Full Length Research Paper

Effects of 2008 global liquidity crisis on the performance of banks' shares traded in Nigeria stock exchange market

Aminu Yakubu Abubakar[1*], Ambrose Jagongo[1], Obere J Almadi[2] and Badayi S. Muktar[3]

[1]Department of Accounting and Finance, Kenyatta University, Kenya.
[2]Econometrics, Maasai Mara University, Kenya.
[3]Economics Department of Economic, Bayero University Kano, Nigeria.

The global financial crisis of 2008 is an event that affected the entire world economic cycle, the consumers, producers, financers and other parties that constitute the economy. The crisis was as a result of liquidity, currency, fluctuations of banks' share prices and risks in business with banks, which started from major financial institutions of the US and spilt over to the rest of the world. These gave birth to the same situations in Nigeria where investors, bank customers and other citizens were looking at the problems in the financial sector from either political dimensions or from misconceptions about Western economic policies that had dominated Nigeria economic system. The objective of the study was to establish the effects of the global liquidity crisis on performance of banks' shares traded in Nigeria stock exchange market. The study used a predetermined document guide to review to collect secondary data from audited financial statements of all the 18 money deposit banks operating between 2006 and 2010. Data were analyzed using comparison of two sample *t* test means and variance and the hypothesis was tested at a 0.05 level of significance. The results indicated that savings deposits and the bank reserve deposits increased at diminishing rates while cash requests steadily increased during the period under study. This implies that the 2008 global liquidity crisis had significant impact on share prices at NSEM. The study recommends that the Federal Government of Nigeria through its control agencies should mandate all the Money-deposit-banks to keep one quarter of their saving deposits with CBN. This should be different from cash deposit reserves, be strictly applicable to saving accounts redeemable bi-annually and should attract a reasonable interest rate to boost demand. Secondly, the Banks Regulatory Authority should increase reserve deposit for the deposit-taking- banks to make them more liquid to meet the increasing cash demand.

Key words: Global financial crisis, global liquidity crisis, performance of banks shares, and stock exchange market

INTRODUCTION

Background to the study

Historical evidence shows that the financial crisis in the world economy is not a new issue but an event that

recurs after a long period of time. Characteristically, this crisis directly or indirectly affects banks and manu-facturing firms financially (Sanusi, 2012). Kwanashie (2008) holds a similar opinion with Sanusi (2012) but

also believes that global financial crisis is an event, which leads to the downfall of larger firms and producers while its effects spill over to multi-national companies with businesses across the globe. These effects are reflected by company's shares' performance in stock exchange markets across the globe. Bush and Vanders, (2008) described global financial crisis as an economic controversial period where value and volume of economic activities in explicably and rapidly dropped down to an unexpected level, especially quoted equities prices, of bank shares. In his acknowledgment, Oguz (2012) recognized the following factors as global financial crisis; this includes fragility of banking system, inflationary trend, devaluation of local currency, foreign trade deficit, bad loan recorded by the financial institutions, increase in money supply without taking other economic factors into consideration, excess spending on unprofitable business in the short run (e.g spending on war in other countries by super powers), poor economic policy, intervention in the internal politics of other countries and other factors that threaten the world economy, through various ways of which stock exchange market activities is one of them.

According to Tobat and Akbar (2008), the global financial crisis of 2008 was the worst of its kind since the Great Depression of the 1830s and 1930s. It became prominently visible in September 2008 with the failure; merger and conservatorship attitude of several large United States based financial firms. The underlying causes leading to the crisis had been reported in various business journals for many months before September 2008, with commentaries about the falling of banks' stock prices, lower production capacity by firms and higher cost of goods due to higher level of demand by the society being some of the causes cited (McClure, 2008; Morton, 2008). The financial instability of leading USA and European investment banks, insurance firms and mortgage banks, consequent to the subprime mortgage crisis are the root of the event from a global perspective (Evans-Pritchard and Ambrose, 2007). Beginning with failures of large financial institutions like banks, insurance companies, brokerage firms and others in the United State, it rapidly evolved into a global crisis, resulting in a number of European banks and other countries that have direct linkage with either USA or any European country failing as well as decline of various stocks indices, and large reductions in the market value of equities (stocks) and commodities worldwide (Norris, 2008)

In general, the crisis led to a liquidity problems and the de-leveraging of financial institutions, which further accelerated the downfall in banks savings deposit profile, and forced banks to withdraw excess cash from their cash reserved deposit accounts in most of the country Central Banks. This further increased the level of cash request by commercial banks, which financial experts and monitory economies considered a liquidity crisis. Not only that, the situation metamorphosed to become a currency crisis at the close of October 2007, with investors transferring vast capital resources (through money circulation at local level and foreign exchange at international level). These lead many emergent economies to seek aid from the international Monetary Fund (Frankler, 2008). Although there are a number of credible pointers to the decline of America's global economic hegemony, the now nearly global reach of what was essentially an American financial crisis suggests that America still remains one of the most powerful economies in the world, and that its performance is still the single most-important heath barometer of the global economy.

Against the background of intimate and complex interdependences between United States of America and developing countries of the world from contemporary era, most of the African countries and Nigeria in particular have always been hard hit by almost every global economic crisis that has occurred in recent history, including the global energy and debt crunch of the 1970s (Brenda, 2006 as cited in Francis, 2008). Nigeria specifically, would not escape the global financial squeeze, particularly in light of the administrative policies, fragile economic, social and political realities that prevail in Nigeria; continued dependence on USA in terms of development assistance, technology import and the fact that it is a favoured destination of the European exports. Hence, there is the need to interrogate the social and economic impact of the global financial crisis on developing countries generally, specifically Nigeria (Francis, 2008).

The current financial depression has evolved differently from other major crises that hit the developing world in recent decades. Firstly, it is occurring in a world of unprecedented financial globalization, where the financial sector and banking industry in Nigeria plays a historically large role in economic activity. The crisis also comes on the heels of a major global shocked from high food and fuel prices across the globe that has imposed a heavy economic burden on many countries in Africa that faced internal problems and Nigeria specifically; and this has significantly increased the incidence of poverty, insecurity and political vulnerability (Sao, 2008). The situations in Nigeria created a deleterious impact on the country's economy, and especially on the financial system which is of second important to oil exploration in the country economy. Ujunwa (2011) however could not explain the

*Corresponding author. E-mail: jagongo67@gmail.com.

degree to which this affected the banking sector and the economy which is what this research will investigate.

Statement of the problem

Nigeria Stock Exchange Market (NSE) witnessed unprecedented growth in total market capitalization and value of shares traded between 2004 up to the second quarter of 2008. Immediately the crisis was pronounced in July, 2008 in USA, the Nigerian stock market started experiencing serious downturn activities. Udeme (2009) said the market capitalization of listed equities is more than 303 number with value of more than 10.18 trillion Naira in 2004; it continued to appreciate to 12.4 trillion in march 2007 which is the higher record achieved within 48 years of the market operation but this drastically dropped down to 3.2 trillion naira by the end of the year 2008. Similarly the share index dropped from 63,016.60 margins before the crisis was pronounced to 31,450.78 during last trading week of 2008.

It is also observed that, investors were pulling out their resources which made the stock prices generally to go down, in particular bank stocks. Onafonokon (2009) also said "apart from bank's investments in the stock market through their subsidiaries, some of the banks also have direct exposure to the market because they have given out facilities and loans backed up by the banks shares as collateral. Now that the value of the share has collapsed, what would happen to the banks since the collateral cannot cover the banks' exposure? Sanusi (2009) further lamented that, the hit of GFC in Nigerian banking sector exposed the weakness of most of the Nigerian banks in an area of risk management and corporate governance because more than half of Nigerian banks have a high level of non- performing loans accounts. This draws unrealistic interest into their P&L account which is a trap to attract investors and improve their stock price value. Eventually, the present crisis came and exposed the bank syndicates which finally led to a complete crash of the stock prices. Investors in banks stocks and other companies that are supported financially by the banks through loans and advances were highly affected as well as the economy in general. Other noticeable effects of the crisis in Nigerian banks are lower deposit commitment by the customers, lower capital flows through lending activities, poor foreign exchange earnings and general shortage of cash volume from banks. This situation nearly obliterates the financial system because of limited integration with the global financial market (Sanusi, 2009). The objective of the study was to establish the effects of the liquidity crisis on the performance of banks' shares traded in NSEM.

Theoretical Models

Walter James' Approach

Walter is basically concerned with the maximization of

wealth of equity holders. He argues that in the long run, the share's price reflects only the present value of expected dividends and the retention that influences stock prices only through their effects on future dividends. He also considered different market prices in different situations. For example, internal rate of return, market capitalizations and dividend pay out ratio, before determining the market value of the shares. The model is presented quantitatively as -:

Vc= D+Ra/Rc (E-D)/Rc

Where, Vc = Market value of the ordinary/share of the firm, Ra = Return on internal retention (earning profit), Rc = Cost of capital investment, E = is the earning per share and D=Dividend per share.

Two major factors influence Walter's analysis: dividend per share and the relationship between the internal rate of earnings returns and the market expectations by the firm. Walter established his conditions of the model operation as when the internal rate (I.R) of retained earning is higher than the market capitalization rate, the values of the shares would be higher even if dividend is low. But if the I.R within the business is lower than what the market expects, the value of the shares will be low. Then share holders will prefer a higher dividend so that they can bridge the difference between capitals invested and expected returns and channel it to more profitable business. The model did not take into consideration other factors that affect the dividend policy and the shares' prices of the firms. For example, it did not consider whether the firm is growing or not, and did not consider other factors such as the nature of the dividend policy applicable to the firm accounting principles.

Gordon Growth Model

This is another model that supports the Walter model. It states that dividend payment determines shares' prices. The model has (7) seven assumptions which include: firms are all equal and have no debt, no external finance is used, investment programs are financed exclusively from retained earnings, the internal rate of return(r) of the firm is constant, the appropriate discount rate (Ke) for the firm remains constant, the firm has a perpetual life span, the retention income once decided upon is constant, the growth rate (g=br) is constant and the discount rate is greater than the growth rate (Ke>br). Myron Gordon also argues that what is available today is better than what is going to be available in the future. Therefore all investors are rational and risky and uncertainty. Based on these assumptions, rational investors always buy stock which has higher price value that gives current and constant dividend payment, rather than lower stock price with uncertainty of payment. In addition a rational investor will discount the value of the stock that postpones dividend payments depending on

the retention rate and utilize the income in another business sector. The model is presented as follows:-

Ve= [do (1+g)/Ke-g]
Where, Ve= Market price per share (ex-dividend), Do= current rate dividend, g= constant annual growth rate of dividend, and ke = cost of equity capital (expected rate of return).

The model operates on three conditions when the rate of returns is greater than the discount rate, the price per share increases and the dividend ratio decreases; when the rate of returns is less than discount rate, the price per share decrease; while the dividend ratio increases and when the return is equal to the discount rate, the price per share remains unchanged and the dividend ratio also be the same as it was. The model left so many questions unanswered; for example, the model was built upon a hypothesis which was not tested and proved empirically. Therefore the assumptions are subjective, not objective.

Modigliani and Miller (MM) hypothesis

The MM model opposed to relevancy of the dividend payment as a yardstick for measurement of the firms' performance. The proponents of the theory argue that the firm's dividend policy has no effect on its shares' value under perfect capital markets. A rational investor is placed in between dividend payment and capital appreciation given the firms' investment policy.   Its dividend policy may not influence the market prices of its shares. The model was built upon the following hypothesis. The firms operate in a perfect capital markets in which all investors are rational and information is freely available. There are also no taxes. Alternatively, there is no difference in the tax rates applicable to capital gains and dividends; firm has any fixed investment policy, there is no floatation or transaction cost and the risk of uncertainty does not exist (Investors are able to forecast future price and dividend with certainty and one discount rate is appropriate for all securities and all time periods (r=k=Kt for all).   This model is primarily based on an arbitrage argument, that the values of the firm remain the same whether the firm pays dividends or not, and the value on its earnings and is not affected by the pattern of its income distributions. More so, dividend policy does not affect the shareholder's wealth. This means that payment of the dividend is offset by external financing because money is borrowed to finance the new investment. Another point is that the value of the share declines when dividends are paid; therefore the present value per share after dividend and external financing is equal to the present value per share before the payment of dividend. In this case, the share holders are indifferent to the payment of dividend and retention of earnings. The model is presented as:-

Po= p1+D1/1+Ke

Where, Po= the prevailing market price of a share, Ke= the cost of equity capital, D1=dividend to be receive at the end of period one and P1= market price of a share at the end of one period.

It seems the model is basically a theoretical because in under developed and developing countries, all the assumptions cannot be attainable. In fact, even in the developed countries, their capital markets cannot operate in a settings where information is perfect, rational, free and available, or in an environment where free of taxes or where there exists a fixed investment policy and non existence of uncertainty. Therefore the model is theoretical not practically applicable.

Event study model

 Event study model examines the market reaction in relation to return based on specific information related to the stock. The information can be acquisition of ownership announcement, merger policy, stock split, major financial scandal within the firm and outside the firm, change in government policy toward the operation of the firm and natural disaster among others factors. It considers the following five (5) steps.

(1) Identification of the event to be studied and the date the event was pronounced.
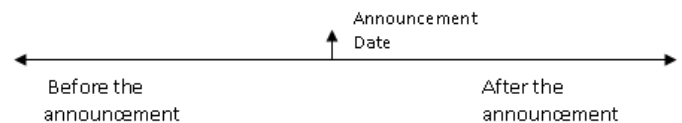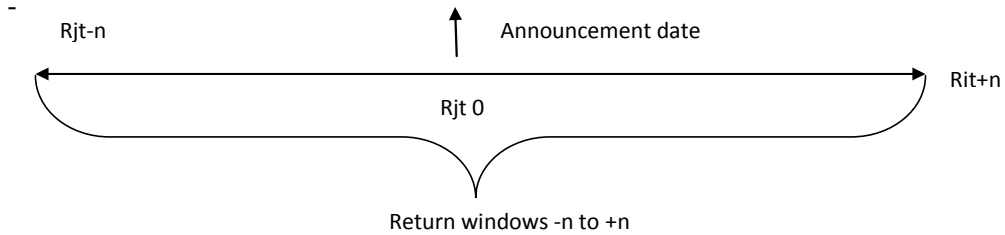

(2) Collection of the return date around the announcement date. This step includes the period of calculation of the return, which can be weekly, monthly, quarterly, semi - annually, or annually if no event occurred, which will inter fare with the existing event, and how long should the period be calculated; before and after the announcement, identification of exact return window date i.e period that the event started. This information is depicted in Figure 1.

(3) Calculation of excess return

1. Calculate excess return by the period around the announcement date for each firm in a sample, using $ERjt=R_{jt}- Beta_{j}R_{mt}$.
2. Calculate the average and the standard error of the entire excess return
3. Determine whether the excess return around the announcement date is different from zero or not.

This model shall be modified to give the flexibility of adopting it in this study since all the steps listed are applicable to this research; therefore the model can fit the

Figure 1. Collection of the return date around the announcement date.
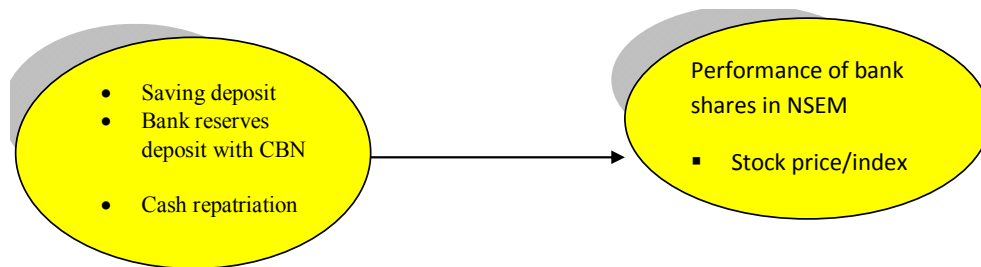

Figure 2. Conceptual framework.

research but it will under go some modification

CONCEPTUAL FRAMEWORK

This research modernized the event study model to a comparative event study model and adopted it because it takes care of all the variables in the study and is more closely related to the nature of this study as conceptualised as a modified project life cycle management (Westland, 2006) (Figure 2).

Operationalization of the variables

Modelling and data analysis procedure

This study is a modification of an ordinary event study because the analysis did not capture normal and abnormal returns, instead it only captured the average on cumulative returns statistic in order to compare the results before and after; that is 2006/2007 and 2008/2009, while 2007/2008 is considered a window period (Table 1). The study captured the average return between two periods using statistical model presented below:-

$$R_{it} = (\frac{u_{t-}u_i}{u_{t-1}})x100 \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots$$

$$\dots\dots\dots\dots\dots\dots \qquad 3.1$$

Where μ_t = is the performance of firm í at time t (Campbell et al, 1997)

Sign test

Sign test is used to test the existence of the two hypothetical statements already established as null and alternative, which state that GFC has or does not have an effects on each variable indicator. This also determines the performance of banks' shares prices traded in the Nigeria stock exchange market. The test can be presented statistically as:

$$Ho = R_{11} = R_{12} \qquad \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots$$

$$\dots\dots\dots\dots\dots\dots\dots\dots\dots \qquad 3.2$$

Where R_{11} is return for period before G F C
R_{12} is return for period after event

Table 1. Operationalization of the variables.

Independent variables	Operationalization	Measurement
Liquidity crisis	Savings deposit	Average rate of the total savings deposit of each bank per year will be measured in Naira.
	Bank reserve deposit with CBN	Average rate of total cash reserved deposit account balance with CBN for each bank per year will be measured in Naira.
	Cash repatriation	Average mean of each bank transaction with CBN through cash request per year

Table 2. Two sample t test of mean.

Variable	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
Average % before crisis	18	92.28372	17.98869	76.31957	54.33089	130.2365
Average % After crisis	18	-37.46521	11.68909	49.59262	-62.12704	-12.80338
Combined	36	27.40925	15.23214	91.39285	-3.513636	58.33214
Diff	129.7489	21.45293	86.15134	173.3465		

diff = mean(var5)   - mean(var11)   t =   6.0481

Ho: diff = 0   degrees of freedom =   34

Ha: diff < 0   Ha: diff = 0   Ha: diff > 0

Pr(T < t) = 1.0000   Pr(T > t) = 0.0000   Pr(T > t) = 0.0000

Source: Constructed from study data.

This research adopted two procedures in analyzing the data. The first part which is 3.1 modernized the event study model to comparative event study model, so that the application of two sample t test of means and variance, using descriptive statistics can be attainable. The second part which is 3.2 and 3.3 required aggregation of the returns as applicable to sign test for hypothesis testing on supportive as well as independent using 95% level of significance to determine the acceptability of any result above 0.05% and rejection of any result below 0.05% as presented statistically below as:-

Variance: $Ha = \delta_{11}{}^{1} = \delta_{12}{}^{2}$ ....
.... 3.3

Where $\delta_{11}{}^{1}$ variance before the Global Financial Crisis

$\delta_{12}{}^{2}$ Variance after the Global Financial Crisis

PRESENTATIONS OF THE FINDINGS

The result of the test in Table 2 reveals that the P-values for Ho_1 and Ho_2 and hypotheses are less than 0.05; which means the null hypotheses are rejected at a 95% level of significance. This implies that financial crisis of 2008 had an effect on the mean average saving deposit.

Since the Ho_3 hypothesis cannot be rejected because the value is more than at the same level of significance 0.05, it shows that the financial crisis of 2008 leads to a decline in average saving deposits.

Results in Table 3 show the impact of financial crisis on the volatility of saving deposits because the P-values of hypotheses Ho_1 and Ho_2 are less than (0.1%); which also indicated that the null hypothesis is rejected at 95% percent level of significance. Since the P-value for Ho_3 is greater than (0.1) it means that the 2008 global financial crisis leads to a higher volatility in saving deposit among the banks.

Combining Tables 2 and 3, the results show that due to the global liquidity crisis, savings deposits declined while the variance of the same saving deposits increased.

Conclusion

In summary, this shows that 2008 global liquidity crisis significantly affected the performance of bank's shares price in NSEM.

The results indicated that savings deposits and the bank reserve deposits increased at diminishing rates while cash requests steadily increased during the period under study.

This implies that the 2008 global liquidity crisis had significant impact on share prices at NSEM.

Table 3. Two sample test for variance.

Variable	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
Average % before crisis	18	92.28372	17.98869	76.31957	54.33089	130.2365
Average % After crisis	18	-37.46521	11.68909	49.59262	-62.12704	-12.80338
Combined	36	27.40925	15.23214	91.39285	-3.513636	58.33214

Ratio = sd (before crisis) / sd (after crisis)   f = 2.3683
Ho: ratio = 1   degrees of freedom =   17,17
Ha: ratio <1   Ha: ratio = 1   Ha: ratio > 1
Pr (F <f) = 0.9578   2*Pr (F> f) = 0.0844   Pr (F > f) = 0.0422

Source: Constructed from study data.

Policy recommendations

The study recommends that the Federal Government of Nigeria through its control agencies should mandate all the money-deposit-banks to keep one quarter of their saving deposits with CBN. This should be different from cash deposit reserves, be strictly applicable to saving accounts redeemable bi-annually and should attract a reasonable interest rate to boost demand. Secondly, the Banks Regulatory Authority should increase reserve deposit for the deposit-taking- banks to make them more liquid to meet the increasing cash demand

Conflict of Interests

The authors have not declared any conflict of interests.

REFERENCES

Bush P, Vanders G (2008) "An Overview of 1930 Economic Depression and its Consequences in Larger Economic Market" A public lecture in world and Economic Controversy Wikipedia file://c: Document 0771 AFC.
Central Bank of Nigeria: CBN Annual Financial report 2010/2011 Financial year CBN publications, Nigeria.
Francis I (2008) "The social and Economic Consequences of the Global Financial Crisis on Developing Countries and Emerging Economy A focus on Africa" A paper presented at "IN went Die Dialogue on effect of GFC and Emerging Market Dec, 2008. United Kingdom.
Frankler M (2008) "Tumble without Borders" A special Article on world Business The New York Times (http://www.nytimes.com/2013/01/24/ Business/world business/24won) Retrieved on 24/01/2013.
Kwanashie M (2008) "The Status of Western Firms within the period of Financial Problem Focus on African Economy" Paper presented at National Conference of economic and Financial Institutions Published in JEMS A.B.U Zaria, Nigeria.
Onafowokan S (2009). Nigeria: Global Financial Crisis and Economic Implication, Daily Vanguard of 16 April, 8.
Sanusi LS (2009) "GFC Impact in Nigeria Financial Reforms and the role of Multilateral Development Banks and IMF "paper presented to House Of Finance service committee of US congress. (unpublished).
Sanusi LS (2012). Banking reform and its impact on the Nigerian economy. Lecture by Mr Sanusi Lamido Sanusi, Governor of the Central Bank of Nigeria, at the University of Warwick's Economic Summit, Warwick, 17 February 2012.http://www.bis.org/review/r120320d.pdf
Sao P (2008) "Global Financial Crisis and Implication for Developing Countries G-20 Finance Ministers Meeting "World Bank publication, Nov, 2008.
Udeme E, Onuba I (2009). Global Financial Crisis: Keeping the Nigerian Stock Market Viable, Daily Punch of 5th January.