

Financial Crisis, Firm Fundamentals and the Pricing of Bank Stocks in Nigeria – Analysis from a Panel of Banks

David Onyinyechi Agu

Department of Economics, University of Nigeria Nsukka, P. O. Box 4493, Enugu, Enugu State, Nigeria

* E-mail of the author: david.agu@unn.edu.ng

Abstract

Nigerian stock market was rated low before the year 2006. The rating changed afterwards to one of the emerging market economies of the world. Trading activities increased significantly until the recent global financial crisis struck hard on the entire economy. This study looks critically into the issue of stock pricing and the various changes that occurred in the characteristics of banks' stocks prices during the most recent global financial crisis. With a panel of 10 banks, this study adopts a pooled least square regression analysis method. Among other things, this study finds out that both when the banks are pooled together into one and when studied individually, dividend at previous period is a statistically significant determinant of stock pricing. Also the size of traded stock of seven (7) of the 10 banks studied exerts significant negative effect on the prices of the seven banks' stocks, leaving only three (3) to be insignificant. Against the apriori expectation, increase in the economic growth rate of the Nigerian economy leads to decrease in the stock prices of 9 out of the 10 studied banks. Of these 9 banks' stock prices, 7 receive significant impact from economic growth rate. Based on the policy implications of the finding above and so many more, this research study offers some policy recommendations that may be employed to avert such disastrous effects of financial crisis on the investors.

Keywords: Financial Crisis, Bank Stock Prices, Bank Fundamentals, Macroeconomic variables.

1. Introduction

A little over a decade ago, the Nigerian stock market would not elicit much interest, either to investors or to researchers. The market was clearly underdeveloped and poorly rated. Movements in stock prices were sluggish and volumes of transactions were low. However, in the later part of the same decade, the market experienced a boom – a boom which beginning 'coincided' with the Central Bank of Nigeria banking consolidation programme in 2004. The consolidation policy, meant to raise the minimum capital base of banks from N2 billion to N25 billion, ushered in a period persistent issue of shares by the various banks that led to a robust awareness among the general public matched with a buying fever. investment, and consequently, market capitalization soared within months. As indicated in Figure 1 of Appendix I, all indices of the stock market surged after 2005, with market capitalization exceeding the N2, 000 billion mark for the first time. By 2007, capitalization has shot up to ₦13,000 billion. As the market grew, so also did the share of the banking sector in the market grow. While market capitalization grew by 160.70 per cent between 2004 and 2006, the share of the banking sector rose from 34.4 percent of total market capitalization in 2004 to 41.8 percent in 2006. Between 2004 and 2006 alone, banking sector capitalization grew by 223 percent. In fact, over 46 percent of the total growth in market capitalization came from the growth in banking sector capitalization alone (Somoye, 2008).

But the honeymoon did not last. It ended in 2007 and the coming of 2008 ushered in a new era for the stock market. Nigerians may debate the source of the crisis that hit the market and/or its relationship with the US-subprime-led crisis in the rest of the world, but there are no debates about the consequences of the crisis in the Nigerian market. All indices of the market took a plunge in exactly the same phenomenal fashion that they grew, only this time a little faster. Some banks' shares, for example, United Bank for Africa fell by as much as 52% from N64 per share to only N33.9 per share within just one month between May and June 2008 (Cash Craft Assets Management, 2011). Many others did not fare much better. Market capitalisation which stood at ₦12.5 trillion as at February 2008 fell to only ₦9.7 trillion as at August of the same year: a withdrawal/loss of ₦2.8 trillion worth of investment from the market within a period of just six months! This withdrawal is more than half of the quarterly GDP in current prices of ₦4,85 trillion recorded within the second quarter of the pre-crisis period of 2007 (CBN, 2009).

The implications of such drastic changes for a young market like the Nigerian Stock Exchange are not miniscule at all. Investor confidence has been at its lowest and all attempts to revive it for a period of over three years have failed.

In fact, after about six months of the free fall, the Nigerian Stock Exchange at some point changed the rules and capped maximum allowable daily price losses of any share at one percent. This was in a bid to arrest the massive slide in share prices. Secondly, access to operating capital for quoted firms including banks has been grossly limited. In fact, the Nigerian banking sector entered into a secondary crisis arising from liquidity constraints. The crisis also opened a can of worms on the debt portfolios of many banks. The crisis also threatened the very existence of the fragile and re-emerging middle class, most of whom had heavy investment in the market with inadequate education about its workings. Every regulator, beginning from the Securities and Exchange Commission to the Central Bank and even the Ministry of Finance is concerned. But effectiveness of policy intervention has been circumscribed by limited understanding of the factors driving the crisis, their interrelationships and the most appropriate instruments for managing them.

Some scholars believe that the crisis could have been averted. But averting it or not depends on understanding the driving factors for the fall in prices. There are three possible sources of a crisis of this nature: the first are distortions in company fundamentals, the second consist of macroeconomic variables, while the third are external factors. Where the factors are mainly company fundamentals, it may be possible to arrest them by closer compliance monitoring and regulation. But to establish this, there should be evidence of correlation or causation. Where they are macroeconomic indicators, policy instruments and application will also be different, probably more difficult to apply. Where the factors are basically external, interventions will concentrate on policy instruments that could help to hedge the economy from external shocks. But so far, there had been a lot of newspaper articles, opinion forums, and sub-guesses but little (if any) scientific study trying to explain the crisis. This study, therefore, intends to provide preliminary evidence on the relative importance of these three sets of factors in driving the crisis. It specifically sets out to ask the question: what are the relative contributions of the different sets of potential contributory factors to bank stock pricing on the floor of the Nigerian Stock Exchange during the financial crisis?

2. The Model

There are five schools of thought with respect to stock price behaviour. They include the fundamentalist schools, the technical school, the random walk hypothesis school, the behavioural school of finance, and macro-economic hypothesis school. This study intends to analyse three major aspects of determinants of stock pricing – bank fundamentals, macroeconomic environment, and the foreign investors’ participation level. Therefore, of all the five schools of thoughts, this study adopts the approaches of the fundamentalists and the macroeconomic factor schools of thought. Fundamental factor models use the returns to portfolios associated with observed security attributes such as dividend yield, book-to-market ratio, and industry identifiers (Sun and Zhang, 2001). This is in line with the assertion of Durand (1955) that book value, dividends, earnings, total assets, and total capital are all determinants of asset price.

This implies an equation of the form:

$$BSP = f(DIV_{t-1}, SIZE, VOT, FPIr_t, INT, GDP_r) \quad (1)$$

where

DIV_{t-1} = Declared Dividend at time t-1

$SIZE_t$ = Size of the Bank, measured as total bank shares as a ratio of the total banking sector shares

VOT_t = Volume of Trade, measured as total number of traded shares divided by the total volume of shares owned by the bank

INT_t = Interest Rate

GDP_r = Growth Rate of National Output

$FPIr_t$ = Rate of change in Foreign Portfolio Investment in the bank

Given the above, the estimable equation for this study can be stated as:

The Model

$$BSP_i = \beta_0 + \beta_1 DIV_{it-1} + \beta_2 SIZE_i + \beta_3 VOT_i + \beta_4 FPIr_i + \beta_5 INT + \beta_6 GDP_r + \mu_i \quad (2)$$

where

i = the banks, i.e. 1, 2, ..., 10

β_0 = the intercept of the model

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5,$ and β_6 = the slopes or parameters of the model

μ = the stochastic variable.

This study covers the period of 2006 to 2010 in monthly series. Therefore, a period of 60 months is studied in all. However, the crisis period of June 2008 to March 2010 (i.e. 22 months) is also considered alone. In this case, two analyses are done, first for the entire period, and the second for the crisis period alone.

Panel Data analysis is carried out in this study. A primary motivation for using panel data is to solve the problem of omitted variables (Wooldridge, 2002; Brooks, 2008). Compared to the use of ordinary time series or ordinary cross-sectional data, panel data has the advantages that since it relate to individuals, firms, states, countries, etc., over time, there is bound to be heterogeneity in these units. Several methods of data estimation exist, as can be seen in some other studies that employed panel data analysis. Among these methods are: Panel Data Analysis of Covariance adopted by Durand (1955); VAR model of Panel Data analysis adopted by Eun and Shim (1989), Rangvid (2001), Elyasiani, et al (1998); and Panel Logit model adopted by Derrien (2005). However, the nature of the study defines the estimation method to be adopted by a particular work. For instance, if this study wanted to look at the probability of investors investing in the stocks of the banks in the face of the existence of several options to be included in their portfolio, then the study would have been expected to employ Panel Probit method of estimation. In like manner, if this study had been on finding out the level of fluctuations (volatility) caused by and within the factors, then a Generalised Auto-regressive Conditional Heteroscedastic (GARCH) model could have been employed. However, this study is to look at pricing characteristics of bank stocks in Nigeria, therefore a Panel Least Square method of estimation is rational. This is in line with Ljungqvist and Wilhelm Jr. (2003) who used Panel Data Ordinary Least Square method of estimation in their analysis of Initial Public Offering (IPO) pricing in dot-com bubble.

3. Empirical Findings and Implications

Observations from the empirical results presented in Appendix II, Tables 1 – 2 show that bank stock prices rise with rising declared dividend at previous time period for each of the banks and for all the banks pooled together. This finding supports the assertion that investors would invest their money in stocks that will yield the highest level of outcome or returns. Therefore, since declared dividend is the actual return on investment to investors, it is not surprising that increasing it will also lead to increases in stock prices. However, when the entire bank stocks are lumped, the magnitude of influence increased from 0.131 to 0.168 for the entire period, and 0.0323 to 0.0724 for the Crisis period only.

The Volume of Trade as a variable, represented by the ratio of trading of individual bank stocks relative to the stocks of the banking industry, has positive relationship with the stock price, with varying magnitudes. For banks like Access, Diamond, Fidelity, Guaranty, Platinum, and Wema, the impact is not very large, with less than 50% influence, implying that a 100% increase in the volume of trade of the stocks causes less than 50% increase in the prices of these banks' stocks. On the other hand, the volume of trade of the stocks of FBN, IBTC, UBA and Zenith has coefficients that are above 50 points on change in the stock prices while the impact is highest in Zenith Bank stocks. The impact of changes in volumes of stocks on stock prices is quite high for FBN at 82.4%, IBTC at 52.8%, UBA at 93.6% while Zenith is as high as over 169%. When lumped together, the impact of a 100 percent change in volume of banks' stocks on prices reduces to as low as 21%.

The crisis period comes with some forms of changes. In the first model considered above, the magnitude of the effect of the volume of traded stock on the prices of stocks for that of Zenith Bank exceeded that of every other bank. On the contrary, the volume of traded stocks of the IBTC Bank exceeded that of every other bank by showing that a 100 percent increase in the volume of traded stock of IBTC will mean a 248.1 percent increase in the pricing of stocks. The volume of trading of Wema Bank stocks impacts the lowest on the pricing of stocks of Wema Bank. A critical point in the analysis of the crisis period is the relationship between the volume of trading of Fidelity Bank stocks and the prices of the Fidelity Bank stocks. The pricing of stocks of Fidelity Bank decreases with increase in the volume of trade of the stocks of Fidelity Bank. This is a contradiction of the situation found with pricing of the stocks of other banks. In this situation, it implies that the volume of trading of the stocks of Fidelity Bank, which should follow the law of inverse demand (the higher the demand over supply, the higher the price), is rather an abnormal price function of demand. This implies that the market price is not a function of the forces of demand and supply. In a situation like this, it will not be unimaginable for the macroeconomic variables and the volatile macroeconomic environment to be the major determinant of such pricing behaviour.

A look at the variable of the size of traded bank stock with respect to the total banking sector volume of traded stocks shows that in the Model (for the entire Periods), all the banks stocks exhibit negative coefficients with varying magnitudes. The same negative coefficients with varying magnitudes are also observed in Model II, whereas the same Model (for Crisis Period alone) presents a different case. In the model, while some exhibit positive coefficient,

most others exhibit negative coefficients with varying magnitudes. Even though a negative relationship is established between the size of a bank's traded stocks with respect to the entire traded stocks of the banking sector, the size of Zenith Bank stocks has the highest level of influence on the stock prices among the stocks of other banks, with a coefficient of 1.902. In this case, a unit increase in the size of the traded Zenith Bank stocks will cause almost two units (1.9) decrease in the price of Zenith Bank stock on the floor of the Nigerian Stock Exchange. Second on the list of highly affecting size of traded stocks of a particular bank is the stock of UBA. The UBA stock size in the same Model (for all periods) is ranked second in affecting or influencing the pricing of the bank's stock. In the same way, the size of Fidelity Bank Stock made the least impact on the pricing of their stock in that model. This is shown by the coefficient values of -0.185. These values also imply that a unit increase in the size of the bank traded stock with respect to the entire banking sector traded stocks causes 0.19 units of decrease in the price of Fidelity Bank stock. It is worth investigating that in the model that covers all periods, the coefficient of the variable ($SIZE_t$) for Fidelity Bank Stock is the least among other banks, and positive while others are negative in the model of crisis period only. This positive relationship implies that the price of the stock increases with increase in the size of the bank stock with respect to the entire stocks of the banking sector. The observed form of relationship can be justified on the ground that the size is a function of demand and not that of supply. In this case, a higher demand will imply a higher size of the bank stocks and invariably lead to increased price level of the stocks of the particular bank.

Considering interest rate as a macroeconomic variable, the results conform to a priori expectations with only few deviations. Just as Sharpe (1973) notes investment in stocks is an alternative to investment in bond. Investment in bond on its own is a direct function of the prevailing interest rate. So, investment in stocks is an inverse function of the market interest rate; the reason being that investors draw their portfolio from both bond and stocks or from either. In this situation, it is theoretically established that increase in interest rate should reduce investment in stocks thereby causing a decrease in stock prices. All the stocks prices in the model apparently are consistent with this theory with the exception of Wemabank stocks price. The magnitude of the influence of change in interest rate on changes in stock prices is highest with respect to Zenith Bank stock, where the coefficient of interest rate is -1.739. This implies that a unit increase in the market interest rate will lead to 1.7 units decrease in the price of the bank's stocks. Market interest has the lowest impact on stock price of UBA stocks, with a unit increase in the market interest rate leading to only 0.011 percentage reduction in UBA stock prices. However, when all the banks are lumped into one group and the coefficients are taken as common coefficients, a unit increase in the market interest rate leads to 0.814 percentage loss in the prices of the entire banking sector stocks.

The observed variations in the nature of relationship that exists between the market interest rate and the stock prices are in line with the existing empirical studies. This is because the relationship between the market interest rate and demand-driven stock prices has always been a very critical point. Sharpe (1973) maintains that investors had concluded that bonds are now the superior investment medium, even though stocks continue to command a large following. Theoretically, neither should completely dominate the other: some combinations of bonds and stocks should prove superior to either taken alone. However, some empirical works by scholars like Shiller (2007), Cifter and Ozun (2007), Khrawish, et al (2010), etc. have shown that interest rate can either exert positive or negative effect on the prices of stocks within the economy. For instance, Shiller (2007) and Cifter and Ozun (2007) find a negative relationship between nominal interest rate and the stock prices, while Khrawish, et al (2010) find out a positive relationship between government interest rate and the stocks prices.

Inferring from the results of the model for Crisis-period alone, it is also observed that interest rate has various effects on the stock prices of the various banks under study. With the highest inverse effect on the price of Fidelity Bank stocks, and lowest inverse effect on the price of Bank PHB stocks, a direct effect of interest rate on stock prices is observed with respect to the stock of Stanbic – IBTC Bank. The implication of such result is that while other stocks prices will decrease with increasing interest rate, the stock price of Stanbic-IBTC Bank will increase with increase in the market interest rate. Pooling the entire banking sector stocks together, it is observed that a unit increase in the market interest rate led to 0.64 unit decrease in the total stock prices.

The model for both the entire-periods and the crisis-period alone show results where all but one stock price increased with increase in interest. Not only that, the relationship is equally positive for the pooled results of all 10 banks' stocks. This result is unique indeed. However, it can be argued that during the crisis period, monetary authority (CBN) reduced the market interest rate. This period of decrease in the market interest rate coincides with the period of decrease in stock prices. This could be the only explanation for a direct relationship of stock prices with the market interest rate.

It is observed from the first model that stock prices decrease with increase in the growth rate of economic output within Nigerian economy. This effect is observed for all the banks with the exception of Zenith Bank stock where a

unit change in the growth rate of national output leads to 0.76 units of direct change in the pricing of the bank stock. On the whole, the kind of relationship found between the entire banking sector stocks prices and the growth rate of national output is such that a unit increase in economic growth meant 1.9 (almost 2) units decrease in stock prices. National economic growth has the highest inverse effect on the pricing of Wema Bank stocks, and the lowest inverse effect on the pricing of First Bank stocks, with coefficients of -3.05 and -0.09 respectively.

When the crisis period alone is considered, a unit increase in the economic growth rate led to 1.07 units increase in the pricing of IBTC bank stocks. The same positive relationship/effect is found for the stock price of GTB. However, the magnitude of the effect for that of GTB is lower than that of IBTC (0.55 compared to 1.07). With the exception of these two banks' stocks, all other banks stocks prices had negative relationship with the economic growth rate during the crisis period, with varying magnitudes. The highest impact was on Bank PHB stocks where a unit increase in economic growth led to 2.77 percentage decrease in prices. For others like Diamond bank, a unit increase in economic growth led to 0.81 units decrease in the price, Uniquely, impact of economic growth on First Bank Stocks during the crisis period was almost one for one but in opposite direction. (i.e. coefficient of impact was 1.00). Pooling all banks together, a unit increase in economic growth implied 1.21 units decrease in the pricing of banks stocks during the crisis period.

The variable of foreign Portfolio Investment growth in each of the banks could not be regressed as cross-section specific variable. This was on account of the nature of the data. For some of the banks, the value of the variable was zero throughout the study period and so could not be regressed as cross-section specific variable, but was only be regressed as a common variable across cross-sections. In the first observation where all other variables are considered cross-section specific, and Dividend at the previous period and foreign portfolio investment (i.e. DIV_{t-1} and FPI_t) are considered common variables across cross-sections, it is observed that in Model I, banks stock prices increase with increase in the growth of foreign portfolio investment (FPI). However, this effect is very minimal (impact of 0.00000046 on stock prices for unit increase in FPI). However, when all the discrete variables are considered cross-section specific, the effect of growth in foreign portfolio investment on stock prices changed both in sign and magnitude. The relationship becomes negative, implying that an increase in the growth of foreign portfolio investment leads to decrease in the stock prices (with unit increase in foreign portfolio investment into the Nigeria stock market leading to 0.00000038 units decrease in stock prices).

Observations from the model for crisis-period alone show that increase in foreign portfolio investment in the banks leads to decrease in banks' stocks prices. Looking at the first instance where all other variables are taken as cross-section specific variables, it is obvious that the inverse effect is deeper than when all the variables are taken as common variables across the entire cross-sections. The first case yields 0.0000036 while the second case yields 0.00000016. The two imply that in the first case, a unit increase in the value of foreign portfolio investment in banks leads to 0.0000036 units decrease in the total banks stocks prices, while the same unit increase in the rate of foreign portfolio investment in banks in the second case will lead to 0.00000016 units decrease in the banks stocks prices.

3.1 Implications of the Findings

The study yielded three key findings:

- Stock prices respond positively to increases in declared dividends of the banks;
- Meanwhile, they are not so positively affected by economic growth;
- We could not find evidence that divestment by foreign portfolio investors is a threat to Nigerian stock market.

The implication of the first two findings is that stocks price during the crisis were affected more by dwindling declared dividends even in the face of positive overall economic growth. This is not surprising given that bank executives inflated their financial reports and posted huge profits that were not consistent with either economic growth or bank fundamentals. These inflated reports led to inflated dividends to shareholders which in turn induced shareholders to price stocks higher in the subsequent periods. When the crisis made it impossible to inflate financial reports, the dividends also disappeared leading to loss of confidence in the shares. The stock prices also responded sharply to the dividend cuts and fell, even though economic growth remained positive.

4. Conclusion and Policy Recommendations

Of the three variables of bank and market fundamentals, the size of traded stocks is both insignificant and negatively related to bank stock prices. This implies that policies aimed at only taking care of the size of traded stocks of a particular bank may not be effective in stabilising stock pricing in the future. This inability arises from the fact that investors seem not to base their pricing behaviours and decisions on the size of offered stocks of a particular bank with respect to the entire banking sector total traded stocks. Rather, investors' pricing behaviours and decisions are

based on the expected returns from the investments, thus explaining the positive and significant impact of dividend on stock pricing. Interest rate and economic growth rate are the two macroeconomic variables considered in this study. First of all, interest rate, even though negatively related, is an insignificant determinant of pricing of most of banks. This implies that interest rate regulation may not be a good policy measure for stock prices stabilisation. On the contrary, economic growth is both a significant and negative determinant of stock pricing for most of the banks. But it is contrary to a priori expectation that even when economic growth is on the increase, stock prices will be decreasing or vice versa. However, these findings support the explanations of Akerlof and Shiller (2009) about the animal spirits. According to them, there are some investments which investors are not supposed to make given calculated and quantitative information about the investment window. But due to overconfidence behaviour of man (or trust), he carries on with the investment. Many Nigerian investors in the capital market came into the market at the time of boom, and therefore have come to believe that the rising prices of stocks will continue in that way. This led several into buying for arbitrage reasons and not for long term investment with expectation of dividend. Trading for capital gain immediately replaced trading for dividend accumulation. At this point, investors are no longer interested in the macroeconomic condition of the economy within which this market operates. Since the market is not divorced from its immediate macroeconomic environment, it is not insulated either from a contagion effect of crisis in the economy. As can be seen from the analysis, even though the severity of the effects of most of the included variables is declining during the crisis period, yet the prices keep on deteriorating. It may not be explained that the crisis is imported through withdrawal of foreign investors in the Nigerian stock market. Yet, it may be explained to be connected to the unregulated investment of Nigerian banks in foreign economies which led to huge losses of invested capital (of course, depositors and shareholders' funds). The loss also reflected in the earnings per share which is also a determinant of declared dividend per share. Since investors still consider expected rate of returns, this could be the reason for the large placement of stocks for sale on the floor of the Nigerian Stock Exchange. This study will not have revealed anything if it fails to add that the place of management of information is of critical importance. Banks on their own sponsored both the persistent increase in stock prices before the crisis and the sharp decline during the crisis. This is because, Sau (2003) notes that ultimately, banks do not only acquire information but they also produce it. The opening of credit to an entrepreneur effectively represents a signal to "society" of his reliability, which facilitates the creation of long-term relationship between the firm, its clients, and its suppliers. Going by this analysis, opening of loanable funds to investors in stock market is also a dangerous signal that the market is promising, while the sharp withdrawal of loanable funds from the market sends the wrong signal that the market is about to crash. Therefore, banks' financial intermediation is very critical in the movements of stock prices before and during the crisis. Based on the findings of this study, the following policy options are recommended for forestalling future crisis and for recuperating from the recent one:

- ⇒ Banks should make efforts to improve on their corporate governance that will enhance increased profits, which will lead to consistent dividend policy so as to stabilise the pricing of their stocks based on investors expected returns.
- ⇒ The existing financial regulatory system has proved insufficient in forestalling a crisis and consequently losses in the economy. Therefore, there need for improved regulation of the stock pricing and stock market activities so as to reduce or forestall the possibility of recurrence of such crisis in the nearest future.
- ⇒ When loans are the basis of investment in stocks, then pricing and therefore investment will only be for short-term arbitrage reasons and not for long term shareholding. To curb this situation, investors should be sensitised to invest with long term reasons from their personal capital and not from loans.
- ⇒ When loans are the only source of capital, investors are liable to bid higher with the hope of future higher prices. Overconfidence behaviour plays more when loans are based only on paper collaterals. If the financial institutions will still finance stock investment, then collateral in real estate and other forms of capital should be demanded for and not share certificate.
- ⇒ Participation of foreign investors should be properly monitored to avoid divestment problem as a result of multiplier and/or contagion effect of panic in their home economies.
- ⇒ The macroeconomic environment should also be made as transparent as possible to allow investors know when there is a panic, instead of taking decisions based on mismanaged information.
- ⇒ Finally, since profits of banks seem to be privatised and losses seem socialised, proper regulation is needed to guide their participation in foreign financial activities to reduce risk of contagion effect of panic in foreign economy.

Financial crises can be forestalled or at least ameliorated. However, this is not possible except proper policy steps are taken. These policy options cannot be fully understood and applied without having a proper understanding of the

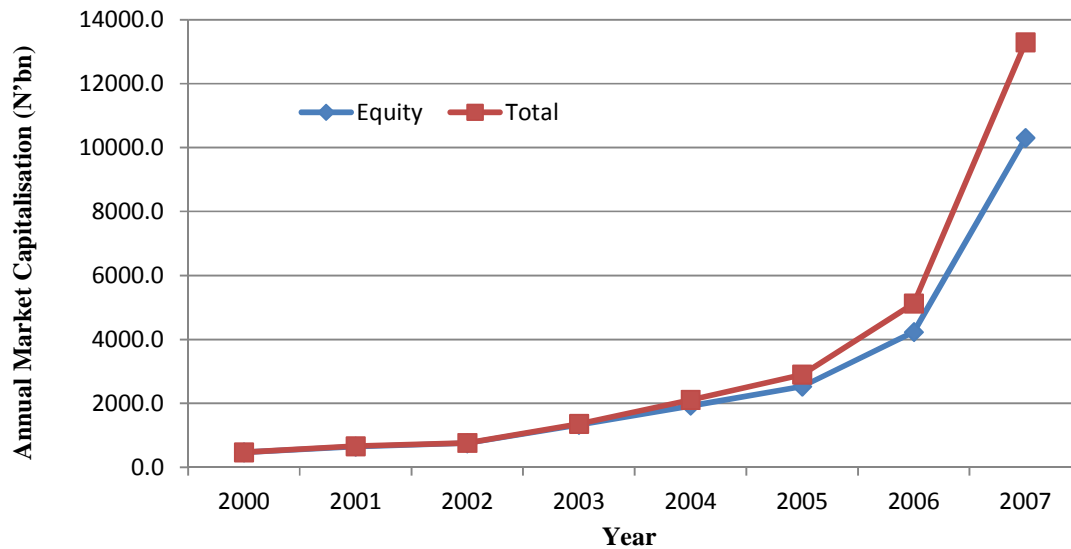
causes of the panic and crisis. It is widely believed that financial crisis comes as a result of stock prices having deviated severely away from the fundamentals of the firms that own the stocks. This implies that financial crisis is closely tied to stock pricing. It has been established in this study that stock pricing in Nigeria has been responding positively to the fundamentals of the firms and therefore, could not have been the source of crisis. Instead, stock prices responded severely to the crisis.

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APPENDIX I

Figure 1: Total Market Capitalisation of the Nigerian Stock Exchange 2000 – 2007



Source: Data from the CBN Statistical Bulletin (2007)

APPENDIX II

TABLE 1: Panel Regression Result of Model I for All Periods (2006–2010)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	29.32923	3.105158	9.445328	0.0000
DIV?	0.168236	0.008999	18.69406	0.0000
SIZE?	-0.471732	0.091932	-5.131324	0.0000
VOT?	21.23531	4.706202	4.512197	0.0000
FPIR?	-3.84E-08	1.75E-07	-0.219460	0.8264
INT?	-0.814046	0.146668	-5.550281	0.0000
GDPR?	-1.897422	0.383906	-4.942416	0.0000
R-squared	0.413002	Mean dependent var		15.42412
Adjusted R-squared	0.407062	S.D. dependent var		13.08008
S.E. of regression	10.07198	Sum squared resid		60156.74
Log likelihood	-2233.697	F-statistic		69.53737
Durbin-Watson stat	0.208420	Prob(F-statistic)		0.000000

TABLE 2: Panel Regression Result of Model I for Crisis Period (June 2008–March 2010) Only

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	13.73110	4.216673	3.256383	0.0012
DIV?	0.162941	0.008555	19.04605	0.0000
SIZE?	-0.313095	0.089589	-3.494786	0.0005
VOT?	11.70074	4.632107	2.526008	0.0118
FPIR?	1.02E-07	1.67E-07	0.609130	0.5427
INT?	-0.457102	0.287274	-1.591169	0.1121
GDPR?	0.638889	0.477191	1.338854	0.1811
D1?	-8.219857	1.530502	-5.370694	0.0000
D2?	-10.54833	1.772803	-5.950086	0.0000
R-squared	0.474284	Mean dependent var		15.42412
Adjusted R-squared	0.467167	S.D. dependent var		13.08008
S.E. of regression	9.547852	Sum squared resid		53876.43
Log likelihood	-2200.619	F-statistic		66.64757
Durbin-Watson stat	0.185251	Prob(F-statistic)		0.000000