IMPACT ANALYSIS OF MACROECONOMIC DETERMINANTS AND PERFORMANCE OF STOCK PRICES OF LISTED CONSUMER GOODS FIRMS IN NIGERIA

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Abstract

The study examines the impact of macroeconomic determinants on the stock prices of listed consumer goods firms in Nigeria. The specific objectives of the study were to evaluate the effect of interest rate, exchange rate, inflation rate, and economic growth rate on the stock prices of listed consumer goods firms in Nigeria. The study adopted ex-post facto research design which enabled data to be extracted from time series datasets from the annual reports and accounts of ten listed consumer goods firms quoted on the floor of the Nigerian Exchange Group for the period of 7 years, spanning from 2016-2023. The study made use of panel least square (PLS) pooled multiple regression model, fixed effect and random effect regression models to estimate the empirical relationship between components of macroeconomic factors employed in the study and the dependent variable at 0.05 level of significance. The results of the analysis revealed that interest rate and exchange rate had both positive and significant effect whereas inflation rate has a positive and statistically insignificant effect, and economic growth rate has significant positive effect on the stock prices of listed consumer goods firms in Nigeria. The implication of the findings is that macroeconomic variables employed by the sampled consumer goods firms are relevantly in estimating their stock prices. The study concluded that macroeconomic factors (interest rate, exchange rate, economic growth rate, and inflation rate) have mixed effect on the stock prices of listed consumer goods firm in Nigeria for the period under study. The study recommended that Nigerian government through its policy makers should maintain minimal interest rate, make adequate strategic policies for the stability of foreign exchange rate, closely, monitor the inflation rate and strive to achieve sustainable economic growth rate since these will enhance the economic confidence and improve stock prices of listed consumer goods firms under current study.

Introduction

"Stock market plays a vital role in economic development of any country. It is very profitable to invest in stock market irrespective of its risky nature. Potential investors would always analyze and predict the movement of stock market prices for return maximization and risk minimization. Consistently, investors always observe some macroeconomic determinants like interest rate, inflation rate, exchange rate, money supply, etc. as they affect the performance of their stocks" (John, 2019).

The stock market performs the intermediation function by pooling funds from different investors who wish to put their surplus funds in alternative investment avenues. The investors carefully watch the performance of stock markets by observing the composite market index, before investing funds. The market index provides a historical stock market performance, the yardstick to compare the performance of individual portfolios and also provides investors the key to forecasting future trends in the market. Investors' concerns revolve around the predictability of stock returns and how to make investment decisions based on their expectations. Macroeconomic determinants affectstock returns since the associated uncertainty will have great impact on investors' decisions to buy or sell a particular stock.

Conventionally, stocks should serve as an effective hedge against some macroeconomic determinants as they represent claims against real assets whose actual returns should not be affected by inflation other variables (Ayinuola, 2023).

"There has been a significant fluctuation experienced by Nigerian Stock Exchange in the stock prices over the years which invariably has significant implications on investors' confidence and overall performance of listed firms (NSE, 2022). Macroeconomic determinants are external economic factors that influence the behavior of industries businesses and overall economy. These determinants are beyond the control of individual firms and can impact greatly on their operations and success. Such factor inflation rate, exchange rate, unemployment and economic growth" (Mankiw, 2018).

In the same vein, macroeconomic determinants are economic, natural, geopolitical, or other factors that affect the economy of a country. These factors affect every sector of the economy (or at least a majority of sectors) rather than a specific sector or industry. For example, an increase in the inflation rate impacts all industries and sectors and hence is a macroeconomic factor. Macroeconomic trends and the stock prices of consumer goods firms have linear correlations by way of the interaction between monetary policy and the aggregate economy. Consumer goods firms are majorly into production and manufacturing in the macro economy with the first mandate of fulfilling consumer demands and the aspirations of shareholders (profit making). Adegbaju and Olokoyo (2018) submitted that macroeconomic factors are those macro-economic variables that steer the economy in different directions in response to macroeconomic policy applications, these have shown to beer effects on the stock prices of consumer goods firms operating within the economy. Also, Onyechi (2022) held that macroeconomic factors such as GDP growth rate, industrial output level, inflation rate, exchange rate, and interest rate have indicated to have direct effect on the stock performance of listed consumer goods firms through the channel of macroeconomic shocks resulting from the implementation of macroeconomic policies.

This study aims to investigate the impact of macroeconomic determinants on stock prices of listed consumer goods firms in Nigeria. This study will provide a valuable insights for investors, policy makers and corporate manager, enabling them to make informed decisions.

Statement of the Problem

Despite the contribution of consumer goods sector to GDP in Nigeria, the sector has experienced fluctuations in stock prices thereby affecting the investors' confidence and overall performance (CBN, 2022). "The impact of macroeconomic determinants on stock prices of listed consumer goods firms has not been extensively researched on by researchers. Some investors as a result of poor information on the implications of macroeconomic determinants on stock prices of listed consumer goods firms have made inadequate investment decisions and as well leading to poor corporate performance" (Kolade and Oladipo, 2022).

Previous studies have examined the impact of macroeconomic determinants on stock prices in Nigeria but few have focused on the consumer goods sector. This study aims to bridge this knowledge gap by investigating the impact of macroeconomic determinants on stock prices of listed consumer goods firms in Nigeria.

Objectives of the Study

The broad objective of the study was to examine the effect of macroeconomic determinants on the stock prices of listed consumer goods firms in Nigeria. The specific objectives of the study are as follows:

1. To determine the effect of interest rate on the stock prices of listed consumer goods firms in Nigeria
2. To ascertain the effect of exchange rate on the stock prices of listed consumer goods firms in Nigeria.
3. To investigate the effect of inflation rate on the stock prices of listed consumer goods firms in Nigeria.
4. To examine the effect of economic growth rate on the stock prices of listed consumer goods firms in Nigeria

REVIEW OF RELATED LITERATURE

Macroeconomic Determinants

According to Ejem, Ogbonna and Ogbulu (2020), macroeconomic determinants are those factors that help us identify the pattern or elements of a state, country, a union of countries, or the whole world. Some of the important macroeconomic variables are: GDP growth rate, foreign exchange rate, interest rate, inflation rate industrial output, balance of payments, etc. They are also indicators or main signposts signaling the current trends in the economy like all experts, the government, in order to do a good job of macro-managing the economy, must study, analyze, and understand the major variables that determine the current behavior of the macro-economy (Davydenko, 2021). So government must understand the forces of economic growth, why and when recession or inflation occur, and anticipate these trends, as well as what mixture of policy will be most suitable for curing whatever ills the economy. A nation's economy rises and falls due to factors both inside and outside the control of governments and their citizens (Ayorinde, 2020). These variables, known as macroeconomic factors, describe the events that change the financial outlook of a country. As economic growth and recession move through cyclical patterns, professionals look at these factors to determine fiscal policies that can help maintain financial stability. Macroeconomic factors are the broad indicators of financial growth or decline that affect an economy. A macroeconomic factor is a geopolitical, environmental or economic event that can impact the monetary stability related to the whole economy of a country or region instead of a specific part of the population. A macroeconomic factor may be considered positive, negative or neutral, based on the way it affects the economy. A natural disaster can negatively impact the production and sale of goods while higher production rates due to a demand for more goods are considered positive macroeconomic factors (Chidozie & Ayadi, 2021).

Interest Rate

Interest rate is defined according to Emori, Obim, Eba and Emefiele (2023) as “the percentage amount that one pay for borrowing money, or get for lending money, for a period of time, usually a year. The value of a nation's currency greatly affects the health of its economy. Interest rates reflect the amount of return earned by investing money within a country's financial system. Higher interest rates indicate a higher

value for the currency of a national economy. An interest rate is the amount of interest due per period, as a proportion of the amount lent, deposited, or borrowed (called the principal sum). The total interest on an amount lent or borrowed depends on the principal sum, the interest rate, the compounding frequency, and the length of time over which it is lent, deposited, or borrowed. The annual interest rate is the rate over a period of one year. Other interest rates apply over different periods, such as a month or a day, but they are usually annualized."

Foreign Exchange Rate

Exchange rate is defined as the rate at which one currency will be exchanged for another currency (Kama, 2020). Currencies are most commonly national currencies, but may be sub-national as in the case of Hong Kong or supra-national as in the case of the euro. The exchange rate is also regarded as the value of one country's currency in relation to another currency. For example, an interbank exchange rate of 141 Japanese yen to the United States dollar means that ¥141 will be exchanged for US$1 or that US$1 will be exchanged for ¥141. In this case it is said that the price of a dollar in relation to yen is ¥141, or equivalently that the price of a yen in relation to dollars is $1/141. Each country determines the exchange rate regime that will apply to its currency. For example, a currency may be floating, pegged (fixed), or a hybrid (Lagat & Nyandema, 2021). Governments can impose certain limits and controls on exchange rates. Countries can also have a strong or weak currency. There is no agreement in the economic literature on the optimal national exchange rate policy (unlike on the subject of trade where free trade is considered optimal). Rather, national exchange rate regimes reflect political considerations.

Inflation Rate

"Inflation refers to consistent increase in the average cost of goods and services over a period of time. Inflation that occurs rapidly is a measure of economic instability or downturn while steady inflation is usually predicted as a normal economic factor (Anshu & Ghakhar, 2021). Inflation is defined as the rate of increase in prices over a given period of time. Inflation is typically a broad measure, such as the overall increase in prices or the increase in the cost of living in a country. Inflation is a measure of how quickly prices are increasing over time".

To investigate how macroeconomic variables affect the Nigerian stock market's performance, Abu and Ibekwe (2023) examined "Macroeconomic Determinants of Stock Market Performance in Nigeria. The variables used by the study were All-Share Index which was the dependent variable, while the independent variables were the gross domestic product growth rate, interest rate, inflation rate, and exchange rate. The study used secondary time series data from 1999 to 2021 from the Central Bank of Nigeria (CBN) Statistical Bulletin. The data of the study were analyzed using autoregressive distributed lag (ARDL) technique. It was found that interest and exchange rates had insignificant effect on the Nigerian stock market in short and long-term performance. In contrast, the inflation rate and gross domestic product growth rate significantly and negatively affected the Nigerian Stock Exchange's stock market performance in the short and long run. The study recommended that government should implement appropriate measures by reducing money in circulations to combat inflation and maintain price stability to enhance the Nigerian Stock Exchange's performance".

Ayuba, Balago, and Dagwom(2018) examined "the effect of macroeconomic factors on stock returns for top twenty-five most capitalized quoted equity firms in Nigeria. The study main objective was to find out

whether stock returns in Nigeria respond differently to effects of macroeconomic factors or not. The study investigated the effects of inflation rate, interest rate and money supply on stock returns of selected quoted firms in Nigeria. The study adopted ex-post facto research design. Data were obtained from the audited accounts of the sampled firms, Central Bank of Nigeria Statistical Bulletin and the Nigerian Stock Exchange database and website. Analysis of data was carried out using panel data regression. The study found significant negative effects between inflation rate, money supply and stock returns of selected quoted companies in Nigeria, while insignificant negative effect was revealed between interest rate and stock returns in Nigeria". The study recommended that taking note of the systematic risks revealed by inflation rate, interest rate and money supply when structuring portfolios and diversification strategies; and intensifying capital market sensitization campaigns by the Securities and Exchange Commission.

John (2019) examined the effect of macroeconomic variables on stock market performance in Nigeria using annual time series data .The data were obtained from Central Bank of Nigeria (CBN) Statistical Bulletin. Data were analyzed using Ordinary Least Square (OLS) regression and the results showed that money supply had a significant positive effect; interest rate had a significant negative effect; where exchange rate had a positive and insignificant effect and inflation rate has a positive but not statistically significant effect on stock market performance. The cointegration test results showed stock market performance. The Granger Causality test results revealed that a unidirectional causality runs from money supply and exchange rate to stock market performance. The concluded that money supply and interest rate are the true factors influencing stock market performance in Nigeria because they exhibited a significant effect on stock market performance. Whereas, exchange rate and inflation rate indicated a weak effect".

In a bid to find implication of macroeconomic variables on stock market performance, Ordue , Yua, Ityavyar, and Tarnongo (2024) investigated "the effect of macroeconomic indicators on stock market performance in Nigeria from 1986 to 2022 using time series data analysis. The study employed unit root tests, co-integration tests, and error correction model as analytical techniques. Study discovered a strong positive relationship between stock market performance and lagged values of Gross Domestic Product (GDP) and Inflation Rate (INF) in the long run. Conversely, the study indicated negative relationship between stock market performance and lagged values of equity (EQUI) and interest rate (INTR), suggesting that changes in equity and interest rates may not have a long-term influence on stock market performance. The short-run analysis revealed short-term momentum in stock market performance, with past stock market returns and inflation rates positively affecting current stock market performance. However, variables like GDP, equities, exchange rates, and interest rates did not show significant short-term effects on stock market performance, indicating their impact may be more pronounced in the long run".

Ayinuola (2023) investigated the impact of inflation and other macroeconomic variables on the stock returns of listed firms across five sectors in Nigeria. The study employed GARCH model and multivariate panel analysis. It was found that inflation had negative and significant impact on stock returns in the short and long run on an aggregate and sectorial bases. Moreover, money supply had a negative impact on stock returns in the long run and a positive impact in the short run, while the exchange rate had a positive impact. In contrast, interest rate is inversely related to stock returns in the short-run. The study recommended that the Nigerian Monetary Authority should introduce a contractionary monetary policy and a stable exchange rate regime in order to achieve moderate inflation commensurate with economic growth and development".

Bassey, Ikpe and Ayandele (2023) examined the impact of macroeconomic determinants of the stock's

price on the performance of insurance companies in Nigeria with the objective of finding the relationship between interest rate spread, exchange rate, and inflation on the stock price of insurance companies listed in the Nigerian Stock Exchange and also to establish an empirical model of the relationship between the variables of interest in the study. The study employed longitudinal research design as panel data from the Nigerian Stock Exchange (NSE) fact book and Central Bank of Nigeria annual statistical bulletin was used. Panel data regression model was used in data analysis. The study found a significant negative relationship between interest rate spread and stock price of insurance companies, a significant positive relationship between exchange rate and stock price of insurance companies, and a significant negative relationship between inflation and the stock price of insurance companies".

METHODOLOGY

Research Design

The study adopted the *ex-post facto* research design. it is particularly useful where a study hopes to ascertain the cause and effect of the relationship that exist between two variables(independent and dependent variable).

Sources of Data

The time series datasets; the dependent variable was generated from the annual releases of the Nigerian Exchange Group (NGX) from 2016 to 2023 were used, while the other independent variables (interest rate, effective exchange rate, inflation rate, economic growth rate and industrial output) were sourced from the Central Bank of Nigeria annual statistical bulletin of year 2023.

Model Specification

This study adopted multiple linear regression to examine the effects macroeconomic factors on stock prices of listed consumer goods firms in Nigeria. The model specification for this study was functionally expressed as follows:

$$SkP = f(INTR, INFLR, EGR, EXR) \quad (1)$$

Where: SkP = stock prices proxied by stock market capitalization.; INTR = interest ratet; INFLR = inflation rate; EGR = economic growth rate, and EXR = exchange rate.

The econometric model with panel notation is specified as follows:

$$SkP_{it} = \beta 0_{it} + \beta_1 INTR_{it} + \beta_2 INFLR_{it} + \beta_3 EGR_{it} + \beta_4 EXR_{it} + \mu \quad (2)$$

Where β_1 to β_4 = The parameters to be estimated; μ = Error term; it = the times series and cross sectional (panel) notation of the variables. Apriori expectation: $\beta 1$ to $\beta 4 < 0$.

Method of Data Analysis

The statistical technique to be employed in analyzing the data were the panel least squares multiple regression analysis. Multiple Regression analysis is very relevant in investigating the predictable power of the independent variables on the dependent variable.

RESULTS

Unit Root Test

Stationarity is an important concept in time series analysis. It usually implies that the statistical properties of a time series (or rather the process generating it) do not change over time. Stationarity is important because many useful analytical tools and statistical tests and models rely on it. For comparison and better standing, the ADF-Fisher Chi-square ant the Philips-Peron unit root tests were carried out, the summary of the result is presented in table 1 below:

Table 1: Unit Root Test Result

	ADF-FISHER CHI-SQUARE		PHILIPS-PERON TEST			
Variable	**t-stat**	**p-value**	**t-stat**	**p-value**	**Cross section**	**Observation**
SkP	46.5283	0.0178	37.0506	0.0234	11	209
INTR	57.6934	0.0240	36.8890	0.0155	11	209
INFLR	68.1812	0.0052	47.4578	0.0083	11	209
EXR	53.8749	0.0038	41.3615	0.0092	11	209
EGR	44.4875	0.0031	56.8591	0.0001	11	209

Source: Authors' computation 2024 (E-views 10)

The results in table 1 above show that (@ level, the model variables became stationary. Hence, they are integrated of order 1(0). The conclusion of stationarity is based on the fact that following the rule for unit root testing, p-value of the individual (ADF-Chi-square test statistic and the Philips-Peron Test statistics) of the variables is less than the 5% significance level.

Descriptive Test

Table 2 below showed some selected measures of central tendency and dispersion in the macroeconomic variables (interest rate, inflation rate, exchange rate, and the economic growth rate) and the stock prices variable. The major statistics of importance were the mean, the standard deviation and the Jarque-Bera normality statistic.

Table 2: Descriptive Test Result

	SkP	**INTR**	**INFLR**	**EXR**	**EGR**
Mean	19.20940	12.98573	11.96158	185.5084	3.904419
Std. Dev.	10890305	2.023145	1.264771	2.022369	1.310550
Jarque-Bera	380.3619	32.47126	48.49828	49.64401	82.59601
Probability	0.000000	0.000000	0.000000	0.000000	0.000000
Observation	80	80	80	80	80

Source: Authors' computation 2024 (E-views 10)

From the result of the descriptive test above, the stock prices averaged 19.20 billion annually across the consumer goods firms. The interest rate spread averaged 12.98%, the inflation rate effect across the firms averaged 11.96%, the exchange rate impact averaged 185.51%, while the economic growth rate effect was at 3.904419%. To check the spread or changes in the series, the standard deviation test produced the result as seen on table 2 above. The standard deviation statistic indicated values of 1.09, 2.02, 1.26, 2.02, and 1.31 respectively for the stock prices and the macroeconomic variables (INTR, INFLR, EXR and EGR series respectively).The statistical result equally indicated that all the variables have a positive kurtosis. The Jarque-Bera normality statistic also confirms the series to be from a normal distribution (as indicated by the p-values) for each of the model series.

Correlation Test

Correlation test was used to ascertain the strength and magnitude of the relationship between the dependent and independent variables. The result of the correlation test is presented in table 3.

Table 3: Correlation Test Result

	SkP	INTR	INFLR	EXR	EGR
SkP	1.000000				
INTR	-0.519478	1.000000			
INFLR	0.372483	-0.004262	1.000000		
EXR	-0.114295	0.126133	-0.038006	1.000000	
EGR	0.817255	0.008170	-0.171119	-0.075253	1.000000

Source: Authors' computation 2024 (E-views 10)

The correlation test result in table 3 above shows the correlation of the dependent variable (the stock prices of the listed firms) and the independent variables (macroeconomic factors: interest rate – INTR, inflation rate – INFLR, exchange rate – EXR, and economic growth rate – EGR). The relationship appeared mixed (negative across the firms for interest rate/exchange rate and the stock prices; and positive for inflation rate/economic growth rate and the stock prices). The strength of the correlation indicated 81.72%, 37.28%, 51.94% and 11.43% respectively for economic growth rate, inflation rate, interest rate and exchange rate. This implies that macroeconomic factors variables have mixed (inverse and direct) linear correlation with the stock prices of consumer goods firms.

Test of Research Hypotheses:

Effect of Macroeconomic determinants on Stock Prices of Listed Consumer Goods Firms in Nigeria

The broad objective of this study is to determine the effect of macroeconomic determinants on the stock prices of listed consumer goods firm in Nigeria. To achieve this, the researcher employed the panel regression technique to estimate the coefficients of the model variables. The panel estimation was in three phases (the pooled regression phase, the fixed effect regression phase and the random effect regression

Table 4: Panel Pooled Regression Result

Dependent Variable: SkP

Method: Panel Least Squares

Sample: 2016 2023

Periods included: 8

Cross-sections included: 10

Total panel (balanced) observations: 80

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INTR	0.537406	0.071579	7.507831	0.0000
INFLR	0.641979	0.069556	9.229653	0.0000
EXR	0.014256	0.004070	3.502963	0.0006
EGR	0.279379	0.070274	3.975538	0.0001

R-squared	0.983903	Mean dependent var	19.20940
AdjustedRsquared	0.932935	S.D. dependent var	3.890305
S.E. of regression	5.519485	Akaikeinfo criterion	6.273400
Sum squared resid	6245.267	Schwarz criterion	6.337368
Log likelihood	-651.5703	Hannan-Quincriter.	6.299262
DurbinWatsonstat	0.713717		

Source: Authors' computation 2024 (E-views 10)

In table 3, the study considered the pooled panel regression. Observing this result, the study pools all 209 observations together and ran the regression model, neglecting the cross section and time series properties of the data. It was found that the R-squared value for the pooled regression model is 0.983903 indicating that about 98.39% of the total variation in the stock prices was explained by the explanatory variables (variations in the trend of the macroeconomic factors).

Panel Fixed Effect Regression Analysis

In order to allow for individuality among the firms by allowing each of the firms to have its own intercept value; the fixed effect model (FEM) was applied. The fixed effect result is presented below:

Table 5: Fixed effect regression result

Dependent Variable: SkP

Method: Panel Least Squares

Sample: 2016 2023

Periods included: 8

Cross-sections included: 10

Total panel (balanced) observations: 80

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	19.90313	1.455799	13.67162	0.0000
INTR	-0.029747	0.065498	-0.454171	0.6502
INFLR	0.023591	0.081760	0.288543	0.7732
EXR	-0.004735	0.003119	-1.518090	0.1306
EGR	0.073934	0.054031	1.368356	0.1728

Effects Specification

Cross-section fixed (dummy variables)			
R-squared	0.114550	Mean dependent var	19.20940
AdjustedR-quared	0.100651	S.D. dependent var	3.890305
S.E. of regression	3.790501	Akaikeinfo criterion	5.571938
Sum squared resid	2787.371	Schwarz criterion	5.811818
Log likelihood	-567.2675	Hannan-Quinncriter.	5.668923
F-statistic	1.792683	Durbin-Watson stat	1.006170
Prob(F-statistic)	0.041910		

Source: Authors' computation 2024 (E-views 10)

From the fixed effect result (table 5 above), the coefficient of determination (R-squared) value of 0.114550 indicates that approximately 11.46% of the total variation in the stock prices was explained by the macroeconomic factors.

Panel Random Effect Regression Analysis

Panel series can show unobserved properties. The pooled panel regression and the fixed effect regression do not take care of such. The random effect regression model was applied in order to account for the unobserved effects in fixed effect model.

Table 6: Random Effect Regression Result

Dependent Variable: SkP

Method: Panel Least Squares

Sample: 2016 2023

Periods included: 8

Cross-sections included: 10

Total panel (balanced) observations: 80

Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	18.81723	1.286180	14.63032	0.0000
INTR	-0.049092	0.059675	-2.822652	0.0117
INFLR	0.038064	0.065080	0.584876	0.5593
EXR	-0.005139	0.003091	-2.662384	0.0080
EGR	0.064702	0.001005	3.268549	0.0060

Effects Specification		
	S.D.	Rho
Cross-section random	0.411592	0.0117
Idiosyncratic random	3.790501	0.9883

Weighted Statistics			
R-squared	0.624815	Mean dependent var	17.36276
AdjustedR-squared	0.605694	S.D. dependent var	3.857770
S.E. of regression	3.846772	Sum squared resid	3018.722
F-statistic	1.297759	Durbin-Watson stat	0.926891
Prob(F-statistic)	0.272142		

Source: Authors' computation 2024 (E-views 10)

The random effect regression results indicated that all the macroeconomic factors/variables were significant except the inflation rate. While the inflation rate and the economic growth rate were indicated to be positive, the interest rate and the exchange rate were shown to be negative. The negative coefficients of interest rate and exchange rate are a further indication that macroeconomic factors draw a large negative influence on the stock market and the stock prices of consumer goods firms. The random effect model showed that (62.48%) of the total variations in the stock prices within the period under review were accounted for, by the treatment variables (the macroeconomic factors). This is evidenced from the R-squared value of 0.624815.

Hausman Test of Model Selection

To affirm direction and properly inform policy statements arising from the study, there was need to decide between the fixed effect model and the random effect model, the Hausman test solves this. The Hausman test selects the model most appropriate for estimation; it is performed under null hypothesis that the random effects model is the most appropriate. In the alternative, the fixed-effects model is appropriate. The selection of either fixed effect model or random effect model is based on the statistical significance of the P-value.

Table 7: Correlated Random Effects - Hausman Test

Equation: Untitled

Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	6.101877	4	0.3387

Source: Authors' computation 2024 (E-views 10)

Following the result in table 7, the Hausman test statistics p-value for the cross-section random, period is [0.3387]. This is greater than the 5% (0.05) chosen level of significance. Consequently, the null hypothesis cannot be rejected. Therefore, it was concluded that cross-section random effect model is most desirable for prediction of the effect of macroeconomic variables on deposit money banks performance in Nigeria.

Test of Hypotheses

While determining if the hypothetical statements in chapter one of this study could be accepted or rejected, the study relied wholly on the 5% (0.05) significance level and the decision rule of accepting the null hypotheses. The decision rule is to accept the null hypotheses (Ho) and reject the alternative hypothesis (Ha) if the t-value is lesser than 2 or the probability Value (p-value) is greater than 5% (0.05); and to reject the null hypothesis (Ho) and accept the alternative hypothesis (Ha) if the t-value is greater than 2 or the probability Value (p-value) is lesser than 5% (0.05).

Test for Hypothesis I

Ho_1: Interest rate has no significant effect on the stock prices of listed consumer goods firms in Nigeria.

Decision Rule: accept Ho and reject Ha when the t-value < 2 or P-value > 0.05. Reject Ho and accept Ha if t-value > 2 or p-value< 0.05.

From the results obtained, the estimated coefficient value for the interest rate variable (INTR) is -0.049092, with p-value of 0.0117; therefore, the study rejected the null hypothesis and accepted the alternative hypotheses (Ha_1); it concluded that interest rate has significant negative effect on the stock prices of listed consumer goods firm in Nigeria.

Test for Hypothesis II

HO_2: Exchange rate has no significant effect on the stock prices of listed consumer goods firm in Nigeria.

Decision Rule: accept Ho and reject Ha when the t-value < 2 or P-value > 0.05. Reject Ho and accept Ha if t-value > 2 or p-value < 0.05.

From the results we obtained, the estimated coefficient value for exchange rate (EXR) is -0.005139, with a p-value of 0.0080. Therefore, following the decision rule, the study rejected the Null Hypotheses (Ho_1), and accepted the Alternative Hypotheses (Ha_1). It was concluded that exchange rate has significant negative effect on the stock prices of listed consumer goods firm in Nigeria.

Test for Hypothesis III

HO_3: Inflation rate has no significant effect on the stock prices of listed consumer goods firm in Nigeria

Decision Rule: accept Ho and reject Ha when the t-value < 2 or P-value >0.05. Reject Ho_3 and accept Ha_3 if t-value > 2 or p-value < 0.05.

The estimated coefficient value for the inflation rate (INFLR) is 0.038064 with a p-value of 0.5593. Accordingly, the study failed to reject the null hypothesis (Ha_1). It was therefore concluded that inflation rate has positive but insignificant effect on the stock prices of listed consumer goods firm in Nigeria.

Test for Hypothesis IV

Ho_4: Economic growth rate has no significant effect on the stock prices of listed consumer goods firm in Nigeria.

Decision Rule: accept Ho and reject Ha when the t-value < 2 or P-value > 0.05. Reject Ho and accept Ha if t-value > 2 or p-value < 0.05.

From the results obtained, the estimated coefficient value for economic growth rate (EGR) is 0.064702, with p-value of 0.0060; therefore, the study rejected the null hypothesis and accepted the alternative hypotheses (Ha_1); it concluded that economic growth rate has significant positive effect on the stock prices of listed consumer goods firm in Nigeria.

Summary of Findings

The study found as follows:

1. The estimated coefficient value for the interest rate variable (INTR) is -0.049092, with p-value of 0.0117 so real interest rate has significant negative effect on the stock prices of listed consumer goods firm in Nigeria.
2. Exchange rate has significant negative effect on the stock prices of listed consumer goods firm in Nigeria with the estimated coefficient value for exchange rate (EXR) is -0.005139, with a p-value of 0.0080.
3. The inflation rate has a positive and statistically insignificant effect on the stock prices of listed consumer goods firm in Nigeria. The estimated coefficient value for the inflation rate (INFLR) is 0.038064 with a p-value of 0.5593
4. Economic growth rate has significant positive effect on the stock prices of listed consumer goods firm in Nigeria. The estimated coefficient value for economic growth rate (EGR) is 0.064702, with p-value of 0.0060

Conclusion

The study examined the effect of macroeconomic determinants on the stock prices of listed consumer goods firm in Nigeria for the period 2016-2023. The ex post facto research was employed to analyze the panel data for consumer goods firms. The interest rate and the exchange rate variables showed to be significantly negative in explaining the stock prices of the firms; while the economic growth rate and the inflation rate showed to have positive effect on the stock prices. Based on the findings, the study concluded that macroeconomic factors (interest rate, exchange rate, economic growth rate, and inflation rate) have mixed effect on the stock prices of listed consumer goods firm in Nigeria for the period under study.

Recommendations

Based on the findings, this study recommends that:

1. Interest rate needs to be maintained at its minimum in order that the purchasing power of the average Nigerian will increase and increase aggregate demand which will boost stock prices.
2. Policy makers should come up with adequate strategic policies that will stabilize the foreign exchange rate as well as other major macroeconomic variables so as to achieve high performance rate of stock prices in the economy.
3. The inflation rate should be monitored closely to ensure that it does not create wrong signals that could affect the stock prices.
4. The government working with relevant managers of the economy should strive to achieve sustainable positive economic growth rate, this will enhance economic confidence and improve stock prices

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