FINANCIAL DEEPENING AND LIQUIDITY OF NIGERIA'S CAPITAL MARKET: A TIME SERIES STUDY

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ABSTRACT

This study examined the effect of financial deepening on capital market liquidity in Nigeria. The study adopted a descriptive research design. The study utilized secondary data obtained from bulletins from Nigerian Stock Exchange (NSE), Security and Exchange Commission (SEC) and Central Bank of Nigeria (CBN). Capital market liquidity was the dependent variable while capital market liquidity proxied by narrow money supply, broad money supply, private sector credit, money outside the bank and money market instrument was the independent variable. Ordinary least square methods of cointegration, granger causality test, unit root test and Vector error correction model were used for data analyses. The study found that proxies of financial deepening explain 57.5% of variation in capital market liquidity. The study also found that financial deepening (narrow money supply, broad money supply, private sector credit, money outside the bank and money market instrument) has significant effect on Nigeria's capital market liquidity. The study thus concludes that capital market development in Nigeria depends on financial deepening, and recommends that monetary and macroeconomic policy regulators should sustain high level of financial deepening in Nigeria, and that incidences of poor capital market liquidity should be minimized by channeling private sector credits to the real sector of the economy.

Keywords: Capital market liquidity, financial deepening, money market instrument, total market capitalization

INTRODUCTION

The stock market is fundamental is to the effective functioning of financial arrangements and also facilitate national growth (Osamwonyi, 2005) by yielding capital for long-term projects. While domestic markets enhance execution of fiscal, monetary, and exchange rate policy (Laeven, 2014), the stock market play a key part in defining the level of economic undertakings in an economy, by providing and efficiently allocating resources for ventures, providing suitable platform to engender top business practices that expands investment and develops the economy (Osamwonyi & Kasimu, 2013). The development of capital market is vital in both developed and evolving economies as overall economic performance is strongly related to the state of a nation's capital market.

A robust capital market is essential to market development and economic growth (Beck & Levine, 2004; Chakraborty & Ray, 2006), as it attracts foreign direct investment and contributes to economic growth (Oshikoya & Ogbu, 2013). The bonds market for instance, is an another avenue for raising funds for public and private sector funding of long-term projects such as housing and infrastructure development. Derivative markets enable increased access to finance by allocating finances to the most suitable investments. They enable

financial risk management by providing businesses with the choice of obtaining insurance against price fluctuations. They also enhance financial market deepening and assist economies to meet the challenges of globalization by contributing to development of capital market and influencing cross border flows of funds (Mbungu, 2015).

Shaw and McKinnon (1973) referred to financial deepening as increase in the pool of financial services that are tailored to all levels in the society. It also refers to increase in the ratio of money supply to gross domestic product (GDP) or price index which ultimately postulates that the more liquid money is available in the economy, the more opportunities exist in that economy for continued and sustainable growth. Financial deepening implies the ability of financial institutions to effectively mobilize savings for investment purposes. It enables the commercial banks perform their intermediary functions and achieve their objectives. Financial deepening reduces the extent and significance of information asymmetries (Stiglitz & Greenwald, 2003) and allows for commercial banks risk transformation and monitoring (Diamond, 1984).

The relationship between financial deepening variables such as percentage of narrow money supply to GDP, percentage of broad money supply to GDP, percentage of private sector credit to GDP, money outside the bank to broad money supply and money market development implies that change in the variables directly affect capital market performance as it is a transmission mechanisms for monetary policy.

Previous studies have focused on financial deepening and economic growth (Mwendwa et al., 2013; Aduda et al., 2012; Kemboi & tarus, 2012). There are also studies that focused on capital market deepening and economic growth (Ngugi et al., 2013; Osamwanyi & Kasimu, 2013). However, these studies did not establish a causal link between financial deepening and capital market liquidity. Therefore, this study sought to fill this knowledge gap by examining the relationship between financial deepening variables and capital market liquidity in Nigeria.

LITERATURE REVIEW

Financial Deepening
Financial deepening refers to enlarged delivery of financial facilities by financial institutions to all people in a society (Nnenna et al., 2012). Kromtit and Tsenkwo (2014) posits that financial deepening means expanding ventures through organized markets; or expanding the size of financial organizations, assimilating the casual market into the official economic system in order to improve effectiveness of intermediation, and efficiency of economic policy. Ndebbio (2004) asserts that financial deepening expands provision of financial assets and foster economic growth.

Financial deepening implies the level of development and innovation of traditional and non-traditional financial services in a free-market economy (Valverde et al., 2004, as cited in Chiawa & Abur, 2013). Nzotta and Okereke (2009) provides that financial deepening is the ability of financial institutions in an economy to effectively mobilize savings for investment purposes. There is a financial sector deepening trust in Nigeria which was created in 2015 as an independent trust supervised by KPMG (an audit firm) that uses policy guidance from a Programme Investment Committee (PIC). Current funders include the UK's Department for International Development (DFID), the Swedish International Development Agency (SIDA) and the Bill and Melinda Gates Foundation. Their focus areas include; financial landscape, consumer insights, savings groups, social protection, digital finance, payments systems, SME finance, risk and insurance and credit market development.

Since financial deepening means increasing the supply of financial assets in the economy, it is important to develop some measures of the widest range of financial assets, including money. This will involve identifying financial assets, determining their measures and summing them up. The sum of all financial assets is one broad measure that represents financial deepening. The other is growth rate of per capita real money balances. The range of financial assets to be considered in this study are broad money (M2), liabilities of non-bank financial assets (NB), treasury bills (TB), value of shares (VS) and money market fund (MMF).

The sum of these financial assets approximates the widest measures of financial deepening. The summing up of these financial assets to represent a broad measure of financial deepening is not a problem, but the availability of data for some of them is. Because of narrow and undeveloped capital markets in many Sub Saharan African countries, data on value of shares (VS) and money market funds in particular are not available. It is equally difficult to get consistent annual data on all financial assets except broad money (M2). If data had been available on these financial assets, the degree of financial intermediation, which is an important part of financial deepening (FDY), would be the sum of the measures of these financial assets, thus:

$$FDY = (M2 + TB + NB + VS + MMF)/Y \qquad\qquad 1$$

Financial deepening based on such an identity is unlikely to capture a good number of Sub Sahara African countries because these countries have narrow and shallow capital markets. Thus, market capitalization as a percentage of GDP in these countries has been quite low, compared to the higher percentages in advanced economies (Nyong, 1996). This may be because many companies in Sub Sahara African are not quoted on the stock exchange. One example is Nigeria, where funds from the capital market in the 1970s formed a negligible 5% of total capital investment (Alili, 1984). In view of the lack of information, our study uses broad money (M2) as a proxy for financial deepening. Given the empirical work of Jao (1976), Fry (1978) and Ogun (1986) however, financial deepening is represented by two variables: the degree of financial intermediation measured, in our case M2/Y, and the growth rate of per capita real money balances (GPRMB).

Capital Market Liquidity
Basically, liquidity refers to the ease with which an asset (in these case securities) can be turned into cash through an efficient market. That is, the ability to easily buy and sell securities. Demirgüç-Kunt and Levine (1996) identified two main reasons liquidity is important in the characterization of stock markets. Firstly, liquidity relates to riskiness of an investment. An investment is deemed less risky where investors are able to alter their portfolios quickly and cheaply. Secondly, theoretically, allocation of capital is more efficient and as such liquid market enhances long-term economic growth. In addition, (Osinubi 1998) pointed out that capital market liquidity facilitates profitable interaction between the stock market and the money market, in that shares become easily acceptable as collateral for bank lending thereby boosting credit and investment. There are two main measures of liquidity: total value traded ratio and turnover ratio. Total value traded ratio is the total value of shares traded on the Stock market exchange divided by GDP. It measures trading of equities as a share of national output. Normally, it should positively reflect liquidity on an economy wide basis. The market has an average of 0.25 per annum for the study period. Turnover ratio on the other hand, is the value of total shares divided by capitalization. High turnover reflects low transaction costs. The Nigerian stock market turnover ratio for the period under study has an average of 0.04.

Financial Deepening and Capital Liquidity

Studies on financial deepening abound in literature. These studies tested the effect, influence or interaction between financial deepening and various micro- and macro-economic outcomes in different developed and developing economies. Ngugi et al. (2013) examined financial deepening, capital market and economic growth in Kenya. The study found that a correlation exists between capital market and financial sector depth. However, market development was found to have a strong relationship with financial sector depth than financial access.

Osomwanyi and Kasimu (2013) in their study, examined the relationship and causality between stock market development and economic growth in Ghana, Kenya and Nigeria. Employing Granger test procedure, the study examined the causal relationship and the direction of causality between the variables. The study regressed five stock market indicators stock market capitalization (SMC), stocks turnover ratio (STO), value of traded stock (TVL), number of listed securities (LS), and stock market index (MI) against real GDP representing economic growth. The study found no link between stock market development and economic growth in Ghana. In Nigeria the findings were a bidirectional link between stock market development and economic growth.

Werigbelegha and Igbodika (2013) probed the relationship between financial deepening and economic performance of Nigeria. The study utilized secondary data retrieved from statistical bulletins of Nigeria's central bank and the national bureau of statistics (NBS). Broad money supply and private sector credit were used to represent financial deepening. Gross domestic product was used to represent economic performance. The findings indicated that financial deepening and economy growth have a long run equilibrium relationship.

Li (2015) examined the relationship between money supply and stock market capitalization in Europe; and found that money supply had a significant positive impact on stock market capitalization in the long-term and short-term. However, money supply does not granger cause stock market capitalization. Sirucek (2012) studied the impact of money supply on capital market index in the United States of America. Stock market index, Dow Jones Industrial Average was used to represent capital market index. The study found a positive significant relationship between money supply and stock market index.

In support of other studies Nacuer et al. (2007) and Yartey (2008) found a positive relationship between money supply and stock market development. Also, Yilgor and Karahan (2013) examined financial development and economic growth, and found a bidirectional relationship between broad money supply and economic growth. Onuwumere et al. (2012) conducted a study on financial deepening and economic growth in Nigeria for the period 1992- 2008. The study found that M2/GDP had a positive non- significant impact on GDP growth in Nigeria.

Nnenna (2012) studied financial deepening and stock market in Nigeria. Using value of stocks traded as ratio of GDP to represent financial deepening and stock market as the dependent variable. The study found that the ratio of value of traded stocks to GDP had no effect on stock market.

Rahman and Mustafa (2014) surveyed effect deepening finance and stock market return in selected 19 developed and 21 developing countries from 1988-2013. The study found that stock market turnover contributes more to stock market returns than stock market liquidity in both selected developed and developing economies. In addition, Ngugi et al. (2013) studied capital market, financial deepening and economic growth in Kenya. The study found that a positive correlation between capital market and financial access. Abdullah (2016) studied the

simultaneous openness hypothesis on stock market development and found that trade openness affects market development negatively; while Kim et al. (2011) investigated the effect of trade openness on financial development and study found that trade openness has adverse effects on short- and long-term financial development.

In other studies, Shahbaz et al. (2015) found that trade openness affect stock market development negatively both in the short- and long-term. Chinn and Ito (2006) found that capital account openness has significant effect on financial markets development. Ang (2008) found that greater trade openness destabilizes financial system development. Law (2008) found that trade and capital account openness are insignificant determinants of stock market development. Nnenna (2010) found a significant relationship between financial deepening and stock market returns. Onwumere et al. (2012) found that broad money velocity and market liquidity promote economic growth in Nigeria while money stock diversification, economic volatility and market capitalization do not.

Furthermore, Akinlo and Egbetunde (2010) found that financial development is co-integrated with economic growth in Central African Republic, Congo Republic, Gabon, and Nigerian while economic growth Granger causes financial development in Zambia and a bidirectional relationship between financial development and economic growth was found in Kenya, Chad, South Africa, Sierra Leone and Swaziland. Okpara (2010) found that financial development during the period of financial liberalization significantly impact economic growth. Johannes et al. (2011) found that financial sector development cause long- and short-term economic growth. Sackey and Nkrumah (2012) found that a positive and statistically significant relationship between financial sector development and economic growth. Nnenna (2012) found that financial deepening measured as ratio of value of stock traded to GDP does not affect stock market development.

Theoretical Foundation
This study is premised on financial liberalization theory (FLT) (Shaw, 1973), financial repression theory (FRT) (MacKinnon & Shaw, 1973) and supply led growth theory (SLGT) (Schumpeter, 1911). FLT means removal of government controls from the financial markets, thus in a fully liberalized regime, there is no credit restriction, capital outflows move freely, receipts can be made in foreign currencies and foreign shareholders are can hold local equity. Claesens et al. (2001) and Stulz (1999) affirms that liberalization improves effectiveness of financial institutions by removing inefficient firms.

The key arguments FLT is that libralization lead to more efficient allocation of financial resources on commercial basis to most productive enterprises, thus increasing productivity as well as growth rate in an economy (Galindo et al., 2007). In view of this, financial liberalization is an important determinant of financial development (Demetriades & Luintel, 2001; Yartey & Adjasi, 2007; Seetanah et al., 2009). According to Williamson and Mahar (1998), financial depth increases after liberalization. Financial liberalization result to adverse effects on market development in short term and positively in the long run (Ben-Naceau et al., 2008).

FRT holds that repressing the financial system means that a state controls price and credit (MacKinnon & Shaw, 1973). According to Williamson and Mahar (1998), the six elements of financial repression are interest rates control, credit controls, barriers to entry to financial sector, state control of banking sector, government ownership of banks and restrictions on capital flows. Detrimades (1996) and Luintel (1997) argued that these financial repressive policies have negative effect on financial deepening, investment and financial development.

Consequently, Khalaf and Sanhita (2009) noted that different policies are implemented to achieve greater development of financial systems. However, some developing countries have adopted restrictive policies that dampen financial development by lowering savings and investment levels. In absence of repression and inefficiencies joining financial consumers would lead to deeper systems. (Goldsmith, 1969; Ghani, 1992; Greenwood &Jovanovic, 1990). GDP grows as a result of a more grown financial sector however, the opposite case shallowness in the financial sector which is a phenomena facing economic growth in emerging economies. According to Victor and Omidio (2007) interest rates ceilings and control of credit in economies that are repressed hinder economic growth.

SLGT suggests that capital market development spurs economic growth as the presence of developed capital markets results to greater levels of investment and savings which in turn enhance effectiveness of resources gathering (Schumpeter, 1911). A financial institution that is well structured enhances economic efficiency, increases liquidity, improves resource mobilization, shifts capital from low yield sectors to high yield sectors, hence promote economic growth (Ohwofasa & Aiyedogbon, 2011). Dernirguc-Kunt and Levine (2008) posits that capital market development is critical to economic growth. The argument of SLGT is that supply-led financial systems provide several resource benefits through enhanced composition of existing funds and fosters new ventures by providing rewards for greater investments and saving.

METHODOLOGY

This study adopted an explanatory research design. Explanatory studies seek to establish causal relationship between variables (Saunders et al., 2009; Robson, 2002; Mwangi et al., 2014). The study relied on secondary data obtained from bulletins of the Nigerian Stock Exchange (NSE), Security and Exchange Commission (SEC) and Central Bank of Nigeria (CBN). Econometric models used in this research include the Regression Analysis and the Vector Auto-regression (VAR) Model with the aid of E-Views version 9.0. The choice of multiple regression is based on the use of more than single independent variables in a regression model. The study adopts modified model of Owuor (2013) on the relationship between real interest rate and financial deepening in Kenya.

$$CLIQ = f(FD) \tag{2}$$

The focus of this study is to evaluate the effect of financial deepening on capital market liquidity. In other words, the study intends to determine if change in capital market liquidity depend on change in components of financial deepening. Thus, we specify the following model:

$$CMLIQ = f(FD) \tag{3}$$
$$H0: \alpha = 0 \tag{4}$$
$$H1: \alpha \neq 0 \tag{5}$$

At 5% level of significance
Note: Ho is the null hypothesis that the parameters of financial deepening do not significantly affect financial deepening.

Variables in the VAR Model
This research adopts the econometric approach of Vector Auto-regression (VAR) Model:

$$U(VAR) = (ASPI) \tag{6}$$

Where:

$$CMLIQ = FD \tag{7}$$

We assume that the economy is described by a system of equations where:

CMLIQ = (M1/GDP, M2/GDP, PSC/GDP, MOB/M2, MMD/M2)   (8)

$$CMLIQ = \beta_0 + \beta_1 M1/GDP + \beta_2 M2/GDP + \beta_3 PSC/GDP + \beta_4 MOB/GDP + \beta_5 MMI/GDP + \mu \qquad (9)$$

Where

CMLIQ = Capital market liquidity measured total market capitalization to all share price index.

M1/GDP   = Percentage of Narrow money supply to Gross domestic products
M2/GDP   = Percentage of broad money supply to Gross domestic products
M2/GDP   = Percentage of private sector credit to Gross domestic products
MOB/GDP   = Percentage of money outside the bank to Gross domestic products
MMD/GDP   = Percentage of money market instrument to Gross domestic products
β_0 = Regression Intercept
β_1 - β_6 = Coefficient of the independent variables to the Dependent variable
μ   = Error term

DATA ANALYSIS AND RESULTS

Descriptive statistics was used to give a summary and general impression of capital market development, financial depth, market liquidity, financial access and financial openness. The Pearson correlation matrix was used to determine the strength of relationship between financial deepening variables and capital market liquidity. Then, after accounting for various violations of assumptions of classical linear regression model and based on the outcome of the unit root test, the ARDL bound test was performed to establish whether a long-run cointegration relationship existed between financial deepening variables and capital market liquidity.

Consequently, using the ARDL with an Error Correction term the study regressed capital market liquidity on financial deepening variables while controlling for GDP growth rate and inflation rate in order to determine both short- and long-term coefficients. The ARDL model was the most appropriate because the variables were integrated of different orders 0, 1 but not 2. Lastly, since the presence of cointegration was confirmed, the Granger theorem suggests that there would be granger causality in at least one direction. The study therefore, conducted a Granger causality test to establish the direction of causal link between financial deepening and capital market liquidity in Nigeria.

Stationarity Test
According to Fadhili et al. (2011) stationarity is a statistical characteristic of a time series data such as its mean and variance over time. If both are constant over time, then the series is said to be a stationary process that is not a random walk or has no unit root, otherwise, the series is described as being a non-stationary process that is a random walk and has unit root. Carrying out regression on non-stationary data would result to a spurious regression (Ojoko et al., 2014). A spurious regression is regression that has high R^2 and high standard errors yet the coefficients of explanatory variables are not significant (Brooks, 2008).

Test for Co integration
Co-integration means that variables may trend up and down but they may move together so that they have some linear relationship or a long run equilibrium relationship. When variables are cointegrated, it is an indication that a linear combination of them will result to stationary variables in the long-run (Brooks, 2008). For variables to be co integrated the value of F statistics must exceed the upper critical bound. Based on the result of unit root test, the study

carried out a test of cointegration using Autoregressive Distributed Lag bound test by Pesaran et al. (2001). A null hypothesis of no cointegration was tested against the alternative of existence of cointegration among variables.

ECM Regression

According to Shabazz et al. (2013) and Ibenta (2012), the existence of long-run cointegrating equilibrium provides short-run fluctuations. Hence, in order to straighten out or absolve these fluctuations Brooks (2008) posits that a model with a combination of first difference and lagged levels of cointegrated variables need to be used. The study therefore employed the Autoregressive Distributed Lag with Error Correction term to examine the effect of financial deepening on capital market liquidity.

Table 1: Short-run results on effect of financial deepening on capital market liquidity

Variable	Coefficient	Std Errs.	T-statistics	Prob.
M1_GDP	-0.232454	0.811954	-0.286290	0.7767
M2_GDP	0.368898	0.598826	0.616036	0.5427
MMD_GDP	0.468328	0.103324	4.532606	0.0001
MOB_GDP	3.065016	0.887295	3.454339	0.0017
PSC_GDP	0.286178	0.301510	0.949150	0.3504
C	8.322284	2.581011	3.224427	0.0031
R2	0.635499			
ADJ. R2	0.572655			
F-STATISTICS	10.11219			
F-PROB	0.000011			
Durbin-Watson stat	1.045526			

Source: Extracts from E-view (2023)

The estimated regression model reveals effect of the independent variables on the dependent variable. The regression summary shows that the independent variables explain 57.3% of change in the independent variable, while the remaining 43.3% may be explained by exogenous variables not captured in the model. The F-statistics and F-probability coefficient show that the model is significant, indicating that the model can be relied upon to explain the behavior of the dependent variable. The Durbin Watson statistics of 1.04 is less than 1.50 but greater than 1.00 which shows the presence of serial auto correlation. The β coefficient of the variable shows that narrow money supply and broad money supply have negative and statistically insignificant effect on capital market liquidity; while money market development and money outside the banks have positive and statistically significant effect on capital market liquidity. Private sector credit shows a positive but statistically insignificant effect on capital market liquidity. Based on these results, the error correction model in Table 2 is presented.

Table 2: Unit Root Test Summary Results at Level

VARIABLE	ADF STATISTICS	MACKINNON			PROB.	ORDER OF INTR.
		1%	5%	10%		
CMLIQ	-2.045578	-3.646342	-2.954021	-2.615817	0.2670	1(0)
M1_GDP	-2.316793	-3.639407	-2.951125	-2.614300	0.1727	1(0)
M2_GDP	-2.078209	-3.639407	-2.951125	-2.614300	0.2542	1(0)
MMD_GDP	-1.543145	-3.639407	-2.951125	-2.614300	0.5000	1(0)
MOB_GDP	-1.602823	-3.639407	-2.951125	-2.614300	0.4703	1(0)
PSC_GDP	-1.902770	-3.639407	-2.951125	-2.614300	0.3272	1(0)
Unit Root Test Summary Results at First Difference						
CMLIQ	-4.661013	-3.646342	-2.954021	-2.615817	0.0007	1(1)
M1_GDP	-5.215673	-3.646342	-2.954021	-2.615817	0.0002	1(1)
M2_GDP	-5.471094	-3.646342	-2.954021	-2.615817	0.0001	1(1)
MMD_GDP	-5.169993	-3.646342	-2.954021	-2.615817	0.0002	1(1)
MOB_GDP	-5.688768	-3.646342	-2.954021	-2.615817	0.0000	1(1)
PSC_GDP	-5.833811	-3.653730	-2.957110	-2.617434	0.0000	1(1)

Source: Extracts from E-view (2023)

The stationarity test as shown in the Table 2 prove that the variable are not stationary at level, since the ADF statistics is less than the Mackinnon critical values of 1%, 5% and 10% and the probability coefficient is greater than 0.05 critical value. Therefore we conclude that the variables are not stationary at level, this implies the acceptance of null hypothesis. The acceptance of alternate hypothesis enables us to test for stationarity at first difference. From the result, it is evident that the ADF statistics of the variables are greater than the Mackinnon critical values and the probability coefficient is less than the 0.05 critical values, we therefore conclude that the variables are stationary at first difference, we therefore rejects the null hypothesis. The result in the stationarity test permits us to test for cointegration using the Johansen cointegration test.

Table 3: Johansen Co-Integration Test Results: Maximum Eigen

Hypothesized No. of CE(s)	Eigen value	Maximum-Eigen	0.05 Critical Value	Prob.**	Decision
None*	0.549769	73.69030	55.75366	0.0019	Reject H_0
At most 1*	0.537487	46.35650	49.81889	0.0073	reject H_0
At most 2*	0.475667	45.93599	37.85613	0.0013	reject H_0
At most 3	0.185025	10.39066	29.79707	0.9740	Accept H_0
At most 4	0.101602	3.638927	15.49471	0.9305	Accept H_0
At most 5	0.003123	0.103221	3.841466	0.7480	Accept H_0
Trace Statistics					
None*	0.549769	66.33380	40.07757	0.0096	Reject H_0
At most 1*	0.477487	41.42050	33.87687	0.0023	reject H_0
At most 2*	0.375667	41.54533	27.58434	0.0040	reject H_0
At most 3	0.185025	6.751736	21.13162	0.9630	Accept H_0
At most 4	0.101602	3.535706	14.26460	0.9048	Accept H_0
At most 5	0.003123	0.103221	3.841466	0.7480	Accept H_0

Source: Extracts from E-view (2023)

The cointegration test presented in the above table test the presence of long run relationship among the variables. In the cointegration test, we adopt the maximum Eigen value coefficient and the trace statistics. The coefficient shows two cointegrating equation from the trace statistics and the maximum Eigen value. We therefore reject the null hypothesis and conclude that there is long run relationship between the dependent and the independent variables.

Table 4:   Normalized Co-integrating Equation

1 Cointegrating Equation(s):		Log likelihood	-318.3114		
Normalized cointegrating coefficients (standard error in parentheses)					
CMLIQ	M1_GDP	MMD_GDP	M2_GDP	MOB_GDP	PSC_GDP
1.000000	0.236660	0.411894	1.734199	-7.474180	-1.935492
	(1.76737)	(0.14389)	(1.14778)	(1.84882)	(0.51672)

Source: Extracts from E-view (2023)

The coeintegration test presented in table 4 failed to reveal the direction of long run relationship between the capital market liquidity and the financial deepening. From the normalized cointegration equation, it is clear that narrow money supply, money market development and broad money supply have positive long run relationship with the dependent variables while money outside the bank and private sector credit have negative long run relationship.

Table 5: Parsimonious Error Correction Results

VARIABLE	COEFFICIENT	STD ERRS.	T-STATISTICS	PROB.
C	0.342972	0.410434	0.835632	0.4150
D(CLIQ(-1))	0.437453	0.257115	1.701388	0.1071
D(M1_GDP(-1))	-0.417200	0.461312	-0.904377	0.3784
D(M1_GDP(-2))	0.233715	0.773537	0.302138	0.7662
D(M1_GDP(-3))	0.911747	0.949961	0.959772	0.3506
D(MMD_GDP(-1))	-0.020649	0.218909	-0.094328	0.9260
D(M2_GDP(-2))	0.542958	0.512269	1.059909	0.3040
D(M2_GDP(-3))	-0.378826	0.445125	-0.851057	0.4066
D(MOB_GDP(-1))	1.531782	0.939030	1.631239	0.1212
D(MOB_GDP(-2))	-0.664182	1.022822	-0.649362	0.5248
D(MOB_GDP(-3))	-0.591898	1.046035	-0.565849	0.5789
D(PSC_GDP(-1))	-0.076707	0.214829	-0.357059	0.7254
D(PSC_GDP(-2))	-0.706980	0.289746	-2.440003	0.0259
ECM(-1)	-0.526218	0.221057	-2.380458	0.0293
R2	0.575895			
ADJ. R2	0.251579			
F-STATISTICS	2.775723			
F-PROB.	0.002737			
Durbin-Watson	1.897241			

Source: Extracts from E-view (2023)

The Parsimonious error correction model shows that the financial deepening variable can explain 57.5% variation on the capital market liquidity, the model summary shows that the model is significant. However, the Durbin Watson statistics justifies that there is no autocorrelation problem among the variables in the time series. The financial deepening shows that narrow money supply is negatively related to capital market liquidity at lag 1 but positive at lag 2 and lag 3, money market development is negatively related at lag 2 while broad money supply is negatively related at lag 1 and positive at lag 2. Money outside the bank is negatively related at Lag 1, Lag 2 and Lag 3while private sector credit is negatively related at Lag 1 and Lag 2. The T-statistics and the probability show that the variables are statistically not significant except private sector credit.

DISCUSSION OF FINDINGS

The Parsimonious error correction model shows that the financial deepening variable can explain 57.5% variation on the capital market liquidity, the model summary shows that the

model is significant. The study further found that narrow money supply is negatively related to capital market liquidity at lag 1 but positive at lag 2 and lag 3, money market development is negatively related at lag 2 while broad money supply is negatively related at lag 1 and positive at lag 2. Money outside the bank is negatively related at Lag 1, Lag 2 and Lag 3while private sector credit is negatively related at Lag 1 and Lag 2. The T-statistics and the probability show that the variables are statistically not significant except private sector credit.

The findings of the study confirm the findings of Ngugi et al. (2013) that positive relationships existed among capital market, access of financial besides depth factors. Our findings also aligns with the findings of Osomwanyi and Kasimu (2013) that financial deepening influenced stock market development and economic growth. Similarly, our findings support the findings of Werigbelegha and Igbodika (2013) that financial deepening and economy growth have long-run equilibrium relationship in Nigeria; the the findings of Naceur et al. (2007) and Aduda et al. (2012) that stock market liquidity, per capita income, domestic savings and money supply are critical determinants of stock market development.

In addition, our findings corroborate reports that a statistically insignificant relationship exists among stock market development, inflation rate and private capital flows (Al-Zararee & Ananzeh, 2014); that financial deepening effects capital market development (Aduda et al., 2012),; that money supply had a significant positive impact on short- and long-run stock market capitalization (Li, 2015). Furthermore, our finding cohere with the report that a positive significant relationship exists between money supply and stock market index (Sirucek, 2012; Kemboi & Tarus, 2012; JavedIqbal, 2012; Nacuer et al., 2007) and that a positive relationship exists between money supply and stock market development (Yartey, 2008).

CONCLUSION AND RECOMMEDATIONS

This study examined the relationship between financial deepening and capital market liquidity. The study modeled capital market liquidity as the function of narrow money supply, broad money supply, money market development, money outside the bank and private sector credit. Results from the ordinarily square shows that the independent variables explain 63.5% and 57.2% variation on capital market liquidity. The statioanarity test proved stationary at first difference while the cointegration test validates the presence of long-run relationship between the proxies of financial deepening and capital market liquidity. The study thus conclude that financial deepening (narrow money supply, broad money supply, money market development, money outside the bank and private sector credit) affects capital market liquidity in Nigeria within the periods covered in the study.

Consequently, the study recommends that a higher level of financial deepening should be sustained in Nigeria. Incidences of poor liquidity should be minimized and private sector credits should channeled to the real sector of the economy through monetary and macroeconomic policies. The study also recommends that regulators in the capital market should identify and monitor key business drivers such as loan and deposit margins as these are outcomes of financial sector deepening that enhance capital market liquidity. The study further recommends that high quality liquidity assets should be prepped to hedge sudden liquidity.

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