the variables were used to estimate the model. The results also show that the variables are all integrated of order one.

Co-Integration Test

Co-integration among times series suggests that series may behave differently in the short run but that they will converge toward a common behaviour in the long run. According to Engle and Granger (1987), sets of series are co-integrated when their residual is stationary. The obtained residual which is often used to proxy the error correction representation (ECM) was therefore subjected to unit root test using the Dickey-fuller (DF) and Augmented Dickey-Fuller (ADF) tests. The Engle-Granger two stages framework suggested that the stationarity of the residual from a regression result implies the existence of a long-run stable relationship between the dependent and independent variables. Table 4.6, shows the co-integration test for the model adopted in this study.

Table 5: Co-integration Test

	Variable	ADF Statistics	ADF (95%)	Order of Integration	Remark
Level	ECM	-11.427	-2.886	I(0)	Stationarity

Source: Computer Output using E-Views 10.0.

The results from table 5, shows that the absolute value of the ADF statistic (-11.427) was greater than the absolute value of the ADF critical value at 5% level of significance (- 2.886). This implies that the dependent variable and independent variables are co-integrated. This in other words means that between 1985-2014 periods, there was a long-run stable relationship among Stock Market Returns (SMR), investors' sentiment (SENTPCA), real interest rate (RINTR) and real exchange rate (REXRT) in Nigeria such that any divergence in their behaviour in the short run will converge in the long run. Engel et al (1987) postulated that any co-integrated series has an error correction representation. Therefore, the existence of co-integration in our model necessitates the formulation of the error correction model. The Error Correction Model when estimated represents the short-run dynamics of the model. The existence of co-integration among the variables justified the use of Error Correction Model in this study.

Regression Results

Table 6: Regression Output on the Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.046377	0.021564	2.150653	0.0335
SENTPCA	0.926469	0.034043	27.21465	0.0000
REXRT	-0.000100	8.40E-05	-1.191177	0.2359
RINTR	0.000606	0.001087	0.557345	0.5783

R-squared	0.865509	Mean dependent var	0.048953
Adjusted R-squared	0.861135	S.D. dependent var	0.139251
S.E. of regression	0.051891	Akaike info criterion	-3.041051
Sum squared resid	0.331203	Schwarz criterion	-2.929643
Log-likelihood	199.6272	Hannan-Quinn criter.	-2.995785
F-statistic	197.8892	Durbin-Watson stat	2.213995
Prob(F-statistic)	0.000000		

Source: Computer Output using E-Views 10.0.

Test for Goodness of Fit Using Adjusted R Square

This is a test that measures whether the model used for the regression fits the research variables and the study. In the regression result, the Adjusted R Square as seen in Table 4.7 is 0.861135 x 100 = 86.11%. This shows that the explanatory variables included in the model accounted for 86.11% variation in the dependent variable. This by implication shows that in the research work, SENTPCA, REXRT and RINTR influenced SMR to the tune of 86.11%. The remaining unexplained variation is taken care of by the error term.

The regression equation is:

SMR = 0.046377 + 0.926469SENTPCA -0.000100REXRT + 0.000606RINTR

From the multiple regression results, there exists a direct and positive relationship between investor sentiment and stock market return in Nigeria within the period under study which implies that as investor's sentiment increases, stock market returns also increases. This relationship between investors' sentiment and stock market return is in line with apriori expectation because when investor sentiment is high, the stock market experiences high participation of the public in the stock market.

This will ultimately lead to high market capitalization and finally to a high All Share Price Index and returns. This is also against the findings of Delong, Shleifer, Summers and Waldman (1990), Miller (1997), Baker and Wurgler (2004) that investor' sentiment has a negative relationship with stock market returns. However, there is a negative and inverse relationship between real exchange rate and stock market returns in Nigeria as shown in the regression equation. This means that when the exchange rate decreases, the stock market returns increase It also implies that when the exchange

rate is favourable to the Nigerian economy, the stock market returns increase. This result again is in line with apriori expectation because if the exchange rate is favourable to the Nigerian economy, the value of the Naira increases and the public can meet their cash needs and still have money to follow investors' sentiment and participate in the stock market. The real interest rate has a direct and positive relationship with Stock Market Returns. This means that as the interest rate increases the stock market returns also increases. When interest rate increases in the economy, investors would naturally demand higher interests on their investments and stock market investors are not exempted.

Beyond the negative and positive relationship that exists between the dependent and independent variables, the coefficients of the independent or explanatory variables reveal a lot about the nature and the strength of such relationship which is particular to the data of the research. In the research regression result, the coefficient of Investors' sentiment index SENTPCA is 0.926469. This is classified as a very high level of dependency of Stock Market Return on Investors' sentiment. It is almost a one for one relationship. It could be said that within the period under review, investors' sentiment accounted for almost all the changes in the stock market returns. This strong relationship between the stock market return and investors' sentiment can be harnessed to help the economy through strong participation in the stock market by the public to increase the All Share Price Index of the Nigerian capital market. The coefficients of the Exchange rate and Interest rate are –0. 000100 and 0.000606 respectively. These coefficients are classified as very low levels of dependency of stock market returns on these variables. From the analysis, SENTINV, REXRT, RINRT jointly affect Stock Market Returns in Nigeria.

Table 7: Test for Causality Using Pairwise Granger Causality

Null Hypothesis:	Obs	F-Statistic	Prob.
SENTPCA does not Granger Cause SMR	127	1.84922	0.1763
SMR does not Granger Cause SENTPCA		6.77929	0.0103
EXRT does not Granger Cause SMR	127	3.39522	0.0678
SMR does not Granger Cause EXRT		0.62250	0.4316
INTR does not Granger Cause SMR	127	0.42825	0.5141
SMR does not Granger Cause INTR		0.07841	0.7799
EXRT does not Granger Cause SENTPCA	127	3.02324	0.0846
SENTPCA does not Granger Cause EXRT		0.54890	0.4602
INTR does not Granger Cause SENTPCA	127	0.62400	0.4311
SENTPCA does not Granger Cause INTR		1.20538	0.2744
INTR does not Granger Cause EXRT	127	0.00514	0.9429
EXRT does not Granger Cause INTR		0.04260	0.8368

Source: Computer Output using E-Views 10.0.

The result of the test shows that only SMR granger causes SENTPCA at 5% level of significance because the probability value is less than 0.05. This result is in line with the OLS regression result.

Discussion of Findings

Investors' sentiment (SENTPCA), which is the major explanatory variable in this study had a significant positive relationship with stock market returns. This finding is against the contributions of Delong, Shleifer, Summers and Waldman (1990), Miller (1977), Black (1986), Baker and Wurgler (2004) and Shleifer and Vashny (1997) that investors' sentiment has a negative relationship with stock returns. Real Interest Rate (RINTR) which is part of the explanatory variable in this study had a positive and significant impact on stock market returns. This, therefore, means that increase in interest rate would significantly increase stock market returns. The real exchange rate (REXRT) which is part of the explanatory variable in this study had a negative and non-significant impact on stock market returns in Nigeria. This, therefore, means that changes in the exchange rate would insignificantly affect stock market returns in Nigeria in a negative and inverse relationship. The lag of exchange rate was found to have a negative and statistically significance on stock returns. This means that exchange rate disturbance has a short delay impact on the Nigerian capital market.

In conclusion, the empirical results from this study reveal that investors' sentiment which is a non-market factor is more important than macroeconomic fundamentals in understanding stock market returns dynamics in Nigeria. This, therefore, suggests the

need for more research into behavioural finance to predict stock market returns.

Conclusion and Recommendation

This shows that investors in the Nigeria equity market are likely to take market sentiment news and exchange rate information more serious to the interest rate when investing in shares. Observation from the results of the analyses of macroeconomic fundamentals shows that exchange rate variations were potent in distorting stock market returns dynamics in Nigeria in a negative and non-significant manner. The study concludes that investors' sentiment and exchange rate disturbance matters more in predicting movement in equity prices in Nigeria. Based on the findings, the study recommends as follows:

1. The Nigeria stock exchange (NSE) should develop sound and test circuit breakers (System trading volume circuit breaker) in the exchange that would stop the trade in periods of high market sentiment. This recommendation was recently used in China to prevent total stock market collapse due to extreme market sentiment. The exchange and securities commission should also implement market regulations (maximum and minimum trading volumes) that would prevent noise trading and market frauds which often promote extreme investors' sentiment.
2. Policymakers such as the Securities and Exchange Commission (SEC) should sensitize and enlighten investors on the negative consequences of psychology bias on the performance of the market in general and the performance of the investments in particular.
3. Investors portfolio managers and other investing stakeholders should develop sentiment period market strategies and regularly review their investment sentiment biases to effectively manage investors' emotional biases.
4. In addition, Federal and State Governments should support the stock exchange and securities commission with capital market policy guidelines and supports that would prevent extreme investor's sentiments that would lead to massive losses for retail and institutional investors.
5. The significance of investors' sentiment in this study also suggested that we recommend the inclusion of the variable in the forecasting of equity prices in Nigeria.

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