AN EVALUATION OF THE EFFECT OF FINANCIAL REFORMS ON LIQUIDITY OF THE NIGERIAN STOCK MARKET

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Abstract

In Nigeria, many studies have been carried out on the impact of financial/capital market reforms on economic growth, but not much research has been carried out on the impact of financial reform on stock market development indicators like market liquidity. This study evaluated the effect of financial reforms on the liquidity of the Nigerian stock market. Time series data spanning the period 1986 to 2010 which were sourced from the Central Bank of Nigeria (CBN) statistical bulletin was used. The empirical model was analyzed using Ordinary Least Square (OLS) technique and the impact of the financial reforms was determined using the Chow-Forecast Test of parameter stability and breaking point technique. The analysis revealed that the financial reforms of 1996 impacted significantly on the stock market liquidity. However, credit to the private sector which was used to account for financial intermediary development impacted negatively on the liquidity of the stock market.

Keywords: Stock Market, Liquidity, Financial Reforms, Restructuring, Investors

INTRODUCTION

The financial system of a country refers to the collection of markets, institutions, laws, regulations and techniques through which bonds, stocks and other securities are traded, interest rate determined and financial services produced and delivered around the world (Onyia, 2005). Many countries in the world embarked on financial reforms as a way of transforming their financial system. Nigeria like any other developing countries embraced the idea of financial sector reforms in the year 1986 through the Structural Adjustment Programme (SAP). Financial reforms includes the deregulation of interest rates; financial liberalization; adoption of market mechanism; development of the capital market; abolition of exchange controls and introduction of increased prudential regulation and supervision. According to Ogun and Akinlo (2011), the motivation for financial sector reforms could be attributed to three main reasons viz- macroeconomic imbalances, severe regulation and shift in the philosophical underpinning of economic policies in the global economy.

The capital market, which is made up of both the stock (equity) and bond markets, is the avenue through which long-term funds could be sourced by both governments and private sector institutions. Adeusi, Sulaiman and Azeez (2013) cited in Ewah, Essang and Bassey (2009) noted that the main objective of establishing the capital market in Nigeria is to mobilize savings from various economic units for economic growth and development, provide adequate liquidity to investors, widen the ownership base of assets as well the creation of a buoyant private sector and provision of alternative source of funds for governments. Ojo and Adeusi (2012) noted that the Nigerian capital market has not been able to judiciously perform its primary obligation of meeting the long-term needs of the deficit sectors of the economy since according to Emenuga (1998) the stock market is illiquid.

The Nigerian capital market, being one of the emerging markets in the world, emulated the world's best practices by introducing series of reforms aimed at fostering capital market development. These reforms started in 1986 with the introduction of structural adjustment programme (SAP). The reforms can be summarized as follows:
- Liberalization of interest rates;
- Promotion of market based system of credit allocation;
- Privatization programme
- Adoption of competitive market forces in the pricing of new issues;
- Debt conversion programme;
- Enactment of the Nigerian Investment Promotion Decree and the Foreign Exchange (Monitoring and Miscellaneous Provisions) Decree in 1995;
- Establishment of the Central Securities Clearing System (CSCS) ;

- Enactment of the Investment and Securities Act (ISA) in 2007;
- Enactment of the Pension Reform Act in 2004;
- Reconstitution of the Securities and Exchange Commission;
- Reduction in the withholding Tax on Dividend;
- Review of listing rules and fees as well as;
- Checking insider abuses.

These continuous reforms were aimed at repositioning the Nigerian capital market positively based on the believe that well functioning capital markets would create liquidity in financial claims, allocate and diversify risks effectively thus reducing the cost of capital and enabling larger economy-wide savings and investments (De la Torre and Schmukler, 2007). A good number of studies have been carried out on the impact of financial/capital market reforms on economic growth e.g. Ogun and Akinlo, 2011; Ojo and Adeusi, 2012; Adeusi, *et al*, 2013 to mention just a few) but not much research has been carried out on the impact of financial reform on stock market development indicators like market liquidity. Attempt has, however, been made in this paper to assess the impact of financial reforms on the liquidity of the Nigerian stock market.

LITERATURE REVIEW

Stock market liquidity generally refers to the ability to easily buy and sell securities on an organized stock exchange. It is an important attribute of stock market development because theoretically liquid markets improve the allocation of capital and enhance prospects of long-term economic growth. The conventional notion of market liquidity according to Bortolotti, De Jong, Nicodano and Schindele, (2004), is the "price impact" which coincides with the price response associated with a unit trade in auction markets and with the effective bid-ask spread in dealer markets. However, the computation of the price impact requires transaction data which are usually not available. Other measures of liquidity include total value traded ratio and turnover ratio. Total value traded equals total shares traded on the stock market divided by G.D.P. and it measures the organized trading output (Demirguc–Kunt and Levine, 1996). The turnover ratio on the other hand is the value of total shares traded divided by market capitalization. The turnover ratio is an important measure of liquidity since it complements both market capitalization and the total value traded ratio. This is because a small but active market will have small market capitalization but high turnover. On the other hand, a small but liquid market will have a high turnover ratio but a small total value traded/GDP ratio. High turnover is usually used as a measure of low transaction costs. Alajekwu and Ezeabasili (2012) citing Yartey and Adjasi

(2007) posit that stock market liquidity assists in reducing investment risk due to the ease with which equities are traded and it also helps in determining the level of economic activities in most economies.

Researchers have noted that market liquidity affects market-based governance thus impacting positively on the value of the company. According to Holmstrom and Tirole (1993) and Tadesse (2005), liquid stock markets can increase incentives for investors to get information about firms and improve corporate governance. They also contended that greater market liquidity implies more and better information. This is because prices reflect information about firms more accurately. It has also been argued that greater liquidity makes it easier for active shareholders to build positions so as to effect changes in corporate policies. Bhide (1993) had noted that more liquidity implies less monitoring since shareholders can dispose easily their holdings if they disagree with management's policies. Tadesse (2005) also argued that investors generally prefer a liquid stock market since in takeovers bidders prefer a market where they can assess a vast amount of information on short notice. However, Stiglitz (1985) is of the opinion that liquidity will not enhance incentive for acquiring information about firms or exerting corporate governance.

It has been acknowledged that liquidity is the most significant among all indicators of capital market development. This is the position maintained by Levine (1991, 1997) as well as Levine and Zervos (1996). They maintained that although many profitable investments require a long-run commitment of capital, savers do not like to relinquish control of their savings for long periods. Liquid stock markets bridge this gap, however, by providing an asset which savers can quickly and inexpensively sell. This was the finding in an earlier study conducted by Hicks (1969). He argued that the industrial revolution was not the consequence of a set of new technological innovation since technological innovation by itself was insufficient to stimulate growth. He maintained that the pre-condition for the implementation of new technologies was the existence of liquid capital markets. Thus, according to him, the industrial revolution had to wait for the financial revolution before it could occur. Thus, liquid stock markets reduce the downside risk and costs of investing in projects that do not pay off for long periods. This is because with liquid stock markets, the initial investors do not lose access to their savings for the duration of the investment project since they can quickly, cheaply and confidently sell their stake in the company Levine and Zervos (1996).

A number of empirical studies have been carried out on the relationship between stock market liquidity and economic growth although there is no consensus as to whether stock market liquidity causes economic growth or not. For instance, Levine and Zervos (1998) empirically investigated whether measures of stock markets liquidity, size, volatility and

integration with world capital markets are robustly correlated with current and future rates of economic growth, capital accumulation, productivity improvements and savings rates using data on 47 countries from 1976 through 1993. They found that stock market liquidity as measured by the value of stock trading relative to the size of the economy is positively and significantly correlated with current and future rates of economic growth, capital accumulation and productivity growth. According to them, stock market liquidity is a robust predictor of real per capital Gross Domestic Product (GDP) growth, physical capital growth and productivity growth after controlling for initial income, initial investment in education, political stability, fiscal policy, openness to trade, macroeconomic stability and the forward-looking nature of stock prices. In another study carried out by Josiah, Samson and Akpeti (2012), stock market liquidity was reported to have a positive impact on economic growth. The study was carried out on a time series data collected from the Central Bank of Nigeria (CBN) statistical bulletin from the period 1992 to 2007 using the OLS and Cochrane-Orcutt iterative methods. Using value of transaction and number of deals to measure stock market liquidity, the study found that both variables were positively correlated to GDP.

Other empirical studies have found no relationship between stock market liquidity and economic growth. Alajekwu and Ezeabasili (2012), in their study concluded that liquidity is not an identifiable channel for improving economic growth in Nigeria. Using time series data collected from CBN statistical bulletin for periods spanning 1986 and 2010, and employing the OLS regression analysis as well as Johansson co-integration test, the study showed that variables of stock market liquidity such as value traded ratio; number of shares ratio and turnover ratio have no significant influence on economic growth. Ujunwa and Salami (2010) cited in Alajekwu and Ezeabasili (2012) also reported that liquidity has no positive impact on economic growth.

METHODOLOGY

Data and analytical techniques

The study utilized secondary data spanning over the periods 1986-2010. All the data were sourced from the Central Bank of Nigeria (CBN) Statistical Bulletin, while the ones that could not be obtained directly from the Statistical Bulletin were computed with the help of the data from the (CBN) Statistical Bulletin. The empirical model was analyzed using Ordinary Least Square (OLS) technique and the impact of the financial reforms was determined using the Chow-Forecast Test of parameter stability and breaking point technique. The idea of the breakpoint point Chow test is to see whether there are significant differences in the estimated equation. A significant difference indicates a structural change in the relationship.

Unit root test was carried out to ascertain the stationarity status of the time series data. This test is required since according to Granger and Newbold (1974) and Engle and Granger (1987) the application of OLS to non-stationary data would result in spurious regression. The Augmented Dickey-Fuller (ADF) unit root test was adopted for the study. The rule of the test is that a data set is stationary when Augmented Dickey-Fuller test statistic is greater than the critical values.

Model Specification.

This study is based on Calderon-Rossell (1991) behavioral structural model of stock market development. In this model economic growth and stock market liquidity are considered as the main determinants of stock market development. The model was, however, modified to incorporate other financial and economic variables that might affect stock market liquidity. An empirical model to investigate the effect of financial sector reform on capital market liquidity was developed. The empirical model is stated thus;

$$VTRADED_t = \beta_0 + \beta_1 MCAPTL_{t-1} + \beta_2 PCRI_t + \beta_3 FPI_t + \beta_4 PSCREDIT_t + \beta_5 SAVINGS_t + \beta_6 TOVER_t + \beta_7 M2_t + e_t \dots\dots\dots$$

The dependent variable is the stock market liquidity; represented by value traded ($VTRADED_t$) which is the ratio of total value traded to GDP and it measures the value of stock transactions relative to the size of the economy. The explanatory variables are; Income which is $PCRI_t$ (per capita income) and it is expected to boost the capital market liquidity. $MCAPTL_t$ is stock market capitalization relative to GDP. Saving rate $(SAVINGS_t)$, is calculated as the ratio of gross saving to gross disposable income. Foreign private Investment (FPI_t) is calculated as the ratio of gross Foreign private Investment capital to gross disposable income. Credit to the private sector ($PSCREDIT_t$) is the domestic credit to the private sector divided by GDP. It was used to account for financial intermediary development. $M2_t$ is an indicator used for bank development. It is the ratio of broad money supply to GDP. The turnover ratio ($TOVER_t$) is calculated as the ratio of the total value traded to stock market capitalization. e_t is the usual white noise.

A priori Expectation

As earlier stated, the dependent variable is stock market liquidity which is represented by Value Traded. ($VTRADED_t$).$MCAPTL_t$, $PCRI_t$, FPI_t, $PSCREDIT_t$, $SAVINGS_t$, $TOVER_t$, and $M2_t$ are the explanatory variables. It is expected that all the explanatory variables will have a direct relationship with the dependent variable. Representing this expectation mathematically gives the following: $\beta_1; \beta_2; \beta_3; \beta_4; \beta_5; \beta_6; \beta_7 > 0$.

ANALYSIS AND RESULTS

The unit root test was performed to confirm the stationarity of the time series data. This was carried out by using the Augmented Dickey-Fuller (ADF) unit root test (See, Table 1).

Table 1: Result of Unit Root test

Variables	Order of Stationarity	ADF Test Statistics
SAVINGS	0	-1.301
SAVINGS	1	-5.545
FPI	0	-1.379
FPI	1	-5.410
PSCREDIT	0	-8.028
VTRADED	0	1.494
VTRADED	1	-6.740
MCAPTL	0	-0.547
MCAPTL	1	-8.177
TOVER	0	-1.321
TOVER	1	-11.747
M2	0	0.106
M2	1	-9.416
PCRI	0	-2.428
PCRI	1	-5.861

Test critical values: Augmented Dickey-Fuller test at 1% -4.323979, 5% -3.580623, 10% -3.225334

From the table 1, it can be seen that only the data for the variable Credit to the Private Sector $PSCREDIT_t$ was stationary at level. All the other data were stationary at first difference.

Table 2: The Regression Result of the Effect of Financial Reform on Capital Market Liquidity

Chow Forecast Test: Forecast from 1996 to 2010			
F-statistic	327234.7	Prob. F(15,8)	0.0000
Log likelihood ratio	413.1383	Prob. Chi-Square(15)	0.0000

Variables	Coefficients	T-Statistic
C	-54460.64	-1.574
D(MCAPTL)	32.502*	5.420
D(SAVINGS)	667004.6*	4.271
D(FPI)	-0.261	-0.839
D(M2)	0.163*	7.721
D(PSCREDIT)	-0.025*	-3.153
D(TOVER)	-297.063	-0.663
D(PCRI)	-80127.98	-0.895
R-squared	0.995	
Adjusted R-squared	0.993	
F-statistic	618.687	
Prob(F-statistic)	0.000	

* shows significant at 1%, ** significant at 5% and *** significant at 10%.

As can be seen in table 2, the model is good fit with R^2 of 99%. The Durbin Watson test shows that the model is free from auto correction problem, while the F statistics is significant at one percent level, which confirms the overall significance of the model.The result revealed a positive (667004.6) and significant relationship between savings and capital market liquidity. The result corroborate our a priori expectation, which says that, the higher the saving rate, the higher the capital market liquidity.

Foreign private investment is negatively signed (-0.261) but not significant in this analysis, the result contradicts our a priori expectation since a higher foreign private investment should translate to higher liquidity in the capital market.

The coefficient of credit to the private sector is negative (-0.025) but significant at 1% level. The magnitude and sign of the variable credit to the private sector depends on the rate at which the private sector enterprises generate private savings to boost the capital base and the liquidity of the capital market. In other words, credit to the private sector might impact positively on the liquidity of the capital market if the credit given out to the operators in the private sector results in more private savings than is channeled to the capital market. But if the credit to the private sector does not generate savings to boost the liquidity of the capital market, the credit to the private sector and the capital market liquidity will be negatively related as observed in this analysis.

The coefficient of capital market capitalization is positive (32.502) and significant at one percent level. This is in line with our expectation that a higher capitalization of the market will result in higher liquidity and vice versa. The turnover ratio is negatively signed (-297.063) and not significant in this analysis. This implies that the higher the turnover ratio at the capital market the less the liquidity of the market. This position is absurd because it is expected that a higher turnover will increase the liquidity of the market. What this means is that a reverse scenario is being experienced here. Turnover which is expected to be increasing is in actual fact reducing possibly due to the buy and hold attitude of the average investor.

The coefficient for money supply variable is positive (0.163) and significant at 1% level. This implies that higher money supply does translate to higher liquidity in the capital market. Finally, Income is negatively signed (-80127.98) and not significant in this analysis. This result is not in line with our expectation since it is believed that increases in the well-being of the citizenry should translate to increases in savings which will be channeled to the capital market. This position could probably be because the people have not developed enough confidence in the capital market to see it as a necessary destination for their savings thus necessitating reform intervention in the market.

In order to determine the effect of the financial reform on the liquidity of the capital market, however, Chow-Forecast Test of parameter stability was carried out to ascertain whether there was significant structural change in the capital market in relation to the capital market liquidity, following the 1995 financial sector reform.

The "F^x" calculated from table 4.3 is "327234.7" while the $F_{(15,8)}$ tabulated is "2.64". Apparently the F^* calculated is greater than the $F_{(15,8)}$ tabulated. The implication of this is that the null hypothesis is rejected and the alternative hypothesis that says that there was significant structural change in the capital market with effect from 1996 is accepted. The significance of the F^x calculated makes the change in liquidity of the capital market attributable to the capital market reform of 1996.

CONCLUSION AND RECOMMENDATIONS

This study investigated the effect of financial reform on capital market liquidity over the period 1986 to 2010. The study used Ordinary Least Square (OLS) technique to estimate the empirical models of the study. The impact of the capital market reform introduced in 1995 (but which effectively started in 1996) on capital market liquidity was assessed using the Chow-Forecast test and Breaking -point technique. The analysis revealed that the financial reform of 1995 impacted significantly on the capital market liquidity. However, credit to the private sector which was used to account for financial intermediary development impacted negatively on the liquidity of the capital market and liquidity is the ease and speed at which economic agents buy and sell securities. With a liquid market, the initial investors do not lose access to their savings for the duration of the investment project because they can easily, quickly, and cheaply sell their stake in the company.

Thus, more liquid markets could ease investment in the long term, potentially for more profitable projects, thereby improving the allocation of capital and enhancing prospects for long term growth. The more liquid the stock market, the larger the amount of savings that are channeled through the stock market. But when the institutions that are responsible for the channeling of savings are not efficient enough there could be inverse relationship between savings and capital market liquidity. Therefore, a well-developed banking sector is important for stock market development in emerging markets like Nigeria. In the light of the above, it is hereby recommended that:

There should be a restructuring and re-orientation of the banking sector and other financial institutions including the Central Bank so as to strengthen the institutional infrastructure of the domestic financial sector. Reforms should be introduced to synchronize the activities of the central bank, commercial banks and other non-bank financial institutions in such a way that

the activities of these institutions would boost capital market liquidity and not inhibit it. Without significant further progress in this area, the country will be unable to benefit fully from international financial integration and will continue to be exposed to the risks associated with international capital flow reversals.

The commercial banks, micro-finance banks and other non-bank financial institutions are agents of savings mobilization. Activities of these banks should be further strengthened to improve savings mobilization from disparate investors. These savings should thereafter be channeled to the stock market for investment in long term projects for national development. As noted by Sanusi (2011), it is only reforms and continuous reforms that can bring back the glory of the Nigerian capital market after the crash of 2008 which was occasioned by the global financial crisis. In this regard, reforms should be introduced to improve the liquidity of the market by introducing other products and services that could stimulate the interests of both local and foreign investors to continue investing in the market.

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