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Financial Liberalisation and Value of Stock Traded in Nigeria

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Abstract
The thrust of this study is on the effect of financial liberalization on capital market liquidity with a focus on the value of stock traded in Nigeria. The time series for each of the variables were obtained from the CBN Statistical Bulletin and the World Bank. The data analysis techniques include the autoregressive distributed lag (ARDL) estimation method, unit root test and descriptive statistics, among others. The unit root test results showed mixed integration in the series. The ARDL results showed that the deposit rate has a positive effect on the value of stocks traded. The results further showed that lending rates affected value of stocks traded negatively during the study period. Additionally, the results showed that exchange rates have positive and significant effects on the value of stocks traded in the long run. More importantly, the results showed that financial openness has a positive and significant effect on value of stock traded. This finding suggests that the openness of the financial system that allows for increased cross-border mobility of capital is critical for capital market performance in Nigeria. To this end, the study concludes that that financial liberalization is imperative for improving the liquidity of the capital market through improving in the value of stock traded. Therefore, the study recommends that monetary authorities to ensure more financial integration, market driven interest rates and stable exchange rates in their financial liberalisation goals to create more opportunities for the liquidity of the capital market.

Keywords: Market liquidity, Stock Traded, Financial Liberalisation, Interest Rates, Exchange rates

Introduction

Prior to the introduction of the liberalization policy, the Nigerian financial sector was repressed with the government and the CBN restricting and controlling the activities of the financial sector. The economy was hitherto characterized by excessive control of the financial and foreign trade sectors through the central determination of interest rates, prices, and exchange rates. Due to these interventionist measures, there was a significant imbalance in payments, which increased the external debt burden. However, following the adoption of SAP, Nigeria liberalized its economy in August 1987. This policy initiative commenced with the liberalization of interest rates. Besides the liberalization of interest rates, the reform also involved the promotion of a market-based system of credit allocation, enhancing competition, and efficiency of the regulatory and supervisory framework. The deregulation of interest rates was considered to result in a wide increase in the interest rate spread and the increased lending rates, thereby making it difficult for small and medium-scale enterprises to secure loans. In addition, the relaxation of entry into the banking sector resulted in the widespread establishment of banks which were poorly managed and stretched the regulatory capacities of the CBN. The inconsistency that characterised the implementation of the financial liberalisation policy has continued to raise concern among policymakers and researchers on the effectiveness of the financial sector reform in stimulating market capitalization in the country. Most often, successive governments have not been consistent in deepening the financial reforms as most of the policy statements have not translated to the intended and desired goals.

It is worrisome to note that the efficacy of financial liberalisation in Nigeria has continued tobe hampered by inconsistent monetary and exchange rate policies. In developing economies including Nigeria, poor policies erode the benefits of financial liberalisation. Again, capital flows to Nigeria are typically constrained by the inconsistent and sub-optimal control mechanisms that have long been a feature of monetary policy frameworks connected to financial

liberalisation. This supports the claim that there is a gap between Nigeria's economic reform agenda and regulatory forces as well as the legal institutions required to foster development and competitiveness including the development of the capital market.

Although several governments have initiated and somewhat implemented interest rate deregulation policy in Nigeria, the level of progress achieved has not substantially enhanced the market size and liquidity. It is also worrisome that the deregulation of interest rates in Nigeria has triggered controversy among policymakers and researchers. It is argued that interest rate deregulation has the potential to significantly impact investment because of the associated high cost of fund (Ojo, 1992). Conversely, Iklide (1990) posit that interest rate deregulation will boost savings through high deposit rates in addition to correcting the financial repression policy in the Nigerian economy.

Furthermore, the exchange rate policy associated with financial liberalisation has varied between managed float and flexible systems which has affected the development of the capital market in terms of all-share index. For instance, available statistics from the CBN (2019) Statistical Bulletin show that the Nigerian all-share index dropped from an average value of 39,409.82 in 2014 to 26,624.82 in 2016. The statistics further indicate that the share index declined from 37,186.11 in 2018 to 29,060.30 in 2019. Similarly, the outlook of the Nigerian capital market from available statistics shows sub-optimal outcomes due partly to the instability that characterised the capital market which is traced to pessimistic and low-risk behaviours of the majority of the investors in response to the exchange rate volatility. Despite the widespread recognition of the imperativeness of financial liberalisation, there has been An unending debate on the contributions of financial liberalization to the liquidity of capital market in terms of the value of stocks traded. This has heightened the research gap, thereby necessitating this study. Consequently, this study makes an important contribution to the existing literature by focusing on the implications of financial liberalizationon the value of stock traded. This offers an opportunity to deepen the understanding of how financial liberalization, has contributed to the liquidity of the stock market in Nigeria.

Literature Review

Theoretical Literature

McKinnon (1973) and Shaw (1973) were two of the leading economists who developed theoretical arguments in support of financial liberalisation. The fundamental assumption of this theory is that, rather than investing directly in the sectors that generate financial savings without financial intermediation, a higher real interest rate will ensure efficient allocation and investment of financial savings, raise the degree of financial deepening, and increase the level of saving in the economy. Thus, it is believed that interest rate liberalisation will result in higher real interest rates, savings rates, domestic investment, and economic growth, particularly in developing countries including Nigeria. The theory predicts that financial liberalization can promote economic development, by increasing saving, investment, and the productivity of capital.

According to the traditional view of financial liberalization, liberalizing financial markets in developing countries would attract capital, stimulate investment and growth, smooth productivity, reduce volatile consumption, and encourage domestic capital market development. Prior to the 1960s, the domineering view regarding finance-growth relation was the argument of the neo-Keynesians who recommended a lower level of interest rates to promote capital formation. In the period where this view was dominant, credit programmes and interest rate controls formed the major philosophy of government in the less developed countries which saw this argument as a way of allocating scarce resources to preferred sectors at low cost (Orji, *et al.,* 2015). Lee and Shin (2008) dissect the effects of financial liberalisation into direct and

indirect effects. The direct effects are clearly the benefits that arise in terms of the removal of frictions in the markets, thus leading to lower borrowing costs. The indirect effects are the negative impacts leading to crises.

McKinnon (1973) and Shaw (1973) argue that developing countries are financially repressed due to government involvement in credit allocation, heavy taxation, and interest rate control. They proposed a financial reform that would increase domestic private savings to income, deepening the economy and improving resource allocation. They argued that increased financial deepening, effective domestic saving mobilization and efficient resource allocation that would originate from financial liberalization will be beneficial to the economy. Rehman (2013) highlights the key finding of McKinnon's hypothesis, which is that at any given income level, an increase in the desired rate of capital accumulation causes an average ratio of money to income to rise. This suggests that an increase in return on capital necessitates an increase in the need for real cash-balancing holdings for accumulation purposes. Therefore, in developing nations, money serves as a channel for accumulation rather than as a rival asset.

The goal of financial liberalisation is to strengthen financial infrastructure, enhance market discipline, improve transparency, and encourage the growth of the financial system. For domestic businesses, this opens up new finance and investment options. The typical theoretical channel via which financial globalisation influences economic growth is the augmentation of capital, based on the standard one-sector neoclassical growth model. Stated differently, the financial liberalisation theory posits that financial globalisation ought to result in capital flows from nations with abundant capital to those with limited capital, as the latter should exhibit higher returns on capital. Financial liberalisation has been criticised for potentially increasing the danger of financial crises by incentivizing financial institutions to undertake riskier lending practices in order to generate larger profits. Additionally, greater financial development brought about by financial reforms would lead to more competition in the financial industry, which would lower profits and encourage greater risk-taking (Cubillas & González, 2014). The McKinnon-Shaw financial liberalisation model was also criticised by Taylor (1998) who contended that increased financial openness might not always result in faster rates of economic growth. They further explained that an emerging country may not benefit from having a fully integrated financial sector because GDP growth may not always be as great as expected.

Empirical Literature

Rahman and Mustafa (2017) in their study empirically investigated the relationship between financial deepening and stock market development. To achieve the objective of determining the role of financial deepening in stock market development, they constructed a panel dataset which comprised of 40 countries. The countries were sub-divided into 19 developed countries and 21 developing countries and the relationship between financial deepening and stock market development was studied using annual frequency data from 1988 to 2014. Using the panel Pedroni cointegration test, it was inferred from the result that, there is a cointegrating relationship among the employed variables. In the developed sample of countries, it was reported that stock market turnover had positive and significant impact on stock market development. They also reported a positive and significant relationship between liquidity and stock market performance. The result from the developing countries sample revealed that stock market turnover boosts stock market development and an increased level of liquidity fosters the development of the stock market. Comparing the results between the developed and developing countries, they reported that the impact of stock market turnover and liquidity is weaker in the developing sample relative to the developed sample.

Ben-Rejeb and Boughrara (2014) in their paper used a panel dataset that constitutes 13 emerging economies to examine the link between financial liberalization and stock market development. Their work tried to test the hypothesis of weak-form efficiency in the sample of emerging countries. The attention of their work was focused on modelling the weak-form efficiency by taking into account the evolutionary characteristics of emerging markets. To achieve this purpose, they estimated a time-varying parameter model combined with a structural change technique for the 13 emerging countries from January 1986 to December 2008. The sample of 13 emerging countries were distinguished into three market groups. The first group were those characterized by efficiency over the whole period which include 8 countries of Thailand, Argentina, India, Pakistan, Brazil, Jordan, Korea, and Malaysia. The second group consist of Venezuela and Mexico, with their market characterized by inefficiency. The third are countries characterized by an absolute inefficiency which include Colombia, Philippines, and Chile. The result of their analysis revealed greater stock market development and efficiency in recent years. Their result also shows that the structural breaks detected in the emerging markets predictability indices coincide with the official liberalization dates.

Methodology

The study employed an ex post facto research design. This was informed by the fact the data required for this study are already in existence and cannot be manipulated. Kerlinger (1977) emphasises that ex-post facto research is considered when examining a cause-and-effect relationship. The data required for this study is secondary. Specifically, annual time series data were used in this study. The data were obtained from various sources including the Central Bank of Nigeria (CBN) Statistical Bulletin. The functional forms of the models are specified as follows

$$VSD = f(DPR.\ LDR,\ EXR,\ FOI) \quad (1)$$

$$VSD = a_0 + a_1 DPR. + a_2 LDR, + a_3 EXR +, a_4 FOI) + ut \quad (2)$$

Where:
VSD = value of stock traded,
DPR = deposit rates, LDR = lending rates,
EXR = exchange rates and FOI = financial openness index,
a0-a4 =constant, and ut = error term

Specifically, the ARDL model for this study is provided below:

$$\Delta VSD_t = \alpha_0 + \sum_{i=1}^{p} \alpha_1 \Delta VSD_{t-1} + \sum_{i=1}^{q} \alpha_2 \Delta DPR_{t-1} + \sum_{i=1}^{q} \alpha_3 \Delta LDR_{t-1} + \sum_{i=1}^{q} \alpha_4 \Delta EXR_{t-1} + \sum_{i=1}^{q} \alpha_5 \Delta FOI_{t-1} + \lambda_1 VSD_{t-1} + \lambda_2 DPR_{t-1} + \lambda_3 LDR_{t-1} + \lambda_4 EXR_{t-1} + \lambda_5 FOI_{t-1} + \varepsilon_t \quad (3)$$

Where:
α_0 = constant parameter to be estimated,
$\alpha_1 - \alpha_5$ = short run parameters,
$\lambda_1 - \lambda_5$ = long-run multipliers,
p = optimal lag for each of the dependent variables,
q = optimal lag of the independent variables,
Δ = first difference operator and $\varepsilon_{1t} - \varepsilon_{4t}$ = error terms

The time series in this study were subjected to a unit root test using the Kwiatkowski-Phillips-Schmidt-Shin (KPSS, 1992) method. This was necessitated to prevent the estimation of a spurious regression model. This is followed by the bounds cointegration test developed by Pesaran, *et al.* (2001). The method was adopted due to the stationarity properties of the interest variables, as unit root testing showed that the variables are both level stationary and first difference stationary. More importantly, the least squares method was applied to estimate the ARDL modelto evaluate the short- and long-run effects of financial liberalization indicators on the market capitalisation. When compared to alternative estimating methods, the ARDL methodology has several desirable statistical advantages. In essence, the ARDL model, as opposed to a static model, which solely accounts for static effects, allows for both the static and dynamic impacts of the independent variables on the dependent variable. It is also considered ideal for models that incorporate mixed-integrated (I(0) and I(1)) series.

Data Analysis, Results, and Discussion of Findings

To ascertain the possibility of regressing the explanatory variables together in each of the models, a multicollinearity test was conducted using pairwise correlation coefficients. The results are summarized in Table 1.

Table 1: Pairwise Correlation Results

	MKC	DPR	LDR	EXR	FOI
MKC	1				
DPR	-0.552	1			
LDR	-0.052	0.048	1		
EXR	0.596	-0.682	0.409	1	
FOI	0.489	-0.843	-0.078	0.656	1

Source: Researcher's Computation from E-views 12

The pairwise correlation coefficients showed that there is an absence of perfect or near-perfect correlation between each pair of independent variables. This is based on the fact the correlation coefficients are not equal to one or very close to one. This finding shows that there is enough evidence to reject the null hypothesis of the presence of multicollinearity, thus allowing for regressing the independent variables together in each of the models.

Table 2: KPSS Unit Root Test Results

Null hypothesis: The variable is stationary					
Variable	**Levels test results**		**First difference test results**		**Order of Integration**
	LM statistic	**5 Percent Critical value**	**LM statistic**	**5 Percent Critical value**	
VSD	0.2089	0.463	-	0.463	I(0)
DPR	0.5521	0.463	0.1330	0.463	I(1)
LDR	0.2413	0.463	-	0.463	I(0)
EXR	0.6687	0.463	0.4606	0.463	I(1)
FOI	0.4824	0.463	0.1386	0.463	I(1)

Source: Researcher's Computation from E-views 12

The results show that the value of stocks traded and the lending rates are stationary. This is based on the fact their corresponding LM statistics are less than the 5% critical value. Thus, the

null hypothesis is rejected. In other words, the variables are integrated of order zero, I(0). However, it was found that deposit rates, exchange rates and financial openness index were not stationary. This is based on the fact that their LM statistics are greater than the corresponding critical values at the 5% significance level. However, the results showed that they become stationary at first difference, indicating the variables (market capitalization, deposit rates, exchange rates and financial openness index) are integrated of order one, I(1). Therefore, it followed from the KPSS unit root test results that the variables are mixed-integrated with evidence of I(0) and I(1) series.

Table 3: Cointegration Test Results

Series: VSD DPR LDR EXR FOI				
F-Bounds Test			Null Hypothesis: No levels relationship	
Test Statistic	Value	Significance level	I(0)	I(1)
F-statistic	3.93089	10%	2.2	3.09
K	4	5%	2.56	3.49
		2.5%	2.88	3.87
		1%	3.29	4.37

Source: Researcher's Computation from E-views 12
Note: K denotes the number of explanatory variables in the model

As previously noted, the bounds cointegration for model 2 was informed by the establishment of "mixed order of integration in the series. Specifically, the bounds test was performed at a 5% level of significance using F-statistic. As reported in Table 4.6, the calculated F-statistic (3.9308) exceeds the 5% upper bound critical value (3.49). This finding provides enough empirical evidence to reject the null hypothesis of no cointegration. It, therefore, follows from the result that a long-run relationship exists between value of stocks traded and financial development indicators. This finding is in accordance with the results Rahman and Mustafa (2017) as well as satisfies the pre-condition for fitting the ARDL short and long-run estimates. This finding suggests that Nigeria can leverage financial liberalization to foster long-term prediction of the changes in the capital market. This is imperative following the close link between financial liberalization and capital market development in developing economies including Nigeria.

Table 4: Summary of the ARDL Results

Dependent Variable: VSD				
		Short-run results		
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(VSD(-1))	0.318894	0.191482	1.665402	0.1114
D(DPR)	0.135659	0.103861	1.306158	0.2063
D(LDR)	-0.075852	0.058442	-1.297890	0.2091
D(LDR(-1))	-0.033303***	0.006256	-5.323369	0.0000
D(EXR)	-0.010508***	0.011255	-0.933667	0.0000
D(EXR(-1))	-0.015459	0.011326	-1.364839	0.1875
D(FOI)	4.414247***	1.352157	3.264596	0.0026
CointEq(-1)	-0.848301***	0.209778	-4.043809	0.0006
		Long run results		
Variable	Coefficient	Std. Error	t-Statistic	Prob.
DPR	0.159919	0.126060	1.268596	0.2192
LDR	-0.292132**	0.121319	-2.407965	0.0258
EXR	0.008406***	0.002573	3.267003	0.0039
FOI	5.203633**	2.340957	2.222865	0.0416
C	5.135808	3.117051	1.647650	0.1150
R-squared	0.6628		Prob(F-stat.)	0.0093

Source: Researcher's Computation from E-views
Note: ***, ** and * denote significant at 1%, 5% and 10% levels respectively

The results show that deposit rate has a positive effect on the value of stocks traded in both the short and long run. Although this finding is not significant and does not conform to the theoretical expectation, it highlights the fact that an increase in deposit rate has not significantly translated to the growth of the value of stocks traded. This is similar to the findings of Ogbulu and Uruakpa (2011) who established that monetary policy is positively related to stock prices. On the contrary, it was established from the results that there is a negative effect of lending rates on the value of stocks traded in both long and short run. This finding negates the intended and desired effect in accordance with the a priori expectation. The negative effect of lending intendedrates on the value of stocks traded agrees with the findings of Bissoon *et al.* (2016) who reported that interest rates adversely affected the stock returns. This finding could be attributed to the poor development of the financial market which hinders the expected positive relationship between interests and the stock market in Nigeria.

Furthermore, the results showed that exchange rates affected the value of stocks traded negatively in the short run but it has a long-lived positive effect on the value of stocks traded. The long-term results conform to the theoretical expectation, indicating that an increase in exchange has the potential to foster long-term growth of the value stocks. This finding disagrees with the results of Barnor and Wiafe (2015) who found that exchange rate depreciation is related to a fall in the development of the stock market. There is also evidence of a positive and significant effect of financial openness on the value of stocks traded in both the short and long run. This finding highlights the benefits of financial integration in attracting capital inflows to boost the development of the capital market through the growth of the value of stocks traded. Interestingly, this finding agrees with earlier results by Barnor and Wiafe (2015) who found that financial openness is good for a significant improvement in the value of stocks traded. The error correction coefficient is estimated as -0.8483 with probability value of 0.0006, indicating that the model can adjusts to long run equilibrium position at a speed of 84.83%. The probability value (0.0093) of the F-statistic showed that the explanatory variables are collectively important in accounting for changes in the value of stocks traded during the study period. Additionally, the R-squared (0.6628) indicates that the explanatory variables are accountable for about

66.28% variations in the value of stocks traded. This indicates that the model offers impressive statistical evidence for its reliability for both policy and forecast.

Table 4.1: Post-Estimation Test Results

Test Type	Null Hypothesis	Test Statistic	Probability value	Decision
Breusch-Godfrey Serial Correlation LM Test	H_0: Serial independence	4.790	0.0911	Accept H_0
White heteroskedasticity test	H_0: Homoscedasticity	5.7519	0.9281	Accept H_0

Source: Author's Computation from E-views software

The post-estimation tests centered on the residual's diagnostics and coefficient stability tests. They were conducted at the 5% significance level to gain deeper insights into the validity of the estimated model. It was observed from the results that the model is free from serial correlation. This is because the corresponding probability value (0.0911) of the asymptotically distributed chi-square statistic for the Breusch-Godfrey serial correlation LM test is greater than 0.05. This provides enough evidence for accepting the null hypothesis of no serial correlation in the residuals. Again, the chi-square statistic (5.7519) from the White test results is associated with probability value (0.9281) which exceed 0.05. This indicates that the residuals are homoscedastic. Thus, the outcomes of these tests are very impressive as they provide enough empirical evidence for the justification of the estimated ARDL model.

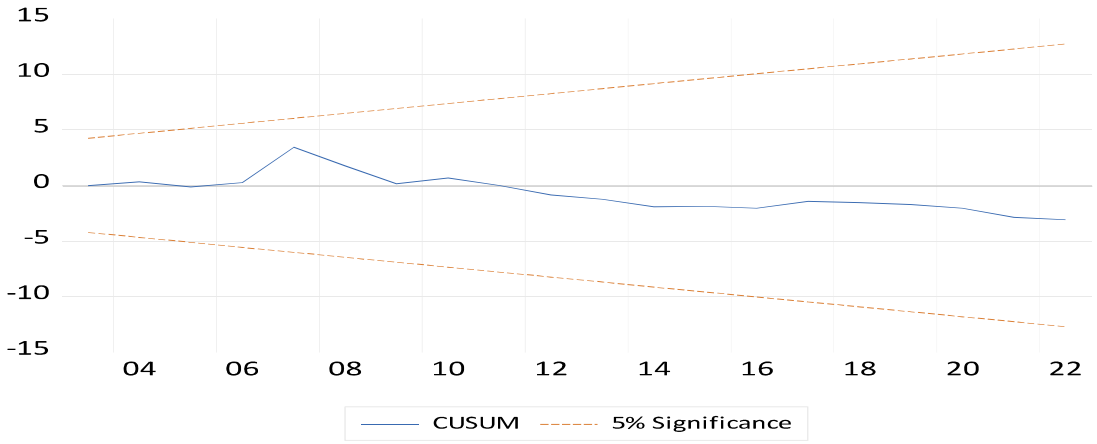

Figure 1: CUSUM Graph for Stability Test
Source: Authors' computation from E-views software

As observed from Figure 1, the CUSUM graph lies between the two critical lines at the 5% level of significance. This suggests that the estimated parameters for the value of stocks traded model are stable over the study period. This finding provides further evidence for authentication of the reliability of the model for policy and long-term prediction.

Conclusion and Recommendations

The study explores the empirical relationship between financial liberalization and value of stock traded in Nigeria. The financial liberalization was measured using interest deregulation, exchange rates liberalization and the financial openness index. The findings show that the deposit rate positively affected the value of stock traded. According to this research, investment

in the capital market to raise the value of traded stocks is encouraged when deposit rates rise. The findings demonstrated that loan rates had a detrimental impact on the value of the traded stock. This implies that Nigeria's capital market is negatively impacted by monetary policy that is inconsistent and changes interest rates. It has also been discovered that financial transparency considerably raises the value of traded stocks. This demonstrates how the financial system's openness can encourage the influx of financial resources into the capital market in the form of portfolio investments, thereby increasing the market's liquidity. Based on the findings, this study concludes that financial liberalization is imperative for the growth of value of stock traded in Nigeria. Thus, this study recommends that monetary authorities to ensure more financial integration, market driven interest rates and stable exchange rates in their financial liberalisation goals to create more opportunities for the liquidity of the capital market.

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