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Page | 23

SYSTEMATIC RISK AND STOCK MARKET PERFORMANCE IN NIGERIA

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Abstract

The study examined the impact of systematic risk on stock market performance in Nigeria, over a period of 23 years, from 2000 to 2023. Specifically, it determined the impact of systematic risk on All Share Index in Nigeria and also evaluated the impact of systematic risk on market capitalization in Nigeria. The ex-post facto research design was adopted. The data were sourced from Central Bank of Nigeria Statistical bulletin Vol. 53, No 5. Regression analysis was used to analyse the stated hypotheses. The result shows that systematic risk has positive and significant impact on All Share Index in Nigeria. In addition, systematic risk has positive and significant impact on market capitalization in Nigeria. The study recommended that Central Bank of Nigeria should implement policies that will enhance the effectiveness of macroeconomic variables to reduce risk level in the stock market.

Keywords: Systematic Risk, Stock Market Performance, Market Capitalization and All Share Index

INTRODUCTION

The history of systematic risks can be traced to the joint work of Markowitz in 1952 and Sharpe in 1964 on basic portfolio model theory and the capital asset pricing model theory (Battilosi and Houpt, 2016). Systematic risk refers to uncertainties generated by stock market volatility that is explicitly driven by a number of macroeconomic and unobservable latent factors (Corradi, Distaso and Mele, 2008). Given that stock market volatility is generated by the dynamics of macroeconomic variables such as inflation, exchange rate, lending interest rate, monetary policy rate and crude oil price that are exogenous to the operations of the stock market itself, systematic risk cannot be diversified away. In essence, systematic risk has a pronounced business cycle effect which generates general risk faced by the entire market as distinct from unique risk faced by individual portfolio investment (Brandt and Kang, 2014).

Drawing from the above, it is quite clear that the performance of the entire stock market in terms of the stock price is determined not only by the performance of each individual stock but also by systematic risk or uncertainties associated with the general economic conditions. Thus, the performance of the stock market is also affected by the mediating influence of some macroeconomic variables such as exchange rate, inflation rate, lending interest rate and monetary policy rate. Specifically, changes in the benchmark proxies of stock market performance such as the all share index and daily stock turnover reflects to a large extent changes in the major macroeconomic variables in the economic system (Adams, 2014).

In Nigeria, the global economic meltdown of 2008 to 2010 and the economic recession that took place in the second quarter of 2016 generated uncertainties that were transmitted as systematic risk as wisely claimed. The effect on the Nigeria stock market was catastrophic with all share price index plummeting from 31450.80 in 2008 to 20827.20 in 2009 and 31450.80 in 2010 and 31984.4 in 2016 (Adedokun and Olakojo, 2018). There was a general downswing of virtually all stock quoted in the Nigeria stock market during that year. Also, the economic recession faced by the Nigeria economy between 2nd quarter of 2016 and 3rd quarter of 2017 resulted in volatilities in all the macroeconomic variables such as production output, inflation, exchange rate, unemployment rate and negative gross domestic product (Oludoyi, 2018). These uncertainties generated by volatilities of these macroeconomic variables affected into the performance of the stock market with the all share price index falling from 28,642.25 in 2015 to 23,021.12 in 2017 (Bola, 2018).

Generally, it should be noted that the higher the risk, the higher the return, vice versa. The risk and return of security in the stock market may differ because of different factors affecting securities, such as differences in structure and managerial capacity of different firms, different sectors in which they operate, the state of the economy, government policies as well as internal corporate policies, themselves (Oludoyi, 2016). In view of the above, this research provides open empirical investigation of the impact of systematic risk on stock market performance in Nigeria.

Systematic risk in the Nigeria stock market has increased tremendously over the years as evidenced by the speculative excesses witnessed in the Nigeria Stock Exchange (Adedokun & Olakojo, 2012). It is therefore quite apparent that systematic risk constitutes an ever present threat even to the most efficiently managed investment because it cannot be diversified. Thus, understanding the dynamics of systematic risk and its spillover effects on the performance of the stock market has been a topic of considerable interest to policy makers, economic planners and market operators. The spillover effects are cause by macroeconomic variables such as inflation, exchange rate, lending rate, foreign direct investment and oil price (Adekunle, 2016).

The theoretical articulation that underpins systematic risk as a prime predictor of stock market performance is well developed in the no arbitrage model of Corradi, Distasto and Mele, 2008. In the model systematic risk generated by changes in a number of macroeconomic variables and unobservable factors is explicitly related to performance of the stock market. Studies on the impact of systematic risk on stock market performance abound with divergence in findings, methodologies and variables used, for instance, studies by Wilson, Georgina & Ernest (2019), Caner (2019), Bolanle & Adefemi (2019) and Fahmi, Geetha and Mohidin (2017) on this field of finance produced mixed results. There is therefore need further to explore the impact of systematic risk on stock market performance using recent data. The broad objective of the study is to evaluate the impact of systematic risk on the performance of the Nigeria stock market. The specific objectives are;

- 1. To determine the impact of systematic risk on All Share Index in Nigeria
- 2. To evaluate the impact of systematic risk on market capitalization in Nigeria

HO₁: Systematic risk has no significant impact on All Share Index in Nigeria.

HO₂: Systematic risk has no significant impact on market capitalization in Nigeria.

REVIEW OF RELATED LITERATURE

Conceptual Framework

Concept of Stock Market

Stock market is defined as the market where medium and long term finance can be raised (Akingbohugo, 2016). Stock market offers varieties of financial instrument that enable economic agents to pool, price and exchange risk. Through assets with attractive yields, liquidity and risk characteristics, it encourages saving in financial form. This is very essential for government and other institutions in need of long term funds (Nwankwo, 2015). According to Al-Faki, (2016), the stock market is a network of specialized financial institutions, series of mechanism, which to facilitate the bringing together of suppliers and users of medium to long term capital for investment in economic development projects The stock market is an organized market where brokers meet to buy and sell stocks and shares. The stock market or equity or capital market is a public market (a loose network of economic transactions, not a physical facility or discrete entity) for the trading of company stock and derivatives at an agreed price, there are securities listed on a stock exchange as well as those only traded privately. (Al-Faki, 2016)

Also, Masoud (2013) defined stock market as a very sophisticated market place where stocks and shares are the traded commodities. At the same time, it is central to the creation and development of a strong and competitive economy.

Measurement of Stock Market Performance

The performance of stock market can be measured by the following stock market indicators such as market capitalization, All Share Index, Stocks Traded, Total New Issue, Listed Domestic Companies and Total Listed Equities.

Market Capitalization

Market capitalization (also known as market value) is defined as the share price times the number of share outstanding. This is one of the measures of stock market performance and is used to ascertain the level of stock market development relative to the growth of the economy. This is the most widely used indicator in assessing the size of a capital market to an economy. In a bearish market the market capitalization falls and vice versa for a bullish market (Adekunle, 2016).

Also, market capitalization can be defined as the total worth of securities of quoted companies in the capital market. Yasmin and Yusuf (2009) in their own contribution defined market capitalization as "A measurement of corporate size". It can also be referred to as the value of a company, reflecting the number of outstanding stocks multiplied by the number of current stock price.

All Share Index

All Share Index is defined as a quick measure to judge the overall direction of the market and the scope of its movement. All Share Index is a statistical parameter to reflect the composite value of market characteristics. It is an average of share prices of all companies on the stock exchange market, often used as a guide to compare the performance of different companies and industries. Or it is a series of numbers which shows the changing average value of the share prices of all companies on a stock exchange and which is used as a measure of how well a market is performing (Adekunle, 2016).

Stocks Traded

Stocks traded refer to the total value of share traded during the period. This indicator complements the market capitalization ratio by showing whether market size is matched by trading (Adebayo, 2015).

Total New Issue

A reference to a security that has been registered, issued and is being sold on a market to the public for the first time. New issues are sometimes referred to as primary shares/new offerings. The term does not necessarily refer to newly issued stocks, although initial public offerings are the most commonly known new issues. Securities that can be newly issued include both debt and equity. A company makes a new issue through underwriters who have the responsibility to place the offering with individual and institutional investors. Companies make new issues in order to raise financing for expanded operations. The offerings themselves give investors a portion of ownership in the company issuing them (Adebayo, 2015)..

Listed Domestic Companies

Listed domestic companies are the domestically incorporated companies listed on the country's stock exchange at the end of the year. The indicator does not include investment companies, mutual funds, or other collective investment vehicles (Adebayo, 2015).

Total Listed Equities

This is the total amount of preferred stock equity added to the amount of common stock equity. When a private company wishes to go public to issue shares, it needs to select an exchange on which to be listed. In this regard, it must be able to meet that exchange's requirements and pay both the exchange's entry and yearly listing fees (Adebayo, 2015).

Concept of Systematic Risk

Gu and Kim (2002), defined systematic risk as that risk which is still present after full diversification of a portfolio or market risk.

Adebayo (2015) opined that systematic risk is denoted as beta (β), it means that change is stock due to change in market or more comprehensively it is covariance of stock returns of capital market. Dele (2011) stated that systematic risk, also known as market risk or undiversificable risk is the uncertainty inherent to the entire market or entire segment. Also, referred to as volatility, systematic risk consists of the day-to-day fluctuations in a stock's price.

According to Ayo (2016) systematic risk is unpredictable and impossible to avoid completely, hence the systematic risk always exists. Meanwhile, there is always a chance also to encounter with economic downfall either the whole industry or a particular industry segment and this risk cannot be avoided or reduce through diversification, only through hedging or by using the right asset allocation strategy can minimize or limit the systematic risk (Ayo, 2016).

Systematic risk refers to the variability of a firm's excess return of the overall market portfolio. This risk depends on changes in external factors such as changes in the market or the economy, which affect the overall market such as changes in the nation's economy or a change in world energy situation such as an increase in oil prices or change in political factors (Ayo, 2016)..

Sources of Systematic Risk

According to Tripathi and Neexra, (2015) the sources of systematic risk could be macroeconomic variables such as inflation, changes in lending interest rates, fluctuations in exchange rate, oil price fluctuations, monetary policy rate, recessions, natural disasters, war and government regulations and because all these factors affect the entire market and cannot be avoided through diversification.

Systematic risk influences all other investment risks. Systematic risk can be controlled partially and mitigated through asset allocation. By having different assets categories with low correlation, smooth portfolio instability can be resolved because different asset categories react differently to macroeconomic factors (Ayo, 2016).

Theoretical Framework

Portfolio Theory

The study was anchored on portfolio theory. Portfolio theory was propounded by Markowitz in 1932. Portfolio theory states that investors are risk averse and that investors should diversify their portfolios. He understood that the risk-return trade-off of investments could be improved by diversification and cast diversification in the framework of optimization (Focardi & Fabozzi, 2014).

Markowitz was interested in the investment to a utility index, with utility as a convex function that takes into account investor's risk-return preferences. He also assumed that stock returns are joint normal. As a consequence, the return of any portfolio is a normal distribution, which can be characterized by two parameters: the mean and the variance. Utility functions are therefore defined on two variables- mean and variance- and the Markowitz framework for portfolio selection is commonly referred to as mean-variance analysis (Focardi & Fabozzi, 2014).

The ideas introduced by Markowitz in 1952 have come to form the foundation of what is now popularly referred to as Modern Portfolio Theory (MPT). Initially, MPT generated relatively little interest, but with time, the financial community strongly adopted the thesis and now 50 years later, financial models based on those same principles are constantly being reinvented to incorporate all the new findings that result from that seminal work. An important outcome of the research generated due to the ideas formalized in MPT is that today's investment professionals and investors are very different from those 50 years ago.

Empirical Review

Eljaser (2019) investigated the relationship between internal corporate governance mechanisms and on the unsystematic risks using data from 13 commercial banks listed on the Amman Stock Exchange during the period 2009-2016. Panel data was utilized and the data gathered from 104 annual reports from13 commercial banks in Amman, were analyzed using descriptive statistics, correlation, and regression. Seven main corporate governance variables were analyzed in terms namely: (Board size, Board Independence, CEO /Chairman Separation, Audit Committee Independence, Ownership concentration, Institutional Ownership, and Foreign Ownership) their relative of the unsystematic risk (credit risk, liquidity risk, and operational risk). Furthermore, bank size and debt Ratio were used as a control variable. Based on the results of the study, it was observed that internal corporate governance mechanisms variables had a significant effect on the unsystematic risk. Bolanle & Adefemi (2019) sought to examine macroeconomic determinant of stock market development in Nigeria for the period of 1981 to 2017. The study employed the ARDL bound testing technique to investigate the long run and short run relationship between the dependent variable (stock market development) and independent variables (GDP, banking sector development, stock market liquidity, foreign direct investment, inflation rate and savings rate). The result of the study showed that in both the short run and long run, key macroeconomic determinants of stock market development in the context of the Nigerian Stock Exchange Market are banking sector development, stock market liquidity, foreign direct investment and to an extent the income level (GDP) while inflation rate which measures macroeconomic stability, and savings rate do not significantly explain stock market development. This study therefore recommended amongst others that policymakers should ensure economic stability in order to ensure the development of stock market.

Caner (2019) conducted a study on the impacts of some prominent macroeconomic factors on the Turkish Stock Market index, BIST-100 (Borsa Istanbul-100). The findings obtained from the quarterly data via the ARDL Bounds Test suggested that economic growth, the relative value of the domestic currency, portfolio investments and foreign direct investments raised the stock market index while interest rate and crude oil prices negatively affected it. The results briefly revealed that the Istanbul Stock Exchange Market needs stronger domestic currency, higher international capital inflows, and lower energy and investment costs.

Wilson, Georgina & Ernest (2019) carried out a study on volatility clustering and leverage effect (asymmetry) in stock returns of the Nigerian stock market, using the daily All Shares Index of the Nigerian Stock Exchange during the 7-year period, covering 4th January 2010 through 2nd August 2016. Descriptive statistics, Generalized Autoregressive Conditional Heteroscedasticity (GARCH (1.1) and Glosten, Jagannathan and Runkle Autoregressive Conditional Heteroscedasticity (GJR-GARCH (1.1) were employed in the data estimation. The results affirmed the presence of volatility clustering, persistent clustering and significant leverage effects of stock returns in the Nigerian stock market. The findings have policy implications for the regulation and policy expediency of measures that progressively checkmate the patterns of volatility in the Nigerian stock market as well as control negative news (such as insecurity, political instability, and macroeconomic policy inconsistency) which largely increase the level of market uncertainty and investors' exposure to risks in the market

Fahmi, Geetha and Mohidin (2017) examined the effect of the systematic risk on the performance of the stock returns. The variables that captured systematic risk were lending interest rate, inflation rate due to the removal of fuel subsidy and the implementation of goods and services tax exchange rate which is influenced by the inflow of foreign direct investment, crude oil price that determines the revenue of the country being an oil exporter and industrial production index that reflect political as well as business news meanwhile the dependent variables is stock returns. All the macroeconomics variables will be regressed with the lagged 2 of its own variable to obtain the residuals. The residuals will be powered by two to obtain the variance which represents the risk of each variable. The variables were on run for unit root to determine the level of stationarity. This was followed by the establishment for long run relationship using Johansen Cointegration and short run relationship using Vector Error Correction Modeling.

METHODOLOGY

The research design for the study is *ex-post facto. Ex-post facto* research is systematic empirical inquiry in which the researcher does not have direct control of dependent and the independent variables because their manifestations have already occurred or because they are inherently not manipulated. The justification for the adoption of this type of research design is because the study used secondary data. The data for the study was sourced from the Central Bank of Nigeria Statistical bulletins. .The data for the study covered the period 2000 to 2022. The stated hypotheses were analysed with simple regression. The study adopted the model of Wilson, Georgina and Ernest (2019) as specified below:

ASI = F (β)(1)

 $ASI = \beta_0 + \beta_1 \beta + U_t \dots (2)$

Where;

ASI = All Share Index, β = Beta coefficient, β_0 = intercept

 β_1 = parameter estimate, U_t = stochastic variables

The regression was also specified for hypothesis 1

)

 $ASI = \beta_0 + \beta_1 + U_t$ (4)

Where;

ASI = All share index , β = beta coefficient as a proxied for systematic risk

 β_0 = intercept, β_1 = parameter estimate, U_t = stochastic variables

Then, the regression is also specified for hypothesis 2 is stated thus

 $MCAP = \beta_0 + \beta_1\beta + U_t \dots (5)$

Where;

MCAP = Market capitalization, β = beta coefficient as a proxied for systematic risk

 β_0 = intercept β_1 = parameter estimate.

RESULT

Descriptive Analysis

The descriptive analysis displayed the basic features of the time series data presented in table 4.1 above. The outcome of the descriptive analysis was presented in Table 4.1 below:

	ASI	MCAP	β
Mean	321892.1	10108.12	0.047368
Median	297306.1	9918.200	0.000000
Maximum	605096.4	23621.30	0.100000
Minimum	80414.10	472.3000	0.000000
Std. Dev.	140434.1	7611.212	0.051299
Skewness	0.322342	0.163187	0.105409
Kurtosis	2.776646	1.719794	1.011111

Table 4.1: Descriptive Statistic

Ibeabuchi-Ani Ogechi; U	Iseh, Udeme Francis and Asu	aiko, Augustine Gabriel	Page 30
Jarque-Bera	0.368524	1.381813	3.166764
Probability	0.831718	0.501122	0.205280
Sum	61159490	192054.2	0.900000
Sum Sq. Dev.	3.55E+11	1.04E+09	0.047368
Observations	23.00000	23.00000	23.00000

Source: EViews computations, (2023)

The descriptive analysis revealed that the minimum value of all share indexes within the period of the study is 80414.1 and the maximum value is 605096.4. On the average, the all share index is 321892.1. However, the increase/decrease in All Share Index within the studied period was 524682.3 Also, the minimum value of market capitalization (MCAP) within the period of the study was 472.3 and the maximum amount is 257.72. On the average, the market capitalization (MCAP) was 10108.12. However, the increase/decrease the market capitalization (MCAP) within the studied period was 214.6. Also, the minimum value of Beta (β) within the period of the study was 0 and the maximum value was 0.1. On the average, the Beta (β) was 0.047368. However, the increase/decrease Beta (β) within the studied period was 0.1

Regression Analysis for Objective 1

The analysis was carried out with simple regression using the selected variable. The result of the simple regression is presented in table 4.2 below:

Dependent Variable, ASI Method Least Squares Date: 12/27/23 Time: 17: 24 Sample (adjusted): 1 23 Included observations: 23 after adjustments

Variables	Coefficient	Std. Error	t- statistic	Prob.
В	3.710246	0.578307	6.415780	0.0000
С	3.043172	1.527501	6.721527	0.0000
R-squared	0.778369	Mean dependent var		F0 04000
Adjusted R-squared	0.739374	S.D dependent var		50.94000
S.E of regression	36.30692	Akaike infor criterion		52.81503
Sum squared resid	26363.85	Schwarz criterion		10.10840
Log likelihood	-109.1924	Hanna-Ouinn criter		10.20759
f_statistics	0 /22812	Durbin-Watson stat		10.13177
prob (F-statistic)	0.000078			1.841880

Source: Researcher Computation from E-view 12

From table 4.2 shows that all the share index is an increasing function of beta coefficient. Specifically, a percent increase in beta coefficient lead to positive increase in all share index by 3.710%. The Adjusted R-squared of 0.739374 is quite high which is an indication of a good fit of the estimated regression line to the actual points. It also indicates that at any point in time, 74% total changes in All Share Index is explained by systematic risks (beta coefficient). The remaining 36% is attributable to stochastic variables represented by the error term.

The entire regression result is statistically significant at the 1% level. This inference is drawn from the prob (F) of 0.000 which is less than 0.01 thus rendering it statistically

SYSTEMATIC RISK AND STOCK MARKET PERFORMANCE IN NIGERIA

significant at the 1% level. In effect, all the coefficient estimates of the model are statistically reliable.

Testing of Hypothesis 1

H0₁: Systematic risk has no significant impact on All Share Index in Nigeria.

The p-value (0.0000) of systematic risk in table 4.2 is less than 0.05. Hence, the alternative hypothesis (H_1) was accepted and the null hypothesis rejected and alternative was accepted and we stated that **systematic** risk has positive and significant impact on All Share Index in Nigeria.

Regression Analysis for Objective 2

The analysis was carried out with simple regression using the selected variable. The result of the simple regression is presented in table 4.3 below:

Dependent Variable, MCAP Method Least Squares Date: 12/27/23 Time: 17: 24 Sample (adjusted): 1 23 Included observations: 23 after adjustments

Variables	Coefficient	Std. Error	t- statistic	Prob.
В	2.6507597	0.3233895	8.197562	0.0000
С	1.3025570	0.1225719	10.62688	0.0000
R-squared	0.792376	Mean dependent var		10108 12
Adjusted R-squared	0.744868	S.D dependent var		7611 212
S.E of regression	7038.349	Akaike infor criterion		10 10840
Sum squared resid	26363.85	Schwarz criterion		10.10840
Log likelihood	-194.2266	Hanna-Quinn criter		10.20759
f-statistics	11.04939	Durbin-Watson stat		10.13177
prob (F-statistic)	0.000009			1.881875

Source: Researcher Computation from E-view 12

From table 4.3 shows that market capitalization is an increasing function of beta coefficient. Specifically, a percent increase in beta coefficient lead to positive market capitalization in the stock market by 2.65%. The Adjusted R-squared of 0.792376 is quite high which is an indication of a good fit of the estimated regression line to the actual points. It also indicates that at any point in time, 79% total changes in all share index is explained by systematic risks (beta coefficient). The remaining 21% is attributable to stochastic variables represented by the error term. The entire regression result is statistically significant at the 1% level. This inference is drawn from the prob (F) of 0.000 which is less than 0.01 thus rendering it statistically significant at the 1% level. In effect, all the coefficient estimates of the model are statistically reliable.

Testing of Hypothesis 2

HO₂: Systematic risk has no significant impact on market capitalization in Nigeria.

The p-value (0.0000) of systematic risk in table 4.3 is less than 0.05. Hence, the alternative hypothesis (H_1) was accepted and the null hypothesis rejected and alternative was accepted and we stated that systematic risk has positive and significant impact on market capitalization in Nigerian stock market

DISCUSSION OF RESULTS

The study examines the impact of systematic risk on the performance of the Nigeria stock market. The results of this study revealed that systematic risk has positive and significant impact on all share index in Nigeria, there is positive relationship between systematic risk and all share index in Nigeria, systematic risk has positive and significant impact on market capitalization in Nigeria and that there is positive relationship between systematic risk and market capitalisation in Nigeria. This is because the higher the risk (beta) the higher the performance of the stock market (All Share Index). The findings of the study is in line with Abdullahi & Lawal (2005) who conducted a study to investigate the riskreturns dynamics of the Nigerian quoted firms for the period of 2000-2004 as monthly. This study result revealed that the sizes (beta) are different in firms studied; they varied positively with the sizes of returns. In addition, 65% of the firms' risk (beta) are less than Unity, which imply lower risk as compared to Market Portfolio. This study finding is still in line with finding of Yasmeen, Masood, Saghir and Muhammad (2012) who examined the validity of the CAPM in the capital markets of the Pakistan. The finding revealed that there is a positive relation between the risk and return, and market risk premium is a significant explanatory variable for the determination stock's risk premium are rejected

Ndegwa (2001) carried out a research to determine whether companies with high return exhibit high risk. She found out that it is not always the case that companies with high risk are those with high returns. Only a small number of companies with high risk are compensated with a high return. This was brought out by comparing the ranking of the variance of earnings against the ranking of weighted return, capital gain and non-weighted return/ Hence, Ndiang'ui (2011) disagrees with the findings of this study.

CONCLUSION

Volatilities of macroeconomic variables generate uncertainties in an economy which create systematic risk. Since the volatilities of the macroeconomic variables are exogenous to the operations of the stock market, systematic risk cannot be diversified away and thus has serious implication for the performance of stock market. Hence, the study examined the impact of systematic risk on the performance of the Nigeria stock market. The findings revealed that systematic risk has positive and significant impact on all share index in Nigeria and that systematic risk has positive and significant impact on market capitalization in Nigeria. In conclusion, the empirical results from this paper provide reinforcing evidence that systematic risk has positive and significant impact on stock market performance in Nigeria. Based on the hindsight gained in the process of undertaking this study, the researchers hereby make the following recommendations

- 1. The apex bank (Central bank of Nigeria) should implement policies that will enhance the effectiveness of macroeconomic variables to reduce risk level in the stock market.
- 2. The apex bank (Central bank of Nigeria) should create conductive platform for capital market investors and speculative decisions are to be taken into consideration in returns

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