

An Analysis of the Impact of Global Financial Crisis on the Nigerian Stock Exchange

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Abstract: The objective of this study is to analyze the impact of the global financial crisis on the Nigerian Stock Exchange from 2008 to 2011. Market Capitalization is the proxy of the Nigerian Stock Exchange while Capital Inflow and Foreign Exchange Rate are the proxy of global financial crisis on Nigerian Stock Exchange. Using the ordinary least square it was found that the global financial crisis has no significant effect on the Nigerian Stock Exchange. This means policy of regulators had deepened the recession on the Nigerian Stock Exchange. The government is therefore advised to put up measures to stem up investors' confidence and activities in the market so that it could contribute significantly to the Nigerian economy.

Keywords: Capital inflow, foreign exchange rate, global credit market, housing market, market capitalization

INTRODUCTION

Since after the great depression of the last century, the world economy has been facing financial crisis, the recent one started in the United State of America. In July 2007, global credit market came to a stand still due to the crisis in US mortgage industry which manifested itself better in the year 2008. US with an estimated GDP of \$14 trillion contributes about 25% of world output and has the largest industrial complex, if it contracts by 1% this implies a direct output loss of approximately \$14 billion which is equivalent to the GDP of Pakistan, the 47th largest economy in the world (Abdul, 2009).

Sanda (2009) explains that the factor behind the global financial crisis was the slump in the US mortgage industry. In August 2007 when the US housing market began to show signs of distress, many house owners in America had been unable to service their mortgage loans, causing a wave of repossessions by mortgage institutions from the loan beneficiaries that defaulted on loan repayments. Another effect was the credit crunch, as many mortgage and financial institutions became unwilling to extend credit. Thus, the slump in the US housing market and the concomitant credit crunch sent shock waves to the rest of the American economy and through the contagion, to the rest of the world. This is not to suggest that the current global financial crisis was caused exclusively by the strains in the housing market in the United State of America and the growing imbalances. There are also many different views on the causes of the crisis, complex financial innovations that made concerted efforts to conceal default risks, weak oversight and

regulatory functions and possibly sheer greed manifested blind pursuit of profit and utter disregard for the underlying risks.

Some analysts have traced the cause of the global financial crisis to the regime of easy credit in the US which started during the period of Alan Greenspan; he was vehemently opposed to any regulation of financial instruments known as derivative. This action allowed huge amounts of easy credit backed money to be injected into the financial system and help create sustainable economic boom. However, as long as capital flows and credit expansion grew unchecked, lending expectedly spilt over from financing safe and productive investments to risky and speculative assets. Reckless financial innovation included leverage, short selling, unsecured credit systems and swaps.

At first, it was argued that it has no effect in Nigeria's capital market. But that initial response was, to put it mildly, naïve. The country's dependence on the export sector is very significant: 99% of foreign earnings and 85% of local revenues are directly derived from activities related to export of a single commodity, which is at the center of the current financial crisis, oil. It is estimated that 58.4% of Nigeria's export are US bound and up to 25% to the Europe zone. 67% of our non-oil exports go to Western Europe, 20% to Asia while ECOWAS accounted for only 11% in 2007. The stock of our foreign earning reserves is kept in European capitals markets where financial markets have tumbled and banks distressed. How can anyone think we are insulated? International financial crises which affect trade and investment flows are bound to impact on the domestic economy (Abdul, 2009).

Table 1: Market capitalization, capital inflow and foreign exchange rate in Nigeria (2008-2011)

Year	Market capitalization (₦)	Capital in flow (₦)	Foreign exchange rate/\$
2008 1 st quarter	15266742304592.90	974319438756.00	117.92
2 nd quarter	14225016506590.90	941584057414.00	117.81
3 rd quarter	13010017989900.30	1173422854464.00	117.73
4 th quarter	9562972015052.84	710011252792.00	126.48
2009 1 st quarter	7177880969205.54	733942011388.00	147.72
2 nd quarter	8809631549174.50	615670291686.00	148.20
3 rd quarter	7806248182535.82	1098032813303.00	152.30
4 th quarter	7030841531886.96	1241845318822.00	149.69
2010 1 st quarter	8378375953729.62	1204884390109.86	149.83
2 nd quarter	8216976818404.41	813360566335.00	150.19
3 rd quarter	7825598979906.85	1271374822620.00	151.03
4 th quarter	9918218706896.11	1506138271110.00	150.48
2011 1 st quarter	9868203301108.88	1187768252694.41	152.54
2 nd quarter	11198805048568.20	1096012861580.36	154.46
3 rd quarter	9577495907591.79	1404979536917.73	155.26

2011, 3rd quarter capital inflow is a provisional figure (CBN, 2011)

Nigerian stock market has no doubt made remarkable progress in the past decade and this progress, in part can be attributed to the sound oversight functions and competent management of the market by the various regulatory authorities such as the Security and Exchange Commission (SEC) and the Nigerian Stock Exchange (NSE). But since March, 2008, the stock exchange has not fared better, as unprecedented recession has taken it by force causing untold losses and decline in stock prices to investors and further creating crisis of confidence about the competence of the regulatory authorities to handle the current situation.

In this study, the hypothesis tested is basically related to the Impact of the Global Financial Crisis on the Nigerian Stock Exchange:

H₀: The global financial crisis has no significant effect on the Nigerian Stock Exchange

H₁: The global financial crisis has significant effect on the Nigerian Stock Exchange

The hypothesis will be tested at 5% level of significance. The objective of this study is to:

- Analyze how the global financial crisis has affected the Nigerian Stock Exchange from 2008 to 2011
- Make recommendations for policy formulators

RESEARCH METHODOLOGY

The data for this study was collected from the Central Bank of Nigeria and all available data. This study employs econometric techniques for analysis. Multiple linear regression models were used to determine the existence of the relationship, the nature and strength of the relationship between the dependent and independent variables.

Data presentation: Table 1 shows that Market Capitalization is the activities level and values of shares

on Nigerian Stock Exchange which play prominent role in economic development while Capital Inflow and Foreign Exchange Rate are the proxy of global financial crisis on Nigerian Stock Exchange.

Model specification: Models are representation of realities (Akerle, 1997). This model specifies that Capital Inflow and Foreign Exchange Rate are explanatory variables for the country's Market Capitalization of the Nigerian Stock Exchange. Market Capitalization (Y) is a Function of Capital Inflow (X₁) and Foreign Exchange Rate (X₂).

The functional relationship is specified thus:

$$Y = F(X_1, X_2) \quad (1)$$

The economic model of this functional relationship is given as:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \mu \quad (2)$$

where,

Y = Market capitalization

X₁ = Capital inflow

X₂ = Foreign exchange rate

α = Autonomous market capitalization when capital inflow and foreign exchange rate are held constant

β_1 = Coefficient of the capital inflow

β_2 = Coefficient of foreign exchange rate

μ = Error term

Based on a priori reasoning, the expected signs of the parameter estimate of X₁ and X₂ i.e., β_1 and β_2 respectively are: $dY/dX_1 = \beta_1 > 0$ and $dY/dX_2 = \beta_2 < 0$. Thus β_1 is expected to be positive and β_2 negative. If Foreign Exchange Rate is depreciated, Capital Inflow will increase and in turn Market Capitalization of the Nigerian Stock Exchange. This is a clear case of symbolic model.

Table 2: Model-regression results

Variables	Coefficient	S.E.E.	t-statistics
α_0	2.86E+13	4.18E+12	6.854431
β_1	2.455363	1.681321	1.460378
β_2	-1.50E+11	3.03E+10	-4.943679

E-view; R^2 : 0.67065; Adjusted R^2 : 0.61581; F-statistic: 12.2209; Durbin-Watson stat: 1.04649

Table 3: Students t-statistics

	A	β_1	β_2
t*	6.854431	1.460378	-4.943679
$t_{0.50}$	2.179	2.179	2.179
	6.854431>2.179	1.460378<2.179	-4.943679<2.179
Decision	Significant	Not significant	Not significant

Regression output and t distribution table; t*: Empirical t; $t_{0.50}$: Theoretical t

Table 4: Standard Error (S.E.) test

	α_0	β_1	β_2
Half of (α_0 , β_1 and β_2) S.E.	1.43E+13	1.2276815	-0.75E+11
	4.18E+12	1.681321	3.03E+10
	1.43E+13>4.18	1.2276815<1.68	-0.75E+11<3.03E
	E+12	1321	+10
Decision	Significant	Not significant	Not significant

Regression output

DATA ANALYSIS

With respect to the model, Market Capitalization (Y) was regressed against the 2 independent variables, namely Capital Inflow (X_1) and Foreign Exchange Rate (X_2). Data in Table 1 were used. The Ordinary Least Square Technique was applied on the time series data of the aforementioned table to estimate the model. Various tests were carried out. The co-efficient of determination (R^2) was used to test for the goodness of fit of the regression. The F-Statistics was used to test the statistical significance of the R^2 . The t-statistics and the standard error tests were both employed to test the statistical significance of the parameter estimates (α , β_1 and β_2) at 5% level (Appendix). Finally, the Durbin Watson statistics was used to test for the presence of auto correlation in the variables of the model. The explanatory variables X_1 and X_2 come out with the expected sign. Results are shown in Table 2.

From the regression results, the estimated model is:

$$Y = 2.86E+13 + 2.455363X_1 - 1.50E + 11X_2$$

$$R^2 = F$$

$$R^2 = 0.670695 \text{ or } 67\%$$

The F-statistics was used to test the significance of R^2 , the empirical F (i.e., F^*) was compared with the theoretical $F_{0.05}$ with:

$$V_1 = K-1 = 2$$

and

$$V_2 = N-K = 12 \text{ degree of freedom}$$

$$\text{Empirical } F \text{ (i.e., } F^*) = 12.22019$$

Theoretical $F_{0.05} = 3.89$

Decision: R^2 is significant

Student's t-statistics Table 3:

$$Y = 2.86E + 13 + 2.455363X_1 - 1.50E + 11X_2$$

$$(6.854431) (1.460378) (-4.943679)$$

Standard Error (S.E.) test Table 4:

$$Y = 2.86E + 13 + 2.455363X_1 - 1.50E + 11X_2$$

$$(4.18E+12) (1.681321) (3.03E+10)$$

Durbin-Watson (d^*): DW = 1.046489

Since $d_L < DW < d_U$ ($0.95 < 1.046489 < 1.54$) we therefore conclude that the presence of autocorrelation in the model is indeterminate.

DISCUSSION

With respect to regression model results, when the capital inflow (X_1) and foreign exchange rate (X_2) are zero market capitalization is ₦2.86 trillion. R^2 indicates that 67% variation in Market Capitalization could be explained largely by variation in the various capital inflows for the period 2008 to 2011 on the quarterly basis. The remaining 33% could be traced to unexplained variables. The F-statistics shows that the overall regression is statistically significant. Therefore, the 2 independent variables jointly account for the variation in the dependent variable.

The t-statistics and the standard error test show that the parameter β_1 and β_2 which is capital inflow and foreign exchange rate estimate respectively are not statistically significant at 5% level, whereas, the constant term α is statistically significant at 5% level.

Thus, we accept the null hypothesis that the global financial crisis has no significant effect on the Nigerian Stock Exchange. Based on economic theory if the foreign exchange rate is depreciated it will mobilize capital inflow and invariably increase market capitalization. This explains that the motive behind regulating foreign exchange rate to increase capital inflow is defeated in this model. Analyst and market insiders have given various reasons for the persistence fall in the prices of stock ranging from budget delay, exit by foreign investors to profit making, but this result and the continued bearish trend have given a lie to the postulation. Now we can say that policies of regulators must have played a negative role in deepening the recession, as many of the policies acted out of line with the realities on ground in the stock exchange market. These include the withdrawal of the margin facility by the apex bank, the uniform end of the year statement by bank, over subscription, greed and ignorance, domestic monetary and financial policies, etc. Only the intercept

has significant effect on the Nigerian Stock Exchange. This confirms that other variables not capture in the model affected the market capitalization as the aftermath of the global financial crisis.

RECOMMENDATIONS

In order for the Nigerian Stock Exchange to be a pivotal force in Nigerian economy and check the recession, the following recommendations are put forward:

- Improve the declining market capitalization by encouraging more foreign investors to participate in the market. This is because capital inflow and market capitalization are positively related.
- Ensure peace and stability in the socio-economy and political system of the nation by stopping religion and ethnic crisis. This will encourage more foreign investors into the nation thus, making effective the policy of depreciating foreign exchange rate to attract capital inflow.
- Restore confidence to the market by regulatory authorities through ensuring transparency and fair trading transactions and dealings in the stock exchange.

- For new issues, increase the minimum equity capital requirements for companies other than banks, insurance companies and other financial institutions.
- Encourage merger and acquisition as well as discriminatory income tax in favor of public quoted companies.

CONCLUSION

The benefits to be accrued on stock exchange market is very enormous, thus, policy of revitalizing it in a period like this, is very important for our economy. It is necessary to say again and again that recession come and go and stock markets tend to be the first to emerge from recession. Thus, with Nigerian Stock Exchange, things cannot be worse, so it makes sense to take up positions in the market, not to exit from it. Conditions are unlikely to be worse than they already are in the Nigerian Stock Exchange. This is glarier as the ongoing privatization policy will continue to make more funds available to the exchange. Therefore, the effective regulation of Nigerian Stock Exchange is a sign of successful privatization policy in Nigerian economy. This makes more sense for Nigerian and interested persons abroad not to relent in investing in the exchange as there will be much benefit from it.

Appendix 1:

Dependent Variable: MCAP

Method: Least squares

Date: 12/15/11; Time: 19:56

Sample (adjusted): 2008 1 2011 3

Included observations: 15 after adjusting endpoints

Variable	Coefficient	S.E.	t-statistic	Prob.
C	2.86E+13	4.18E+12	6.854431	0.0000
Inflow	2.455363	1.681321	1.460378	0.1699
Rate	-1.50E+11	3.03E+10	-4.943679	0.0003
R ²	0.670695	Mean dependent variable	9.86E+12	
Adjusted R ²	0.615811	S.D. dependent variable	2.53E+12	
S.E. of regression	1.57E+12	Akaike info criterion	59.17785	
Sum squared residual	2.95E+25	Schwarz criterion	59.31946	
Log likelihood	-440.8339	F-statistic	12.22019	
Durbin-Watson stat	1.046489	Prob (F-statistic)	0.001275	

E-view

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