



FIRM-SPECIFIC CHARACTERISTICS, MARKET RISKS AND ASSET QUALITY OF DEPOSIT MONEY BANKS IN NIGERIA

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Abstract

The decline in asset quality stimulates the interest to investigate the effect of firm-specific characteristics and asset quality of Deposit Money Banks (DMBs) in Nigeria. Hence, this study examined the asset quality of these banks from firm-specific characteristics and market risks dimension. Secondary data was adopted for this study and the data for the firm-specific characteristics was extracted from the audited financial statements of the sixteen selected quoted DMBs in Nigeria as at December 2018. The data for the market risk variables was extracted from the Central Bank of Nigeria website and the World Development Index. Static panel regression was employed as the estimation technique. Results showed that diversification, capital adequacy, profitability and leverage are the bank-specific factors that determine asset quality. Inflation and financial crisis are the market risks variables that have a significant effect on DMBs' asset quality. Based on these findings, the study concluded that diversification, profitability, capital adequacy, leverage, inflation and financial crisis are the major drivers of bank's asset quality in Nigeria. In line with the findings, the study recommended that banks should strive to maintain the prudential threshold for capital adequacy as this will help them absorb shocks and withstand losses that may arise in the reasonable cause of doing business. Also, the regulatory authorities (CBN) should strive to reduce the high inflationary trend in the country.

Keywords: Firm-specific characteristics, Market risks, Asset quality, DMBs

INTRODUCTION

The banking sector plays an essential role in the economy because of its ability to redistribute income from the surplus (Savers) to the deficit (Lenders) unit of the economy. Their role is even more critical in developing economies like Nigeria's because of the level of development of the stock market. This informs why most countries desire a robust and viable banking system to stimulate increase in the level of development in the country (Harr & Noelsen, 2005). Banks achieve the role of economic advancement through the granting of loans and advances to their customers after they must have satisfied the terms and conditions set by the banks. However, granting of loans and advances exposes banks to the risk of default from borrowers if they are unable to service the loans as set out in their contractual obligations (Dermiguc-Kunt & Huizinga, 1999; Breuer, 2006). The consequences of loan defaults may lead to a decline in the asset quality



of banks, which may ultimately lead to bank distress. The issue of loan default is of great concern as it may hurt the economy as a whole (Breuer, 2006; Bofondi & Ropele, 2011).

Empirical studies (Berger & DeYoung 1997; Demirgüç, -Kunt & Detragiache 1998; Salas & Saurina, 2002; Harr & Noelsen, 2005; Bofondi & Ropele, 2011; Klein, 2013; Lucky & Nwosi, 2015) have established that an increase in nonperforming loans (NPLs) in bank portfolio is one of the leading causes of the decline in bank assets quality and the subsequent bank distress. This may be attributed to the fact that deposit money banks (DMBs) within their role as financial intermediary receive deposits for onward lending. The moment the loan is granted, it becomes an asset to the bank because future monetary benefits are usually expected to flow to the bank. Asset quality, therefore, refers to the reasonable means by which debtors are meeting their particular contractual obligations (Alhassan *et al.*, 2014). The asset quality is inversely associated with the volume of NPLs (Ombaba, 2013). Ng'etich and Wanjau (2011) established that nonperforming loan/asset is usually a credit facility in respect of which the particular interest and (or) principal amount has remained past due for a specific period. The decline in bank asset quality as a result of increase in NPLs has gained increasing consideration since the immediate outcome of NPLs in banks is typically a decline in the quality of bank asset and usually bank distress (Akani & Lucky, 2014).

The Central Bank of Nigeria (CBN) in December 2017 reported a significant decline in the asset quality of deposit money banks in Nigeria. The report showed that the asset quality of banks in Nigeria is at its worst in six years as the NPLs which is one of the primary causes of the decline in asset quality of banks is on the rise (NPL ratio was 3.7 per cent in 2012). According to the CBN, banks NPLs ratio rose from five per cent at the end of June 2015 to 14 per cent in December 2017. The severity of this rise in NPLs affected small banks (banks categorised as banks with N500 billion or less in assets by CBN) the most, as their capital adequacy ratio (capital adequacy ratio measures the going concern of the banks) stood at 3.14 per cent at the end of December 2016 which is below the regulatory threshold of 10 per cent for banks except those classified as systemic important banks (SIBs) whose CARs is 16 per cent (CBN, 2017). In addition to the decline in bank asset quality, the Nigerian economy faced a higher inflationary trend, decline in GDP, foreign exchange scarcity and devaluation of Naira (NBS, 2019). Similarly, the Nigeria Bureau of Statistics (NBS, 2019) reported that unemployment in Nigeria had been on the increase in the last few years.

Research Questions

Given the decline in the asset quality of DMBs in Nigeria and other macroeconomic challenges, the following questions were raised;

- i. Is there any relationship between the decline in DMBs asset quality and firm-specific characteristics?
- ii. What is the association between DMBs asset quality and market risks?



Research Objectives

The primary objective of this study is to examine the nexus between firm-specific characteristics, market risks and asset quality of DMBs in Nigeria. Other objectives include:

- i. To examine the effect of firm-specific characteristics on the asset quality of quoted DMBs in Nigeria
- ii. To investigate the effect of market risk on the asset quality of quoted DMBs in Nigeria.

Research Hypotheses

In other to provide answers to the questions raised in this study, two hypotheses stated in the null form were formulated. The hypotheses were stated as:

- i. H_{01} : firm-specific characteristics do not have any significant effect on the asset quality of DMBs in Nigeria
- ii. H_{02} : market risk does not have any effect on the asset quality of DMBs in Nigeria.

This study is critical because it will give a better insight on which factors (firm-specific characteristics or market risks or a combination of both) influence asset quality of DMBs in Nigeria. This study also contributes to the current body of knowledge by giving further understandings to asset quality of DMBs in Nigeria. The findings from this will help stakeholders (both public and private) in formulating policies that may serve as a guide on measures that can be put in place to help improve the asset quality of DMBs in Nigeria. Lastly, the study will serve as a basis for future research as other researchers can build on the outcome of this study.

LITERATURE REVIEW

The literature review is discussed under two main subheading. The first subheading focuses on the theory underpinning the study while the second subheading is on studies relevant to the study.

Theoretical Framework

This study is built on the Institutional Memory Hypothesis postulated by Berger and Udell in 2004. Under the institutional memory hypothesis, Berger and Udell (2004) argued that the capacity of loan officers to efficiently appraise likely future problem loans declines as time passes since their last learning experience. The hypothesis equally emphasised that the leading cause of the decline in bank asset quality is the level of NPLs in the bank portfolio. Fofack (2005) attributed the decline in assets quality of banks to the inability of loan officers to properly appraise loan request because of inexperience or a prolonged period of bank stability may have eroded the experience they had from previous bad loans. Espinoza and Prasad (2010) contended that the success recorded from previous loan facilities extended to their customers and the seeming growth in the economy coupled with an increase in bank profitability, loan officers tend to relax some of the requirements



for loan application. Consequently, as more customers honour their loan obligation to the banks, loan officers tend to relax thereby giving room for problem loans. Alhassan *et al.* (2013, 2014) agreed with Berger and Udell (2004) postulation that banks become distressed when bank officials do a poor job of screening, evaluating and structuring their loans as they are created, tracking them after origination, and planning and executing work-out strategies. The result of the loan officer's incompetence may lead to the banks accepting loan requests would hitherto be rejected. Other studies (Borio & Lowe, 2002; Chang, 2002; Bebeji, 2013; Eze & Ogbulu, 2016) equally agreed with the Berger and Udell (2004) postulation that the leading cause of the decline in bank assets quality is the inability of loan officers in the banks to properly appraise loan requests and project proposals submitted by customers. Kasavica and Jovic (2015) however, disagreed with Berger and Udell's (2004) postulation as they established a base on their findings that the leading cause of the decline in bank assets quality can be attributed to macroeconomic factors. They went further that some loans that became nonperforming would not have been so if the economic indicators like GDP and inflation had been favourable to business owners.

Empirical Review

Asset quality is usually a way of measuring the overall risk linked to resources possessed by an individual or perhaps a corporate entity (Fofack, 2005). The term (asset quality) is commonly used in the banking industry to express the financial efficiency of banks and to determine the worth of assets at risk points to how much provisions banks have to make to make-up for loan loss (Alhassan *et al.*, 2013; Alhassan *et al.*, 2014). The studies of Qualiariello (2006), Louzis, Vouldis and Metaxas (2012) and Kasavica and Jovic Vigneswara (2013) concluded that banks' quest for profitability makes them to sometimes invest in different ventures with some of those projects becoming NPV negative which ultimately lead to nonperforming loans. They established further that a higher return on assets (ROA) might have been achieved due to the banks relaxing credit policy and going for risky lending in a bid to increase profitability.

In developing countries, especially in Africa, higher levels of nonperforming loans are usually associated with banking crises (Kapur, Hadjimichael, Hilber & Szymczak, 1991). Daumont, Le Gall and Leroux, (2004) established that most of the loans to private debtors in Ghana were nonperforming and that led to a significant decline in the quality of bank assets in Ghana. Stiglitz & Weiss (1981) argued that inadequate information from the credit bureau makes it difficult for banks to know the credit status of the loan applicant. This information imbalance mislead banks into granting loans to customers that would hitherto be rejected had it been the banks are adequately informed about the credit status of such individual or companies. Other studies (Gambera, 2000; Salas & Saurina, 2002; Hoggarth *et al.*, 2005; Jimenez & Saurina, 2006; Bofondi & Ropele, 2011; Louzis *et al.*, 2012; Klein, 2013) established that loan growth, interest rate, bank size, managers quest for profitability, and operational efficiency are the major causes of the decline in bank assets quality which ultimately leads to nonperforming loans. Some empirical studies from Nigeria (Olokoyo, 2011; Ezeoha 2011; Bebeji, 2013; Oba, 2013; Eze & Ogbulu, 2016) also found capital adequacy, sectoral lending, and loan composition as some of the leading causes of nonperforming loans in Nigeria. They also established that loans and advances and NPLs are significant variables that determine the asset quality of a bank. Also, they argued that the decline



in asset quality and an increase credit crisis was aggravated by the possibility of the bank to use their asset size to improve their earnings profiles optimally.

Dermirguc & Huizinga (1999), Lis, de Pages and Saurina (2000), Bikker and Hu (2002), Chang (2002) and Babihuga, (2007) posited that inflation, gross domestic product (GDP) and business cycle are the leading causes of NPLs. They argued that banks tend to benefit from a healthy economy as more businesses will be able to repay their loan as at where due. The stable economy and the quest for an increase in profitability make banks to reduce the conditions attached to loan application, thereby giving room for loan defaulters. Jimenez and Saurina (2005); Festić, Kavkler, and Repina (2011); Borio and Lowe, (2002) asserted that in terms of economic boom, credit terms become lenient both in terms of loan appraisal as well as collateral requirements, which translates into expansionary credit policies. The inadequate quality assets generated during the period of economic boom materialise and show up in the form of NPLs during the downturn after the boom phase is over. Bofondi and Ropele, (2011), Hoggarth *et al.*, (2005), Espinoza and Prasad, (2010), Chang, (2002) and Fofack, (2005) opined that NPLs increase when unemployment rate, inflation, interest rates, assets price and returns and exchange rise but when the GDP grows, the rate of NPLs in the banking system reduces.

The findings of Messai & Jouini (2013) which states that NPLs increase when the unemployment rate and the real interest rate rise, and decrease when the GDP growth rate and profitability of banks' assets fall are consistent with the findings other studies (Olokoyo, 2011; Djiogap & Ngomsi, 2012; Swamy & Sreejesh, 2012; Ladime, Sarpong & Osei 2013). Some of the critical issues highlighted by these studies include bank-specific variables such as size and capitalisation and market risks variables such as GDP and monetary policy. Breuer (2006) equally established that bank assets quality could be impacted by agency-related problems that may arise between loan officers and owners of the bank. He, therefore, concluded that agency problem is one of the leading causes of NPLs in banks.

Gap in Literature

Various studies (Berger & Deyoung, 1997; Chang, 2002; Fofack, 2005; Breuer, 2006; Quagliariello, 2006; Espinoza & Prasad, 2010; Vighneswara, 2013; Alhassan *et al.*, 2013; Alhassan *et al.*, 2014) have been conducted on firm-specific characteristics, market risks and asset quality of banks especially in the U.S., Europe and India. To the extent of the literature search, this study discovered that not much had been done in Nigeria in this regard. Even the few empirical studies conducted on asset quality in Nigeria (Bebeji, 2013; Oba, 2013; Eze & Ogbulu, 2016) did not consider some important variables like GDP, inflation, monetary policy rate, corruption, exchange rate, sectoral lending, growth opportunities among others. Prior studies (Berger & Deyoung, 1997; Fofack, 2005; Vighneswara, 2013) have established that these variables could also affect the asset quality of banks.

Though, some of these (GDP, inflation, monetary policy rate, corruption, exchange rate, sectoral lending, growth opportunities) variables have been tested in other countries (Europe, US, India), the results obtained in those countries cannot be used to generalise for Nigeria because inflation, GDP, exchange rate, unemployment, management efficiency, sectoral allocation and growth



opportunities in those countries are not the same as that of Nigeria because of the environmental, social, economic and political differences. Sectoral allocation of credit is an essential factor that ought to be examined with the quality of bank asset. The data released by the Nigeria Bureau of Statistics (NBS, 2019) showed that loan allocation to the oil and gas sector for the second quarter of 2019 stood at ₦ 3.33 trillion and with a significant decline in crude oil price in 2020, some of the loan allocations to firms in this sector might be nonperforming. This is because a considerable volume of bank loans granted to oil and gas firms might be stuck as oil prices had fallen below the loan threshold of 57 dollars per barrel. The implication is that some loans might be re-negotiated and rescheduled to allow the firms to repay their loans.

METHODOLOGY

Model Specification

From empirical evidence and the theory underpinning this study, panel model formulation was employed in examining firm-specific characteristics and market risk on bank asset quality. The model is stated as $ASQ = f(DIV, GO, SIZE, CA, ROA, OPP, LEV, LDR, GDP, INF, UEP, MPR, COR, FC)$ (1)

The model is further expressed as:

$$ASQ_{it} = \beta_1 DIV_{it} + \beta_2 GO_{it} + \beta_3 SIZE_{it} + \beta_4 CA_{it} + \beta_5 ROA_{it} + \beta_6 OPP_{it} + \beta_7 LEV_{it} + \beta_8 LDR_{it} + \beta_9 GDP_{it} + \beta_{10} INF_{it} + \beta_{11} UEP_{it} + \beta_{12} MPR_{it} + \beta_{13} COR_{it} + \beta_{14} FC_t + \varepsilon_{it} \dots \dots \dots (2)$$

Where: ASQ_{it} is the ratio of nonperforming loans to gross loans and advances for bank i at time t , DIV_{it} is a proxy for lending concentration (diversification) at time t in the sector, GO_{it} represents growth opportunities for bank i at time t , $SIZE_{it}$ is the size of bank i at time t , CA_{it} is the capital adequacy ratio for bank i at time t , ROA_{it} is profit after tax to Total assets for bank i at time t , OPP_{it} is the operational performance for bank i at time t , LEV_{it} is the leverage for bank i at time t , LDR_{it} is the loan to deposit ratio for bank i at time t , GDP_{it} is the annual GDP growth rate at time t , INF_{it} is the annual inflation rate in time t , UEP_{it} is the unemployment rate in year t , MPR_{it} is the monetary policy rate in year t , COR_{it} is the corruption index in year t , FC_t is the financial crisis in year t , ε_{it} is the time-variant error term for bank i at time t .

This study employed the *ex-post facto* research design, which establishes the relationship between variables. *Ex-post facto* research design is research undertaken after the event has already taken place, and the data already in existence. This research design is appropriate for this study because it probes existing facts and utilises existing (secondary) data. The population for this study consists of all DMBs in Nigeria as at 31st December 2018 while the sample size consists of sixteen DMBs that are quoted on the Nigeria stock exchange as at 31st December 2018. The study covers a period of thirteen years (2006-2018). 2006 was chosen as the base year because of the 2005 recapitalisation exercise carried out in the Nigeria banking sector. The study could not be extended beyond 2018 because of the merger between Access Bank and Diamond Bank in 2019 and the need to separate their statement of accounts. The data for bank-specific characteristics (Capital Adequacy, Loan-to-deposit Ratio, ROA, Size, Leverage, Operational Performance) was obtained



from the audited financial report of the selected banks while the data for the market risk factors (GDP, Inflation, Unemployment, Monetary Policy Rate, Corruption) was obtained from the World Development Index (WDI) and the CBN website.

The study utilizes both inferential and descriptive statistics. An unbalanced panel dataset was constructed, and static panel data regression analysis was employed as the estimation technique. The study employed Breusch and Pagan Lagrangian Multiplier (BP-LM) test to determine the most suitable estimates between the pooled Ordinary Least Square (OLS) versus random/fixed effects. Hausman test was used to select the most suitable model between the fixed and random estimates. The standard strategy to determine whether the effects are fixed or random is to use the Hausman (1978) test under the null hypothesis of the random-effects model. If the null hypothesis is rejected, the effects are considered to be fixed, and OLS then estimates the model. If the null hypothesis is accepted, there would be random effects, and the model is then estimated by Generalized Least Squares (GLS), which according to Baltagi (1995) allows the random-effects model to support inference for the population, assuming the sample is representative of the underlying population.

RESULTS AND DISCUSSION OF FINDINGS

Summary Statistics

The summary statistics show some statistical properties of the variables used in this study. Table 4.1 presents the summary statistics of the variables.

Table 1: Summary of Statistics Results

Variable	Mean	Minimum	Maximum
ASQ	7.28	1.4	33.6
DIV	5.94	4.53	8.23
GO	12.10	29.7	54.7
SIZE	20.46	18.49	22.82
CA	16.56	5.3	44
ROA	2.29	-30	6.37
OPP	5.26	0.5	14.2
LEV	79.88	35	116.1
LDR	59.51	14.2	98.7
GDP	14.95	5.73	28.7



INF	15.37	-4.32	103.82
UEP	16.78	6.4	24
MPR	10.5	6	14
COR	25.82	24	28
FC	0.18	0	1

Source: Authors' Computation (2020)

Table 4.1 shows that the mean value of the asset quality of banks is 7.28%. This indicates that on the average, most banks in the sample have nonperforming loans which proxy for asset quality of 7.28% which is a little bit higher than the regulatory threshold of 5% set by CBN for DMBs. However, the mean value of the ratio of nonperforming loans to total equity is 53%, which is relatively high and suggests that most of the banks have poor asset quality from the shareholders' perspective. The mean value of diversification ratio is 5.94%, which implies that, on the average, the banks took advantage of the opportunity to diversify their loan allocation during the period under review. This is further informed by the small margin between the minimum and maximum value of diversification ratio. The mean value of growth opportunities is 12.10%. This suggests that, on average, banks in the sample have been growing steadily over the years.

The mean value of size is 20.46, which is slightly higher than the minimum value and slightly lower than the maximum value. This indicates that the variance in the size of the banks is relatively small, which connotes that the quoted DMBs are comparatively similar in size. The mean value of capital adequacy is 16.56%, which is somewhat above the regulatory threshold of 10% set by the CBN and Basel Committee on Bank Supervision. It suggests that, on the average, the banks can comply with the statutory capital requirements and have a strong ability to absorb losses that may arise. The mean value of the profitability the ratio is 2.29%, suggesting that though the banks have remained profitable but at a low pace during the period under review.

Operational performance has a mean value of 5.26%, which suggest that the ratio of operating expenses to the total asset is less than 10%. The minimum and maximum value of operational performance are also moderate, indicating that the management of DMBs in Nigeria has been efficient in the management of their respective banks during the period under review. This further implies that the banks have been efficient in their operations. The mean value of leverage is 79.88% which indicates that, on average, banks employ more debt capital to finance its activities. The mean value of loan-deposit-ratio is 59.51%, which is slightly lower than the sixty-five per cent sets by CBN for all DMBs in Nigeria. This implies that DMBs have been granting fewer loans to their customers' as against the CBN requirements. The mean value for inflation is 15.37% indicating that inflation is still on a double-digit in Nigeria. This implies that a high inflationary trend is still a significant challenge in Nigeria.



Test for Multicollinearity

Multicollinearity occurs when there is evidence of strong linear relationship among the independent variables in a regression model. The test for multicollinearity was determined by performing the Variance Inflation Factors (VIF) test. Using the VIF test, the rule of thumb is that the VIF for a variable must not exceed 10 to confirm that the variable is not highly collinear. Table 4.2 presents the result of the VIF test.

Table 2: Variance Inflation Factors (VIF) Test

Variable	VIF
DIV	1.35
GO	1.19
SIZE	2.35
CA	1.68
ROA	1.37
OPP	1.70
LEV	2.80
LDR	1.49
GDP	8.12
INF	5.33
UEP	2.74
MPR	6.33
COR	3.18
FC	3.49

Source: Authors' Computation (2020)

From Table 2, it can be seen that all the variables have a VIF less than 10, which suggests the variables in the model are not strongly related to each other.

**Model Result**

The result of the static panel employed as the estimation technique for the study

Table 3

Variable	Random Effects
Constant	24.567(0.101)
DIV	1.309(0.051) ***
GO	-0.006(0.814)
SIZE	-0.326(0.522)
CA	-0.132(0.0480) **
ROA	-0.139(0.013) **
OPP	0.119(0.551)
LEV	-0.099(0.019) **
LDR	-0.017(0.417)
GDP	-0.027(0.743)
INF	0.053(0.006) *
UEP	0.345(0.573)
MPR	0.041(0.881)
COR	-0.375(0.320)
FC	4.233(0.001) *
R ² (within)	0.3860
F-statistic	93.23(0.0000) *
Breusch-Pagan LM test	12.56(0.0002) *
Hausman test	3.25(0.9986)

Notes: *, ** and *** denotes statistically significant at 1%, 5% and 10% significance level respectively. Also, p-values are reported in parentheses.

Source: Authors' Computation (2020)

The Breusch-Pagan LM test for random effects produces a chi-square of 12.56 with a p-value of 0.0002, thus rejects the hypothesis that the variance of the random effects is zero, implying that



pooled OLS model is not appropriate for the model. The Hausman test produces a chi-square of 3.25 with a p-value of 0.9986, which indicates that the null hypothesis is firmly accepted. This implies that the random-effects model produces better and consistent estimates than the fixed effects model. Thus, only estimates from the random-effects model are interpreted to explain the effect of firm-specific characteristics and market risk on the asset quality of DMBs in Nigeria. Diversification, capital adequacy, profitability and leverage are the bank-specific factors that influence the NPL of DMBs, with only diversification being positively related to nonperforming loans while the other factors are negatively related to nonperforming loans. Among the market risk factors, only inflation and financial crisis significantly and positively affect nonperforming loans.

Discussion of Findings

Empirical results showed that diversification, capital adequacy, profitability and leverage are the bank-specific factors influencing nonperforming loans which proxy for DMBs asset quality while inflation and financial crisis are the market risk factors influencing asset quality.

Diversification is positively related to nonperforming loans of banks, thus suggesting that banks that give preferential treatment to a sector of the economy over others are likely to have a deterioration in their asset quality. DMBs prioritise lending to the oil and gas sector in Nigeria, and with the decline in crude oil prices, DMBs might see an upsurge in nonperforming loans. This finding also indicated that the quality of banks' assets deteriorates as banks prioritise one sector of the economy over the other in lending in order to maximise profits and reduce risk. This finding is consistent with the findings of Bofondi and Ropele (2011), Alhassan *et al.* 2014, Lucky and Nwosi (2015) and also supports the institutional memory hypothesis that banks officials tend to finance negative NPV projects because of inability to correctly appraised business risks.

Capital adequacy is negatively related to nonperforming loans of banks, and this indicates that an increase in capital adequacy reduces the level of nonperforming loans which proxy for asset quality in the bank loan portfolio. This implies that there shall be an improvement in the asset quality of banks as they increase their ability to absorb shocks and withstand losses. The finding is consistent with the findings of Louizis *et al.* (2012), Oba (2013) and Vigneswara (2013) and also supports the institutional memory hypothesis that the skill of loan officers has a significant effect on the prudential threshold and asset quality of banks.

Profitability and nonperforming loans are inversely related, and this means that increase in profitability will cause a decrease in nonperforming loans which proxy asset quality. This finding connotes that asset quality improves as the financial performance of banks improves. An increase in bank profitability implies that bank customers are managing their loan portfolio properly, thus allowing the bank to earn a return on the loan facilities extended to their customers. Consequently, an increase in profitability connotes a decrease in nonperforming loans which proxy for bank asset quality. The finding is consistent with the findings of Louzis *et al.* (2012), Eze and Ogbulu (2016), Gambera (2000) and also support the institutional memory hypothesis that the experience of loan officers help mitigates against problem loans thereby increasing bank profitability.



Leverage is negatively related to nonperforming loans of banks, and this is an indication that an increase in leverage leads to a decrease in nonperforming loans which proxy for asset quality. This implies that the asset quality of banks becomes better as the banks increase their use of debt capital. This result is consistent with the findings of Louizis *et al.* (2012) and Alhassan *et al.* (2014).

Inflation has a positive association with nonperforming loans of banks, and this suggests that an increase in inflation rate cause an increase in nonperforming loans which proxy for asset quality. This finding implies that the asset quality of banks deteriorates as inflationary pressure increases. This further implies that macroeconomic instability is one of the major causes of the decline in asset quality of banks. The finding is consistent with the findings of Fofack (2005), Espinoza and Prasad (2010), and Chang (2002) and also supports the institutional memory hypothesis that period of economic prosperity encouraged borrowers and lenders to be progressively reckless.

The financial crisis is positively related to nonperforming loans, which suggests that the incidence of financial crisis causes the nonperforming loans which proxy for asset quality to increase. This implies that the financial crisis leads to a decline in the asset quality of banks. The institutional memory hypothesis also supports this that financial crisis is endemic in capitalism because the period of economic boom encourages financial recklessness on the part of borrowers and lenders. This assertion is further supported by the fact that the period of financial crisis coincided with the period when the CBN examination team in 2009 revealed that four years after bank recapitalisation, DMBs have nonperforming loans higher than the capital base of the banks and this led to the injection of N620 billion into the banking sector and the establishment of Assets Management Cooperation of Nigeria.

CONCLUSION AND RECOMMENDATIONS

This study concluded that diversification, capital adequacy, profitability and leverage are the firm-specific factors influencing asset quality while inflation and financial crisis are the market risk factors influencing asset quality of DMBs in Nigeria. The study infers further that the quality of bank assets deteriorate as banks diversify their activities to maximise profits and higher price level (inflation) and financial crisis worsen the asset quality of DMBs in Nigeria.

In line with the findings, the study recommends that banks should strive to maintain an equitable distribution of their loan portfolio as excessive sectoral loan concentration may increase the nonperforming loans in their loan portfolio. The study also recommends that banks, through enhanced monitoring by the regulatory authorities, should strive to maintain the prudential threshold for capital adequacy. This will help them absorb shocks and withstand losses that may arise in the reasonable cause of doing business. Banks should strive to remain profitable, but the quest for profitability should not be at the expense of lower loan loss provisioning. Also, the regulatory authorities (CBN, Ministry of Finance) should strive to reduce the high inflationary trend in the country. Lastly, since the banks do not have control over the financial crisis, adequate loan loss provision should always be made by banks to help cushion the negative effect that may arise from the financial crisis.



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APPENDIX

Result of the Pooled OLS and the Fixed Effect

Variable	Pooled OLS	Fixed Effects
Constant	19.019(0.219)	25.747(0.107)
DIV	1.812(0.006) *	1.041(0.158)



G.O.	-0.001(0.967)	-0.010(0.714)
SIZE	-0.254(0.593)	-0.276(0.635)
CA	-0.107(0.083) ***	-0.136(0.077) ***
ROA	-0.161(0.007) *	-0.129(0.026) **
OPP	-0.219(0.267)	0.062(0.775)
LEV	-0.095(0.030) **	-0.103(0.021) **
LDR	-0.025(0.208)	-0.013(0.588)
GDP	-0.0166(0.848)	-0.026(0.763)
INF	-0.506(0.014) **	0.052(0.009) *
UEP	0.020(0.764)	0.041(0.513)
MPR	0.001(0.998)	0.048(0.862)
COR	-0.343(0.400)	-0.389(0.312)
FC	4.151(0.004) *	4.217(0.002) *
R ² (within)		0.3872
F-statistic		6.14(0.0000) *
Breusch-Pagan LM test		12.56(0.0002) *
Hausman test		3.25(0.9986)

Source: Authors' Computation (2020)