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Liquidity, Earnings and Stock Prices of Deposit Money Banks Listed in Nigeria Using LSDV Approach

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Abstract

The nature of banking business is such that liquidity is a prime determinant of earnings. Very high levels of liquid assets (except as may be required by prudential guidelines) reduces the amount of income generating assets banks can create, hence, liquidity management is critical to banks' earnings. The effect of Liquidity and Earnings on Stock Prices in the case of Deposit Money Banks (DMBs) quoted in Nigerian has not been well researched, thus, this study focuses on this area of research for a period of ten (10) years (2010 – 2019). The population of the study is 15 deposit money banks listed on the Nigerian Stock Exchange and least squares dummy variable (LSDV) Model was used in analysing the data. Secondary data were sourced from the Annual Reports of the selected twelve (12) DMBs listed in Nigeria using purposive sampling technique. Both descriptive and inferential statistics were employed in the analyses. The results showed a positive and statistically significant relation between Earnings and Stock Prices while partial correlation was established between Liquidity and Stock Prices. The effect of COVID-19 significantly and negatively impacted stock prices in the short-duration of the on-going pandemic.

Keywords: *COVID-19 pandemic, Deposit money banks, Earnings, Liquidity, Nigerian Stock Exchange, Stock Prices*

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Background to the Study

Financial institutions are conscious of the role liquidity plays in their earnings. The purpose of consciously managing liquidity is to reduce risks associated with liquidity. The need for growth and a more stable statement of financial position has created the overriding need for liquidity management. The greater the level of liquid assets in a bank, *ceteris paribus,* the lesser the income the bank can generate from such assets. Risk assets are assets that can be created through credit extension and the interest income from such risk assets has been a traditional source of income for banks. Income, albeit, earnings of a firm listed on a Stock Exchange generally has a high correlation with stock prices.

The evolving nature of banking and in fact, the dynamic nature of products and services offered by financial institutions generally keeps defining the income stream of banks. This can be justified on important role of banks in the contemporary world which Eze and Ogbulu (2016) identified as the important role banks play in financial intermediation. Today, globalization, deregulation and technology adaptation have widened the banking space as well as products and services being offered by banks and related financial institutions. These have created opportunities hitherto unknown in the business world but also are the risks associated with them. In fact, the areas of banking risk exposures include business, financial, operational and event risks. At any time, one or a combination of these risks threaten the corporate existence of banks. For instance, the 2008-2009 global financial crisis was more of financial risks but the current pandemic (COVID 19) is an exogenous risks but its effect on the global financial markets will take some time to crystalize. There are pointers to the fact that it is capable of threatening the liquidity of banks due to savings de-mobilization with high probability of impacting national economies and industrial production indices of countries significantly. The ripple effects of these on banks' solvency, liquidity, earnings and value creation for their stakeholders (especially shareholders) are already manifesting. In fact, stock prices, a major yardstick for measuring the value of companies in particular and shareholders' wealth in general are decelerating.

In fact, Chen, Kao and Yeh (2016) pointed out that the U.S. subprime crisis that erupted in August 2007 severely impacted the US economy and global financial markets. However, it can be argued that the COVID-19 pandemic will have greater negative implications on the global financial system than the 2007-2009 global financial crises.

Liquidity is an important part of banks' assets which include cash and other easily convertible liquid assets that can be liquidated easily to meet maturing liabilities. Elliot (2014) explaining the significance of liquidity to a banks' ability to meet maturing liabilities pointed out that liquidity can come from direct cash holdings in currency or on account at the Federal Reserve or the central bank. This explanation was corroborated by Kumar and Yadav (2013) who asserted that effective liquidity risk management enables a bank to meet its obligations as they fall due, thereby, reducing the probability of an adverse situation developing.

Tarus, Chekol and Mutwol (2012), identified the importance of net-interest income to banks when they asserted that the process of accepting deposits and lending by banks as financial

intermediaries takes place at a cost in the form of interest to the depositor as well as from the borrower. The authors further pointed out that banks are expected to carry out intermediation function at the lowest cost. Corroborating, Sarr (2000), argued that the high loan interest rate on the one hand will induce adverse selection problems on banks as the average quality of the pool of borrower's decline; higher deposit interest rate on the other hand may also reduce interest margins leaving less funds available for banks to support the operating costs of monitoring and screening borrowers. All these point to one direction: the need for banks to be very efficient in all aspects of its operations but particularly in the utilization of available resources. In fact, efficiency in banking has become the new orthodoxy due to the fragile nature of the banking business such that fewer inputs are needed to create higher outputs. Following from this, Tan (2013), enthused that technical efficiency has been improved significantly in the banking sector.

Due to the need for diversification to increase earnings capacity, banks are gradually gravitating towards non-interest income sources which have increasingly become veritable sources of income, although, the risks associated with it poses an inherent danger. Zhou (2015) pointed out that while the proportion of non-interest income increases, its volatility also increases. Non-interest income is thus an unstable source of income for deposit money banks. Therefore, it is pertinent for banks to reduce their overall risk by reducing the risks associated with interest income.

High levels of liquid assets are highly imperative for banks but it signifies lower capacity to earn high returns, *ceteris paribus*. In general term, Allen and Allen (2013), defined liquidity risk as the risk that the price at which you buy (or sell) something may be significantly less advantageous than the price you could have achieved under more ideal conditions. With risks, uncertainty pervades. Poor earnings lead to low profitability. Low profitability in turn impacts stock prices negatively, hence, leads to sub-optimal wealth creation by banks for their stake-holders.

IMF (2012) propositioned that particular concern arises given the fragile nature of the economies of LICs especially their vulnerability to external shocks and the Bretton Woods institution further pointed out that where the policy space and instruments to mitigate these shocks are constrained, growth and welfare costs can be large. In the case of asset prices, Chen, Roll and Ross (1986) are of the view that they are commonly believed to react sensitively to economic news. Ogbebor, Ajibade and Awonuga (2020), argued that the primary motivation for entrepreneurial drive is profitability which ultimately leads to an increase in the wealth of shareholders. The authors further stated that in the banking sector, owners provide risk capital with the aim of earning a rate of return from the spread between interest received and paid through the intermediation process in addition to other sources of income that are not interest related. Increased earnings lead to high increase in profitability and vice versa. This in turn has implications on the earnings attributable to shareholders in the form of earnings per share. Ogbebor (2019), pointed out that stock prices are majorly driven by macro-economic and financial factors, hence, its high sensitivity to such developments. In the case of the current pandemic (COVID 19), stock prices are already witnessing volatility but more on the downward trajectory.

According to Tarus, *et al* (2012), there is a dearth of literature on the determinants of interest margin especially in the developing economies of Africa. Furthermore, the relationship between liquidity risk, earnings and stock returns especially in the face of exogenous factors such as the current pandemic (COVID 19) requires an in-depth empirical study in order to provide a basis for policy re-think by regulators and monetary authorities, guide banks in their financial intermediation functions particularly with respect to risk management, investors regarding returns on their investments and risk diversification needs, academics and other scholars in the evolving link between global events and the inherent risks banks face. Following from this, the objective of this study is to find out how liquidity risks affect earnings of deposit money banks and their stock prices using deposit money banks listed in Nigeria as a case study. Therefore, the hypothesis being tested is stated in the null form, thus: Liquidity risk has no significant relationship with the earnings and stock prices of DMBs listed in Nigeria.

Literature Review

Liquidity Risk

The need for banks to earn higher yields on their investments is a major challenge since such investments are natural sources of risks. Also, contingent liabilities poses a major challenge to liquidity risks, although, this is often not adequately reported.

(Drehmann and Nikolaou, (2013), defined liquidity risk in DMBs as the likelihood that a bank will be unable to meet its obligations as they mature over a specified period of time. On their part, van Greuning and Bratanovic (2003) stated that banks are particularly vulnerable to liquidity problems on an institution specific level and from a systemic/market viewpoint. The argument of Chen, Shen, Kao and Yeh (2016) on the impact of liquidity risk on the performance of banks is that when banks lend out more loans with fewer liquid assets and receive fewer deposits, banks might have more exposure to liquidity risks. This explains why liquidity risks in banks are all encompassing, therefore, a critical mass of action such as procedures, guidelines, targets/risk budgets and the likes are needed to manage them. This line of reasoning is followed by Machiraju (2008) with the assertion that liquidity risk covers all risks associated with a bank failing to meet its obligations in time or only being able to do so by emergency borrowing at high cost. The definition of liquidity risk by Bank for International Settlements (2008) is that it is the risk of a bank being unable to obtain funds at a reasonable price within a reasonable time period to meet its commitments. Bessis (2009), sees liquidity risk as the risk that is capable of affecting a bank's earnings and capital due to its inability to meet its obligations as they arise with adverse consequences such as losses. Therefore, it can be argued that liquidity risk can be classified as a funding risk. Ogol (2011), argued that liquidity risk arises from management's inability fully anticipate and make provisions for changes in funding sources and cash requirements. Strategies or proactive actions are necessary to manage a bank's liquidity needs and needs assessment should be an on-going process and should be carried out on a daily basis. Liquidity management, therefore, revolves around the supply or withdrawal from the market the amount of liquidity in line with a desired level of short-term reserves without distorting the profit-making ability and operations of the bank. The liquidity needs of the banking system are usually well-defined by the sum of reserve requirements imposed on banks by a monetary authority (CBN, 2012).

Liquidity management is a concept that is getting serious attention all over the world especially with the fragile nature of the global financial system. The case of frontier markets or economies is particularly disturbing. Bank failures are common even in the developed world but a single bank failure in an under-developed economy has far more negative consequences due to: Firstly, banks dominate the financial systems of under-developed markets and secondly, capital savings, albeit investment (investment) is different. This is the more reason why bank failures need to be avoided at all cost. Not really trying to over-emphasize the adverse consequences of bank failures, the overall cost of such failures and efforts to resolve same whenever it occurs invariably makes the concept of too big to fail a watchword for regulators in such markets. Due to the importance of liquidity to the survival of banks, it is not out of place to argue that a strategic goal of liquidity management include the need to improve earnings and maintain appropriate level of liquidity in order to guarantee safety. Eljelly (2004), identified the significance of liquidity as a short-term risk management strategy by arguing that the most important part in managing working capital is the maintenance of liquidity on daily basis to meet its obligations.

Earnings per Share

Earnings is proxied in this study by Earnings per Share (EPS) is considered one of the most widely accepted factors to determine earnings performance. Literature shows that most of the individual investors take their individual investment decision based on the EPS. The term earnings per share (EPS) represents the portion of a company's earnings, net of taxes and preference stock dividends available to each share of common stock. EPS is a good measure of performance but it has several drawbacks. In fact, Wet (2013) pointed out that earnings per share is well known, hence, a widely used measure of financial performance but potentially misleading. The author further categorized the limitations of EPS into three: firstly, its failure to reflect shareholder value creation; secondly, earnings management and thirdly, inherent bias towards positive growth. The rationale behind the mis-leading use of earnings management to distort the honest and fair presentation of performance reports of companies can be deduced from the definition given by Okafor, Ezeagba and Onyali (2018), although, from accounting context, as the act of intentionally influencing the process of financial reporting to obtain some personal gain.

In fact, it can be further pointed out that managers manipulate earnings figure to show a false reduced cost of capital which can lead to a rise in the value of a firm in line with the postulation of the traditional school of thought on capital structure on the contentious issue of the determination of optimal capital structure level. In the case of the banking industry, earnings management is a popular strategy. In fact, Wu, Ding and Wu (2018) pointed out that earnings management is popular in the banking industry and further asserted that earnings can be manipulated by discretionary loan loss provision (DLLP). These limitations not-withstanding, EPS is simple to use and equally useful in reflecting the profit attributable to each unit of share owned by the ultimate risk bearers in any business. Shareholders, apart from using it measure the earnings capacity of each unit of their investments, also use it to forecast and determine their actual cash-flows from their investments in the form of future dividends. The well-known Gordon's dividend growth model which is based on future cash-flows of investments is derived from future dividends out of earnings attributable to each unit of share.

The argument by Waleed, Pasha and Akhtar (2016), is that profitability can be adversely affected by high liquidity. This, therefore, means that high liquidity is negatively correlated with earnings. As such, the liquidity-earnings mix should be well estimated. EPS can be obtained by dividing net income earned in each period by (average) number of shares outstanding during the same period. Earnings per share represents the portion of a company's earnings, net of taxes and preference share dividends available to each unit of share of common stock. A measure of EPS proposed by Islam (2014) is as follows:

$$\text{EPS} = \frac{\text{Net Income} - \text{Dividend on preferred Stock}}{\text{Average Outstanding Shares}}$$

Stock Prices

Ogbebor (2017), argued that macro-economic and financial factors drive stock prices such that they are highly sensitive to these factors. Adebisi and Lawal (2015), posited that stock price in an efficient market provides investors with a good measure of any firm's performance and its value. This shows that stock prices can be used as a measure of performance for companies. On their part, Enow and Brijlal (2016) argued that equity investments provide several benefits such as dividend income, capital gain, ownership but that such investments are solely dependent on share prices because they serve as indicators that could influence investment in a particular share. Regarding the significance of earnings to the valuation of firms' performance, Hasan, Khan, Choudhury, Adnan and Islam(2015)explained that earnings per share (EPS) is generally considered most important factor to determine share price and share and firm value. Ubom, Michael and Akpan (2017) are of the view that stock prices like the prices of every other commodity or product is prone to upward and downward movements based on different methods of measurement such as fundamental and technical analyses. The authors further averred that the fundamental decision variables ultimately take the form of earnings and dividends.

The Real Bills Doctrine or Commercial Loan Theory

Yusuf (2015) enthused that the commercial loan theory estimates that commercial bank Liquidity would be guaranteed if assets were held in short-term loans that can be liquidated in the normal course of business as the need may arise. Generally, banks are expected to finance the production process from inception to the final stage of consumption. The basic assumption of this theory is that banks should finance only on "short-term, self-liquidating, commercial paper". This theory is synonymous with the concept of working capital as it is known today.

Following the assertions by Reed and Gill (1989) and Machiraju (2008), loans should be based on "real" goods as opposed to loans for speculative or purely financial purposes; hence, these authors opined that the theory can be paraphrased as the real bills doctrine**.** However, Luckett (1984), mounted a vociferous attack against this theory by asserting that the theory does not support lending to long-horizon projects on the argument that they are illiquid.

The contention is that since the liabilities of a bank are payable on demand and the bank cannot therefore meet its obligations if assets are tied up for longer periods of time. Reed and Gill (1989) also argued that the commercial loan theory failed to take cognizance of the needs of

the economy. The criticisms of the commercial loan theory do reduce the significance of the theory in relation to liquidity risk management due to the short-term nature of liquidity risks, although, its effects can be last long to the extent of causing a run on a bank. This study is based on this theory.

Liability Management Theory

With the liability management theory, argues Koch and MacDonald (2008), banks can satisfy their liquidity needs by borrowing in the money and capital markets. According to this theory, banks can meet their liquidity requirements by bidding in the market for additional funds to meet loan demand and deposit withdrawals. When in need of immediate available funds, banks can borrow from the interbank market. It must be emphasized that banks with poor market standing may find it difficult to access funds from the market due to market discipline. Positive credit rating by recognized rating agencies and solvency position of such banks may be determining factors that can give them access to the market. A weak and insolvent bank would be screened out from the market.

Empirical Review

Ahmed (2018), studied the factors which affect stock prices using textile composite sector of Pakistan as a sample during the period of 2005 to 2014. The study established that dividend per share and earnings per share have positive and significant on stock prices.

Waleed and Ahmed (2018) stated that the observed outcomes of their study exposed significant relationship among bank liquidity ratios and return on assets, return on equity and net profit margin. However, the relationship between return on investment and earnings per share with liquidity was insignificant. The research was applied to all banks quoted on Pakistan Stock Exchange during the time period of 2010-2015. Document investigation was the key research method adopted in gathering secondary data for the research. Six research models were estimated and evaluated through the use of Ordinary Least Squares (OLS) analytical technique.

Wu, *et al* (2018), analyzed the trajectories of banks' DLLP change during the 2007 through 2012 and reported that state-owned banks, policy banks and city commercial banks seem to manage earnings well. The authors further showed that, although, injection of funds into troubled banks in order to maintain their stability, such may lead to under-estimation of risks by stakeholders.

Amin (2017), studied the relationship between risk and performance of banks using time series regression analysis from year 2011 to 2015. The author found that credit risk had the highest impact on banks' profits. The findings showed that the more profit a bank makes, the more its level of debts will increase and also, the profit of the bank also decreases with the decrease of NIM percentage.

Enow and Brijlal (2016), investigated the determinants of share prices using fourteen companies listed on the Johannesburg Stock Exchange in South Africa from 2009 – 2013 and found that dividend per share, earnings per share and earnings price-earnings ratio accounted for 57.8% of share price movements.

Hsu and Yu (2015), in their study of companies listed on the Taiwan Stock Exchange and GreTai Securities Market during 2000 to 2011 established that firms engaging in discretionary accruals or real earnings can decrease the cost of equity under higher levels of information asymmetry.

Cucinelli (2013), studied the relationship between liquidity risk and probability of default on loans opined that banks with better credit rating are more likely to manage liquidity as well as hold more liquidity in the short term. The author adopted OLS regression based on panel data to investigate the relationship only between the liquidity coverage ratio and credit rating and found that there is no relationship between long-term liquidity measure and probability of default.

Ogbebor (2017), examined the reaction of stock prices in Nigeria to some fundamental factors by studying the relationship between stock returns and fundamental factors using a sample comprising the ten (10) most capitalized companies listed on the Nigerian Stock Exchange (NSE) from 2008 – 2017. The results obtained were mixed as a negative and significant relationships were found between Dividend Yield, Debt/Asset Ratio and Stock Returns while positive and significant relationship was found between Earnings Yield and Stock Returns. Furthermore, the study established a negative and insignificant relationship between Pay-out Ratio and Stock Returns.

Olalekan, Mustapha, Irom, and Emily (2018), investigated the effect of board size and risk management on the financial performance of DMBs in Nigeria and found a significant negative effect of board size, credit risk and operating risk on equity and earnings per share. The study also found that liquidity risk had negative and insignificant effect on ROE and EPS of the banks studied in Nigeria

The empirical results in the study by Akinwunmi, Essien, and Adegboyega (2017) revealed that there is a statistically significant relationship between banks' liquidity, return on asset and return on equity of DMBs in Nigeria between 2007 and 2016. Tamunosiki, Giami and Obari (2017) investigated the relationship between liquidity and corporate performance of banks in Nigeria from 1984 to 2014 and established a negative and significant relation between cash reserve ratio and corporate performance while loan-to-deposit ratio and liquidity ratio are positively and insignificantly related to corporate performance.

Olarewaju and Adeyemi (2015) studied the causal relationship between liquidity and profitability of deposit money banks in Nigeria and reported no causal relationship between the variables on 11 out of the 15 banks studied.

Methodology

The main objective of this study was achieved through the use of least squares dummy variable (LSDV) regression model given the nature of the data and following the Hausman and LM tests outcomes. There are thirteen Deposit Money Banks listed in Nigeria as at the time the study was carried out but twelve (12) were selected while one was screened out due to

unavailability of data. The Deposit Money banks selected are Access Bank, Ecobank, Fidelity Bank, FBNH Plc, First City Monument Bank Plc, Guaranty Trust Bank Plc, Stanbic IBTC, Sterling Bank, Union Bank, United Bank for Africa, Wema Bank and Zenith Bank. It should be noted, however, that FBNH Plc, First City Monument Bank Plc and Stanbic IBTC are Bank Holding Companies (HOLDCOs) but these HOLDCOs were used as proxies for their banking subsidiaries since their banking arms are their dominant subsidiaries. LSDV approach provides a good way to understand fixed effects regression estimator. In this study, the effects of explanatory variables were assumed to be mediated by the differences across years and by adding the dummy for each year in the model used, it was possible to estimate the pure effect of Earnings (Earn), Net Debt to Total Asset Ratio (NDTA), Loan to Deposit Ratio (LDR) and Liquid Asset Ratio (LQR) on Stock Price (SP). Therefore the LSDV equation is given as:

$$SP_{it} = \alpha + \beta_1 Earn_{it} + \beta_2 NDTA_{it} + \beta_3 LDR_{it} + \beta_4 LQR_{it} + \sum_{i=1}^{10-1} \gamma_i dum + \mu_{it}$$

Where;
SP = Stock Price, Earn = Earnings, NDTA = Net Debt to Total Asset Ratio, LDR = Loan to Deposit Ratio, LQR = Liquid Asset Ratio $y_i dum$ is a dummy variable absorbing the effects particular to each years, α is the intercept and $\beta_1 - \beta_2$ represent the coeffcients of the regression equation.

Unequal variance of residual (heteroskedasticity) is a violation of the assumption of homoscedasticity (equal variances) in a regression model. Besides, the problem of cross section dependence (correlated residuals across entities) in panel data arises as a result of spatial or spillover effects and it can lead to bias in regression results. In this study, tests of unequal variance of residual with null hypothesis of equal variances and correlated residuals across entities with the null hypothesis that residuals are not correlated using Modified Wald test for group wise heteroskedasticity in fixed effect regression model and Pesaran's test of cross sectional independence tests approaches respectively were carried out. These tests were carried out to validate the LSDV model that was used in this study.

Analysis

Nigeria Listed Banks' Stock Price Movement between September 2019 – April, 2020

The graphical display of Stock Price Movement from September, 2019 – April, 2020 is presented in Figure 1. This shows the impact of COVID-19 on the stock prices of banks listed in Nigeria.

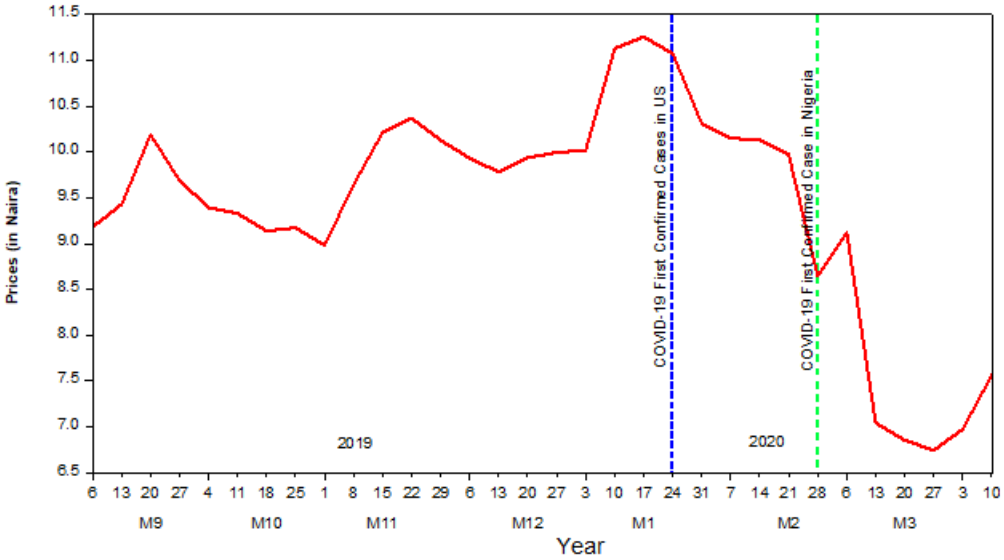

Figure 1: Nigeria Listed Banks' Stock Price Movement between September 2019 – April, 2020
Source: Prepared by the Authors

Figure 1 shows a rising trend in average stock prices of banks listed in Nigeria over the period of four months from September, 2019 – April, 2020 until Friday, January 17, 2020 when it started decelerating as soon as the Corona virus Disease (COVID – 19) first confirmed cases outside China were announced. However, the trend began to change (average stock prices fell by 24.75%) almost instantaneously and became very noticeable between Friday, January 24, 2020; the very week the first case of COVID-19 was reported in US and Friday, February 28, 2020; the first week the index case of COVID-19 was reported in Nigeria.

Relationships Chart

Based on the observed data, in Figure 2 is the graphical display of the associations among Stock Price (SP), Earnings (Earn), Net Debt to Total Asset Ratio (NDTA), Loan to Deposit Ratio (LDR) and Liquid Asset Ratio (LQR) prior to the empirical analysis that investigates the causal relationships among the variables in line with the objective of this study.

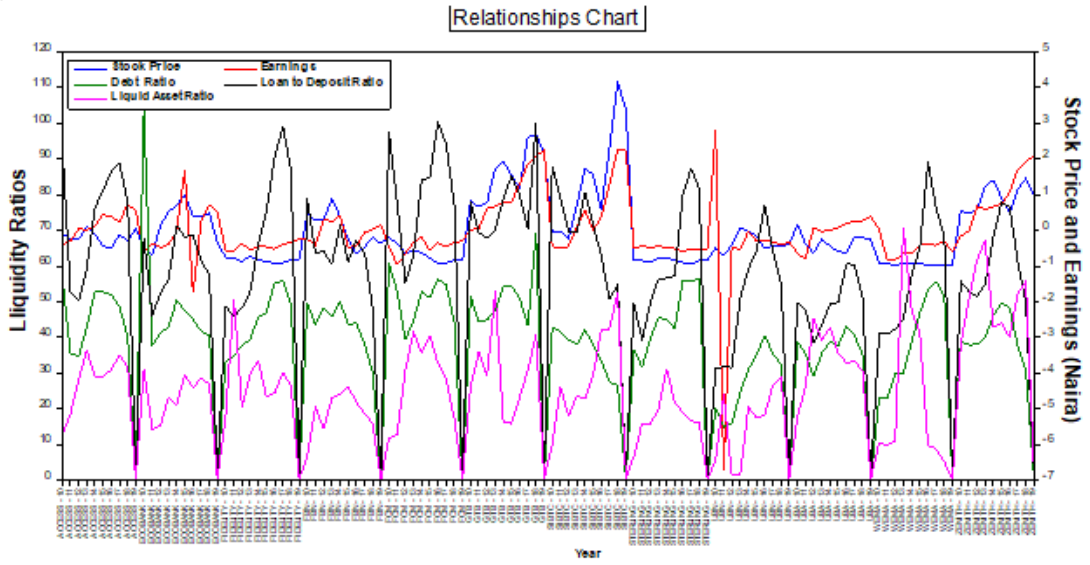

Figure 2: Relationships Chart
Source: Prepared by the Authors

In the figure 2, at first; we can identify two variables - that is Stock Price (SP) and Earnings (Earn) - that are highly correlated as the two series move in the same direction across different banks during the period of this study. This could mean that an increase or decrease in Earnings (Earn) is usually recognized by the investors, leading to a positive association between the variable and Stock Price (SP) during the period under review. Besides, each of the liquidity indicators (Net Debt to Total Asset Ratio (NDTA), Loan to Deposit Ratio (LDR) and Liquid Asset Ratio (LQR) at one point or the other during the period under review shows some movements that mirror Stock Price (SP) especially in recent time. However, we need to emphasize that while correlation exists, causation may not; hence, the regression analysis carried out with the aim of investigating the effect of Earnings (Earn), Net Debt to Total Asset Ratio (NDTA), Loan to Deposit Ratio (LDR) and Liquid Asset Ratio (LQR) on Stock Price (SP).

Summary Statistic
In table 1 we present summary of the variables considered in this study.

Table 1: Summary Statistics

Obs	*Mean*	*Std. Dev.*	*Min*	*Max*
		*Stock Price (**SP**; Naira)*		
120	9.63	9.22	0.51	47.95
		*Earnings (**Earn**; Naira)*		
120	1.58	2.39	-14.41	8.30
		*Net Debt to Total Asset Ratio (**NDTA**)*		
120	38.50	16.68	0.28	103.47
		*Loan to Deposit Ratio (**LDR**)*		
120	58.53	24.72	0.46	100.35
		*Liquid Asset Ratio (**LQR**)*		
120	24.68	15.42	0.04	70.74

Source: Authors' computation, 2020.

As in Table 1 above, the banks' Stock Price (SP; Naira) average value is N9.22 of which its values span between N0.51 and N47.95, with standard deviation of 9.22. Earnings (Earn; Naira) is seen to have an average value of N1.58 with standard deviation of 2.39 and its values range between 5.54 and 274.57. Net Debt to Total Asset Ratio (NDTA) hovers around 0.28 and 103.47 with its rate of dispersion (standard deviation) being 16.68, and its average value being 38.50. Besides, the minimum and maximum values of Loan to Deposit Ratio (LDR) are seen to be 0.46 and 100.35 respectively, with an average value of 58.53 and standard variation of 24.72 which depicts wide range of variation in the values of this particular variable. Furthermore, Liquid Asset Ratio (LQR) takes its values between 0.04 and 70.74 with an average value of 24.68.

Regression Estimates
In line with the objective of this study and the outcome of Hausam test (sig. < 0.05) an LM test (sig. < 0.05) that indicate Fixed Effect Model as an appropriate model, least square dummy variable (LSDV) estimates are presented in this subsection.

Table 2: LSDV (Fixed Effect) Regression Estimates

Dependent Variables is Stock Price (SP; Naira)	***LSDV Regression Model with Robust Standard Error*** *Coeff. (Robust SD Error)* *[sig.]*
*Earnings (**Earn**)*	2.397*** (0.896) [0.009]
*Net Debt to Total Asset Ratio (**NDTA**)*	-0.151 (0.110) [0.174]
*Loan to Deposit Ratio (**LDR**)*	0.141** (0.066) [0.035]
*Liquid Asset Ratio (**LQR**)*	0.111 (0.069) [0.109]
Constant	1.045 (6.038) [0.863]
Observations	***120***
R-squared	***0.448***
F-stat.	***2.888***
Sig. > F-stat.	***0.001***
Hausman Test [sig.]	***33.67 [0.000]***
LM Test [sig.]	***100.11 [0.000]***
Heteroskedasticity Test [sig.]	***68032.17 [0.000]***
Pesaran's CD Test [sig.]	***0.734 [0.463]***

Source: Authors' computation, 2020. **Note**: ***, ** and * denote 1%, 5% and 10% levels of significance.

According to the result in Table 2, the R^2 value of the model indicates that the explanatory variables jointly explain about 44.8% of the variation in Stock Price. Besides, the F-Statistics value = **2.888; Sig. = 0.001** depicts that the model is significant. Moving to the coefficients of the explanatory variables, the results showed that Stock Price (**SP**) is associated with improved Earnings (**Earn**). This is evident from the positive and significant coefficient of Earnings (**Earn**) at 1% level. This means that a unit increase in Earnings (**Earn**) causes about 2.397 units upsurge in Stock Price (**SP**). Similarly, Loan to Deposit Ratio (**LDR**) shows a positive and statistically significant coefficient at 5% level suggesting that a unit increase in Loan to Deposit Ratio (**LDR**) of the banks causes about 0.141 unit rise in Stock Price (**SP**). However, neither the coefficient of Net Debt to Total Asset Ratio (**NDTA**) nor Liquid Asset Ratio (**LQR**) exhibits significant relationship with Stock Price (**SP**) of the banks during the period of this study; though that of the former is negative (as expected).

Discussion of Findings

From the graphical analysis (Figure 1), it can be seen that the downward slope in stock prices became noticeable as average stock prices fell by about 24.75%between Friday, January 24,

2020; the very week the first case of COVID-19 was reported in US and Friday, February 28, 2020; the first week the index case of COVID-19 was reported in Nigeria. From Figure 2, it is evident that the movement between Earnings and Stock Prices are highly correlated as the two series moved in the same direction across different banks during the period of this study. This meant that an increase or decrease in Earnings (Earn) is usually recognized by the investors, stockbrokers and analysts thereby leading to a positive association between Earnings and Stock Prices (SP) during the period under review. Besides, each of the liquidity indicators (Net Debt to Total Asset Ratio (NDTA), Loan to Deposit Ratio (LDR) and Liquid Asset Ratio (LQR) at one point or the other during the period under review showed some movements that mirror Stock Price (SP) especially at the beginning and during the current COVID-19 pandemic.

The study examined the relationships between Earnings, Liquidity and Stock Prices of deposit money banks listed in Nigeria. The study employed time series cross section data (panel data) that covered the period from 2010 to 2019. The major empirical tool that was used is LSDV (Least Square Dummy Variable). The LSDV regression models revealed a positive and statistically significant relationship between earnings of the banks and their stock prices which is consistent with the findings of Kamisah, *et al.,* (2011) which established a positive relationship between changes in Earnings and Stock Prices. Also, this study showed that Loan to Deposit Ratio has positive relationship with Stock Prices. This is in tandem with the study of Nurazi and Evans (2005) and Zakaria, *et al.* (2015) which established that Loan to Deposit Ratio directly influenced Stock Returns. However, the study showed that the coefficient of Net Debt to Total Asset Ratio and Liquid Asset Ratio have no significant relationship with Stock Prices; although, the former showed a negative sign.

Conclusion

From the inferential analysis and findings, this study shows that Earnings and had significant and positive relationship on stock prices of deposit money banks listed in Nigeria. On its part, the effects of liquidity on stock prices were mixed; loan to deposit ratio had significant effect on Stock prices but Net Debt to Total Assets ratio and Liquid Asset Ratio had no significant effects on Stock Prices. These findings validated the movement of the series in this study as could be seen from the graphical analyses (Figures 1 and 2).The conclusion, therefore, is that Earnings had significant effects on Stock Prices while the effect of Liquidity on Stock Prices was partial. While the findings showed the effects of Earnings and Liquidity during the greater part of the period covered by this study; these were more statistically significant at the beginning and during the period of the current pandemic which implies that exogenous shocks equally affect stock prices, in this case, negatively. DMBs should not be oblivious of this finding. The recommendation is that DMBs in Nigeria should focus more on non-interest income by diversifying into areas outside traditional income sources so as to boost their stock prices, thereby, increasing shareholders' wealth. This may significantly increase the capital bases of banks (both equity and debt) which is a critical requirement for banking firms. However, strategies should also be put in place to enable them withstand exogenous shocks especially in the short-term such as the current COVID-19 pandemic which has impacted their stock prices significantly.

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