

The Effect of Credit Committee Characteristics on Bank Asset Quality in Nigeria

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Abstract

This study aims to evaluate the effect of credit committee characteristics on bank asset quality in Nigeria. The paper examines the credit committee characteristics namely: credit committee independence, credit committee non-executive directors, credit committee size, credit committee meetings, credit committee gender, credit committee expertise, credit committee chair-gender, credit committee chair-independence and chief executive officer in credit committee, and their influence on non-performing loans. Descriptive research design is used on a sample consisting of 18 commercial banks in Nigeria. Secondary data is obtained from the published annual reports covering thirteen (13) years period (2006-2018). Data analysis involved Correlation Coefficient, Multiple Regression Analysis and Dynamic Panel Model estimations using Generalize Method of Moments. The study finds that credit committee independence and credit committee size have a significant negative relation while credit committee gender, credit committee meetings, credit committee chair-independence, and presence of chief executive officer in credit committee have a significant positive relation with non-performing loans. The study therefore recommends that, policymakers and bank executives in Nigeria should concentrate their efforts on the characteristics of credit committee as a whole, rather than on a few elements that have been scientifically demonstrated to have an impact on bank asset quality. This may likely enhance the quality of bank assets.

Keywords: Bank Asset Quality, Corporate Governance, Credit Committee, GMM, Non-Performing Loans, Nigeria.

JEL Classification: G21, G24, G33, G34.

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Introduction

The global financial crisis (GFC) which occurred in 2008/2009, had significant effects on the world economy and Nigeria in particular. Currently there is excessive inflation that has weakened the purchasing power of Nigerian populace, debt ratio has been accelerated and too much losses in the stock market. The Nigerian banking sector has been deeply affected in terms of declined in liquidity position and increased non-performing loans (NPL). As a result, borrowers are incapable of servicing their debts obligation, which led to the accumulation of NPL. The weightiness of the NPL is very large on the Nigerian banks. These loans were initially 9.3% in 2006 but increased to 37.25% in 2009. Although the figure dropped to 14.81% in

2017, however, it is notwithstanding 11.67% in 2018. Despite the decline in the percentage figures, it is noteworthy to present that these figures are sharply above the industry average of five per cent (5%) set by the CBN³. Similarly, the above percentage figures reflect the overall health of the banking sector in Nigeria and propel that banks have difficulty collecting interest and principals on their credit. These loans have increased both the volume of bad debts (NPL) and the insolvency risks.

Tackled to this alarming circumstance, in the aftermath of the financial crisis in 2009, the CBN conducted an examination of all the banks in Nigeria and found that 10 banks out of 24 are insolvent due to excessively high level of NPL. The CBN attributes this to weak corporate governance (CG) practices and poor risk management policies (Kuye et al., 2013; Sanusi, 2010). It resulted in a bail-out of about N620 billion (USD 4 billion) to rescue the banks, and the affected CEOs and their board of directors (BODs) of eight (8) banks were removed, detained, and prosecuted for outright stealing, corruption, and mismanagement of their banks (NDIC, 2011; Sanusi, 2010). Moreover, in order to show the high level of self-indulgence, one of the largest banks in terms of network of branches in Nigeria is caught to have an estimated NPL portfolio of about N700 billion, more than the entire banking industry total capital (Martins, 2016). In addition, one of the root causes of the GFC, for example, has been traced to weak credit policies. Therefore, stability in the banking sector is largely based on the NPL volume. Bank loans which form a significant part of the bank's assets quality (BAQ) are classified as either, normal, substandard, doubtful or loss based on their characteristics. In fact, when there is non-repayment of borrowed funds at widespread levels there will be a devastating effect on the BAQ and the entire economy as this will lead to erosion of the banks' profitability (Beck et al., 2005). The issue of NPL could largely be due to the limited capacity of banks especially in African countries to monitor and efficiently assess the risk of their loan clients (Amidu, 2014).

For this reason, therefore, board credit committee is apparent to help monitor the loans processes and issuance as posited by prior studies (Ben Saada, 2018; Ibrahim & Yusof, 2019). Board members' key responsibilities is to monitor and control banks' credit exposures through effective policy formulation and guidance in order to avoid NPL difficulties. Credit generation, according to Kargi (2011), is the primary revenue-generating activity of banks, and it must be protected properly and efficiently to avoid avoidable bankruptcies and liquidations. The dangers of NPL on a bank's balance sheet are that they have a tendency to fully erode a bank's insolvency and render it unable to perform its conventional role in a normal financial system. As a result, several boards of directors were found guilty of negligence of duty and carelessness in the performance of their duties, particularly in the monitoring of NPL exposures. In most situations, the same board committees that are responsible for managing risk on behalf of the broader board members have insufficient oversight and commitment. Similarly, several independent directors find it difficult to make the essential influence in board committees due to the specialized nature of banking practice (Erkens et al., 2009). The credit committee is supposed to comprise directors with the requisite abilities to monitor and manage the risks associated with loan administration, ensuring that the necessary measures are in place to mitigate the rising NPL. This unfortunate episode, however, happened to be a redefining instant of amplified attention of the need for stringent CG code in the banking industry.

In an attempt to restructure, reforms and modernize the Nigerian banking sector. The CBN, as one of the regulatory body responsible for currency issuance and banks control, has issued different codes of good CG in 2006 and 2014, respectively. These codes of CG emphasized on the concern about the composition of the BODs and the establishment of BODs committees among others to helps the board in discharging of their duties. A credit sub-committee is part of the board's committees and is responsible for overseeing the financing activity as well as assisting the risk and audit committees in risk assessment and alerting any inappropriate investment. The disturbing state of the NPL, its consequences and the codes of CG issued by the CBN emphasizing the composition of BODs and establishment of the credit committee in order to control the rising NPL, are the major motivating factors of this paper. In accordance with these CG codes, the objective of this study is to evaluate the effect of credit committee characteristics on BAQ (NPL) in Nigerian banks. The study of this objective is interesting, as very little study tested the effect of credit committee characteristics on non-performing loans of banks.

However, it is extremely important that banks in developing countries be cognizant of the possible drivers of NPL to effectively manage their loan portfolio, reduce the chances of default, and improve the BAQ. Therefore, in tackling the quality of bank assets, most studies focus on macroeconomic and bank-specific

³ The CBN is the apex bank and regulatory authority that issues and revokes licence for all commercial banks in Nigeria.

determinants of loan quality such as real GDP growth, inflation, unemployment rate, public debt, lending rates, interest rate, return on assets, interbank loans, and net interest margins; and often overlooked the factors that influence the decisions of loan managers in endorsing quality loans (Kumar et al., 2018). This includes other CG variables such as the credit committee and its attributes (Ben Saada, 2018; Ibrahim & Yusof, 2019). As follows, the remainder of the paper is structured. The related literature on the impact of the credit committee characteristics and hypothesis are briefly discussed in section 1. The general methodology is discussed in section 2. The empirical outcomes are discussed in section 3. Finally, conclusions and recommendations are reviewed in section 4.

1. Literature Review

1.1. Empirical Studies

1.1.1. Board Credit Committee Independence

The credit committee analyses the bank's funding activities and formulates its opinion on the categories of credit. Committee independence is determined by the inclusion of independent and non-executive directors in the committee's composition. The board committees normally consist of executives, non-executives and independent directors who are regarded as shareholders proxy in the company's affairs (Lim et al., 2007). Agency theory indicates that, the makeup of the board committee should include more non-executive and independent directors (Haniffa & Cooke, 2002). It is also expected that the greater the proportion of independent and non-executive directors in a committee, the greater the probability of the committee being able to efficiently track the financial performance of the company. Such committees are strongly believed to be more involved, to perform better and to be well governed (Davidson et al., 2004; Menon & Williams, 1994).

Confirming the role of agency theory, Akhtaruddin and Haron (2010) assume that the board committee with more independent directors is at liberty to take decisions without much interruption from the executive management. Ibrahim and Yusof (2019) used a sample of 43 banks from 12 sub-Saharan countries over the period from 2010-2016 and reported a significant negative association between credit committee independence and credit risk measured by NPL. Whereas Ben Saada (2018) did not find this association with respect to credit risk in Tunisian banks. On the contrary, Elbahar (2016) used a sample of GCC banks and found a positive association between credit committee existence and risk management measured by NPL ratio. Table 1 presents summary of literatures on credit committee independence and NPL.

Table 1. Summary of Literature on Credit Committee

Authors	Context/Period	Methods	Key findings	Measurements	DV
Ibrahim and Yusof (2019)	Sub-Sahara Africa 2010-2016	Panel Regressions	Negative	NPL/TLA	CR
Ben Saada (2018)	Tunisia 2010-2015	GLS	Positive Not Significant	NPL	CR
Elbahar (2016)	GCC 2003–2012	OLS	Positive	NPL	RM

Source: Authors own Analysis.

1.1.2. Board Committees Size

According to the related literatures, another significant feature that defines the efficacy of the board committees is the size of the committee. For an example, the size of the audit committee is critical for increasing successful oversight and thereby enhancing the disclosure of CG in companies (Mangena & Pike, 2005). It is vital that, like the audit committee, the board committee has adequate authority and resources to effectively conduct its functions. It is also proposed that board committees membership be made up of at least three directors, whom are non-executive (Smith, 2003). In the same line of argument, the BRC (1999) show that with the complex nature of financial and accounting problems, the committee of the board significantly deserves resourced directors to efficiently perform its position in the context of the number of directors.

According to Karamanou and Vafeas (2005) however, two opposing viewpoints have been reported on the impact of size of the board committees on the efficacy of the committee. According to the theories of agency and resource dependency, as the resources allocated to the operation of the board committee become significant, the committee's effectiveness in controlling the required disclosures of useful information is high,

which can then reduce the agency cost (Peng et al., 2007). In addition, it is argued that as board committees become large, their monitoring effectiveness is generally assumed to be greater because of their wider knowledge base and experience and an increased range of viewpoints that could boost monitoring (Bedard et al., 2004; Karamanou & Vafeas, 2005; Mangena & Pike, 2005).

Bedard et al. (2004) suggest that there is a high likelihood that the issues that are likely to arise in the financial reporting process can unfold and be addressed as the board committee becomes more extensive. This is probably the case when the available resources are expanded by a large-sized committee. The committee's expertise increases the efficiency of the oversight tasks it requires. On the other hand, researchers note that, too many participants could cause problems due to a decrease in communication and decision-making efficiency as well as the dissemination of accountability (Bedard et al., 2004; Karamanou & Vafeas, 2005). Ng et al. (2013) reports a significant negative association between board committee size and risk, indicating that a board committee with fewer directors is more likely to be associated with higher risk-taking. However, Ibrahim (2020) finds a significant negative association between board committee size and NPL. This implies that, larger sized board committee can lessen the level of NPL.

1.1.3. Board Committees Expertise

The financial expertise of the board committee is also a specific attribute that has been related to the committee's effectiveness and has gained significant attention in previous literature. Since the board committee's primary responsibility is to oversee the financial reporting and control process, financial experience is vital to the board committees effectiveness (BRC, 1999; PricewaterhouseCoopers, 2008). A lack of understanding or knowledge of complex financial techniques may lead to unsuccessful board committee decisions and performance (Dezoort, 1998). In addition, the BRC (1999) recommends that members of the board's financial committees should be informed about the market environment in order to carry out their duties efficiently and must have an accounting or relevant financial management specialist among them in order to be able to read simple financial information. This expertise is demonstrated by a current or past job in accounting or finance and professional body membership in these fields by at least one committee member (Smith, 2003).

Felo et al. (2003) submit that, the task of supervising the standard of financial reporting is seen to be performed by the committees of the board. For this purpose, the involvement of financial management or accounting professionals in the board committees helps to ensure that accurate information is generated by the financial disclosure of the banks. Vafeas (2005) argues that to have successful committee members, they should have the requisite skills to correctly understand and interpret finance-related details and to ensure that shareholders are presented with a higher quality financial report. Therefore, there is the need for the board committee members to give way to resources such as financial expertise and accounting for more efficient accountability in overseeing the board and improving BAQ. Felo et al. (2003) reveal that the task of supervising the standard of financial reporting is seen to be performed by the committees of the board. For this purpose, the involvement of financial management or accounting experts in the board committees helps to ensure that accurate information is generated by the financial disclosure of the company. Additionally, Ibrahim and Yusof (2019) find a significant negative association between board credit committees financial expertise and NPL. This implies that financial experts on board credit committee can lessen the level of NPL and improve the quality of bank assets.

1.1.4. Board Committees Meetings

It is proposed that board committees usually supervise, advise and seek management transparency to ensure that executives follow shareholder interests (Jensen & Meckling, 1976; Ntim, 2009). A significant measure for determining the strength and effectiveness of corporate supervision and discipline is the length of board meetings (Jensen, 1993; Vafeas, 1999). However, there are mixed theoretical opinions on the effect of board meetings outcomes (Jensen & Meckling, 1976; Lipton & Lorsch, 1992). One theoretical theory is that meeting frequency measures the intensity of a board's operations and the continuity or effectiveness of its monitoring (Conger et al., 1998; Vafeas, 1999). A higher level of board meetings would contribute to higher quality reporting for management and thus, have a positive effect on risk management practises (Ntim, 2009; Vafeas, 1999). It has also been argued that, frequent meetings offer more opportunities for directors to communicate, set goals, and assess management efficiency (Vafeas, 1999). This will help managers remain updated and familiar with important developments within the organisation. The frequency of board meetings or committee meetings allows members to discuss emerging critical concerns easily and efficiently

(Mangena & Tauringana, 2008). Sonnenfeld (2002) indicates that frequent attendance at meetings is perceived to be a characteristic of a responsible directors.

Ibrahim and Yusof (2019) used Sub-Sahara African 37 banks over the period of 2010-2016, reports a positive association between board committee meetings and NPL. Their result lean support to Ben Saada (2018) who reports board committee meeting is positively associated with NPL. Similarly, Tao and Hutchinson (2013) reports a significant and positive association between board committee meetings and risk. However, Ng et al. (2012) result show no statistical relationship between the frequency of board committee meetings and underwriting risk. In support, Poudel and Hovey (2013) finds a negative but insignificant association between board committee meetings and NPL.

1.1.5. Board Committees Chairperson Independence

Non-executive directors should make up all or the majority of board committee members, with an independent non-executive director serving as the committee's chairperson (Chobpichien, 2008). Spangler and Braiotta (1990) find a positive effectiveness-transformational leadership association of the board committee along with some transactional leadership characteristics when it comes to the independence of the chairperson of the board committees who was previously in charge of banks' board committee functions. For example, Haniffa and Cooke (2002) argue that the chairperson's job should be critical to the board's effectiveness in Malaysia. Chobpichien (2008) discovered that having an independent director as the head of a board committee improves the efficacy of the committee in terms of board committee performance.

Similarly, Ahmad et al. (2016), O'Sullivan et al. (2016) and Zagorchev and Gao (2015) have found that independent directors help improve the BAQ. They suggest that independent directors have a negative relationship with the NPL ratio. Their findings imply that by reducing the rising NPL, an independent director can increase BAQ. Ibrahim and Yusof (2019) found a positive but negligible relationship between board credit committee chairmanship independence and NPL in 37 Sub-Sahara African banks from 2010 to 2016. According to Bryan et al. (2004), board committees made up of independent directors raise the quality of transparency. Similarly, the agency theory suggests that characteristics such as independence and an independent chairperson could influence the committee's effectiveness (Bradbury, 1990; Carson, 2002; Tao & Hutchinson, 2013). It might also be claimed that having an independent committee chairperson improves the board committee's effectiveness and raises BAQ.

Therefore, this paper compliments the existing studies by investigating how the characteristics of the board credit committee affect banks NPL in Nigeria. However, based on the above findings, it therefore, hypothesize the relationship as follows:

H₀: There is a negative association between board credit committee characteristics and BAQ (NPL).

2. Methodology

2.1. Research Framework

The research framework is illustrated in Figure 1 (see in Appendix), the framework is developed in line with the research problems and the literature review. The literature review focuses on the influence of credit committee characteristics on bank assets quality (BAQ). The BAQ is the dependent variable, measured as Non-Performing Loans (NPL). The credit committee characteristics is the independent variable and it comprises of variables, such as CC Independence, CC Nonexecutive, CC Size, CC Gender, CC Expertise, CC Meetings, CC CEO-Presence, CC Chairman-Gender, and CC Chairman-Independence. Details of their measurements are presented in Table 2 below.

Table 2. Variables Definitions and Measurements

Variables	Acronyms	Measurements	Sign	Sources
Dependent Variable: (Bank Asset Quality)				
Banks Asset Quality	NPL	NPL/Gross Loan.		Saif-Alyousfi et al. (2018)
Independent Variable: (Credit Committee Charateristics)				
Credit Committee Size	CCSZ	This is the total number of directors in the CC	-	Ibrahim and Yusof (2019)

Table 2 (cont.). Variables Definitions and Measurements

Credit Committee Independence	CCIND	The proportion of directors that are independent on the CC	-	Ibrahim and Yusof (2019)
Non-Executive Directors on CC	CCNED	The proportion of directors who are non-executive directors on CC.	-	CBN Code (2014)
Credit Committee Gender	CCGEN	This is the proportion of directors that are females on the CC.	-	CBN Code (2014)
Credit Committee Expertise	CCEX	The proportion of directors with financial expertise on CC.	-	Ibrahim and Yusof (2019).
Credit Committee Meetings	CCMET	The frequency of CC meetings in a year.	-	Ibrahim and Yusof (2019).
CEO Presence in Credit Committee	CCCEOI	Dummy variable = 1 if CEO is present in CC otherwise 0.	±	CBN Code (2014)
Credit Committee Chair-Gender	CCCG	Dummy variable = 1 if female chaired the CC otherwise 0.	-	CBN Code (2014)
Credit Committee Chairman Independence	CCCI	Dummy variable = 1 if CC is chaired by independent director otherwise 0.	-	Ibrahim and Yusof (2019).
Control Variables				
Real Gross Domestic Product	RGDP	Annual growth rate of GDP	-	Lassoued et al. (2016).
Lending Rate	LNRT	Lending Interest rate	+	Idris and Nayan (2016)
Real Exchange Rate	REXRT	Real effective exchange rate	±	Saif-Alyousfi et al. (2018)
Inflation Rate	INFRT	Consumer price index	+	Idris and Nayan (2016)
Global Financial Crisis	GFC	Dummy crisis = 1 for the year 2009 and 0 otherwise	+	Saif-Alyousfi et al. (2018)
Returns on Asset	ROA	Earnings before interest and tax divided by total assets.	-	O'Sullivan et al. (2016), Liang et al. (2013).
Bank Size	LNTA	Natural logarithm of the bank's total assets.	-	Lassoued et al. (2016), Chaibi and Fiti (2015).
Capitalization	CPTLZ	Total equity to total assets	-	Saif-Alyousfi et al. (2018)
Inefficiency	INEFC	Operating expenses to operating income.	±	Saif-Alyousfi et al. (2018)
Loan Loss Provision	LLP	LLP/Gross Assets.	+	Saif-Alyousfi et al. (2018)

Source: Authors own Analysis.

2.2. Sources of Data

Secondary data is used in this study and the data related to the dependent variable and macro-economic variables are extracted from the Bloomberg Database, Thomson Reuters DataStream, and WDI Database. The credit committee variables and bank specific variables are obtained from the bank's annual reports and accounts. The sampled banks cover the period of 13 years spanning 2006-2018. The starting period of 2006 is selected based on data availability and it also coincides with the period when the CG code was implemented in Nigerian banks by the CBN.

2.3. Population and Sampling Technique

The population of this study consists of the 18 banks after recapitalisation (consolidation) in Nigeria. The selection of commercial banks as the unit of analysis in this study is because they are the most important financial institutions in Nigeria that provide a broader range of products and services to its customers and play a significant role in the financial intermediation process in the economy.

2.4. Estimation Procedure

The study in the first place used the static model of pooled OLS, fixed effect and random effect models, and subsequently used the Generalized Moment Model (GMM). The GMM estimator was used in estimating the research model. In particular, the more powerful and less biased GMM estimator' method' Blundell and Bond (1998), is applied. In the empirical growth literature, the estimator has become reliable so as to resolve the Nickell (1981) bias and address the issues of mismeasurement and endogeneity (Ding & Knight, 2011). Originally, Arellano and Bond (1991) derive the GMM estimator for 'difference' which Blundell and Bond established further. The GMM estimator system is one of the most powerful techniques used in data models of dynamic panels (Baltagi et al., 2009). Besides the benefits of the system GMM estimator, the inclusion of lagged dependent variable among the regressors renders traditional estimators unstable and skewed-pooled

OLS, fixed effects, and random effects. This renders the OLS biased and inconsistent even in the event that the ε_{it} are not serially correlated. Equally, due to similar regressor–error term correlation, the random effect and fixed effect (GLS) models are also inappropriate. This makes the OLS biased and inconsistent even in the event that there is no serial correlation with the ε_{it} . Similarly, the random effect and fixed effect (GLS) models are also undesirable due to similar regressor–error term correlation.

2.5. Regression Model

The regression model is specified in line with the research variables. The model presents the association between the board credit committee characteristics (CC Independence, CC Nonexecutive, CC Size, CC Gender, CC Expertise, CC Meetings, CC CEO-Presence, CC Chairperson-Gender, CC Chairperson-Independence) and BAQ. In addition, some categories of control variables are used in the model. This includes macro-economic variables (RGDP, lending rate, real exchange rate, inflation rate and GFC) and bank-specific variables (ROA, bank size, capitalization, inefficiency and LLP). The regression model is presented as follows;

$$BAQ_{it} = \beta_0 + \beta_1 NPL_{it-1} + \beta_2 CCIND_{it} + \beta_3 CCNED_{it} + \beta_4 CCSZ_{it} + \beta_5 CCGEN_{it} + \beta_6 CCEX_{it} + \beta_7 CCMET_{it} + \beta_8 CCCEO_{it} + \beta_9 CCCG_{it} + \beta_{10} CCCI_{it} + \beta_{11} RGDP_{it} + \beta_{12} LNRT_{it} + \beta_{13} REXRT_{it} + \beta_{14} CINFRT_{it} + \beta_{15} GFC_{it} + \beta_{16} ROA_{it} + \beta_{17} LNTA_{it} + \beta_{18} CPTLZ_{it} + \beta_{19} INEFC_{it} + \beta_{20} LLPR_{it} + \varepsilon_{it} \quad (1),$$

where: *BAQ* = Bank Asset Quality (NPL); *CCIND* = Proportion of Independent Directors in Credit Committee; *CCNED* = Proportion of Nonexecutive Directors in Credit Committee; *CCSZ* = Credit Committee Size; *CCGEN* = Credit Committee Females; *CCEX* = Credit Committee Expertise; *CMET* = Credit Committee Meetings; *CCCEO* = Credit Committee CEO-Presence; *CCCG* = Credit Committee Chairman Gender; *CCCI* = Credit Committee Chairman Independence; *RGDP* = Real Gross Domestic Product; *LNRT* = Lending Rate; *REXRT* = Real Exchange Rate; *INFRT* = Inflation Rate; *GFC* = Global Financial Crisis; *ROA* = Returns on Assets; *LNTA* = Natural Logarithm of Total Assets; *CPTLZ* = Capitalization; *INEFC* = Inefficiency; *LLP* = Loan Loss Provision; ε = Error Term; *i* = Bank; *t* = Time Period; β_0 = Constant; β_2 - β_{10} = Co-efficient of independent variables; β_{11} - β_{20} = Co-efficient of the control variables.

3. Results

3.1. Descriptive Analysis

The descriptive analysis is performed to describe the characteristics of the variables (dependent, independent and control variables) used in the study. Table 3 presents board credit committee characteristics which are in various panels (Panel A-D). The statistics presented include, the mean, the standard deviation, the minimum, the maximum, the skewness and the kurtosis. This implies that, Table 3 presents the descriptive statistics of each variable according to each of the variable’s panels.

Table 3. Descriptive Statistics of Variables for 18 Nigerian Banks over the period of 2006-2018

Variables	Obs.	Mean	Median	Min	Max	St.Dv	Skewness	Kurtosis
Panel A: Bank Asset Quality								
NPL	177	0.08	0.04	-0.30	0.74	0.11	2.81	14.72
Panel B: Credit Committee Characteristics								
CCSZ	159	7.88	7.00	3.00	17.00	2.77	0.87	3.61
CCIND	159	0.10	0.11	0.00	0.50	0.11	1.03	4.02
CCNED	159	0.47	0.42	0.16	1.00	0.19	1.32	4.50
CCGEN	159	0.15	0.14	0.00	0.60	0.14	0.78	3.08
CCEX	159	0.44	0.42	0.00	0.85	0.18	-0.11	2.74
CCMET	159	6.59	5.00	1.00	20.00	3.60	1.37	4.39
CCCEO	159	0.82	1.00	0.00	1.00	0.38	-1.70	3.89
CCCG	159	0.16	0.00	0.00	1.00	0.37	1.81	4.31
CCCI	159	0.18	0.00	0.00	1.00	0.38	1.64	3.70
Panel C: Macro-Economic Variables								
RGDP	177	4.90	4.90	-1.60	11.30	3.35	-0.07	2.62
LNRT	177	16.89	16.84	15.13	18.99	0.86	0.44	4.21
REXRT	177	106.85	109.11	90.62	124.49	10.12	0.16	1.94
CINFRT	177	0.08	0.05	-0.54	1.14	0.41	1.29	4.04
GFC	177	0.07	0.00	0.00	1.00	0.27	3.11	10.72
Panel D: Bank-Specific Variables								
ROA	177	0.01	0.01	-0.13	0.10	0.02	-1.59	12.63
LNTA	177	20.66	20.72	18.54	22.82	0.90	0.09	2.48

Table 3 (cont). Descriptive Statistics of Variables for 18 Nigerian Banks over the period of 2006-2018

CPTLZ	177	0.16	0.13	-1.54	2.32	0.31	2.34	25.68
INEFC	177	3.19	2.02	-15.30	32.47	5.60	2.00	11.41
LLPR	177	0.03	0.02	-1.47	0.54	0.13	-7.78	99.28

NPL: Non-Performing Loans.

Credit Committee: CCSZ which denotes the size of the credit committee, CCIND this represent the proportion of independent directors on the credit committee, CCNED this also represent the proportion of nonexecutive directors on the credit committee, CCGEN indicates the proportion of females in the credit committee, CCCG this is a binary coded number that equals to 1 if the credit committee chairperson is a female director and otherwise zero, CCEX represent the proportion of director with financial expertise on the credit committee, CCMET indicating the number of meetings held by the credit committee members, CCCEOI a binary coded number that equals to 1 if the CEO is a member of the credit committee and zero otherwise, CCCI this is a binary coded number that equals to 1 if the credit committee chairperson is independence director and zero otherwise. **Macro-Economic Variables:** RGDP, LNRT, REXRT, INFRT, and GFC represents Real Gross Domestic Product, Lending Rate, Real Exchange Rate, Inflation Rate, and Global Financial Crisis respectively.

Bank-Specific Variables: ROA, LNTA, CPTLZ, INEFC and LLP, represents Returns on Assets, Natural Logarithm of Total Assets, Capitalization, Inefficiency and Loan Loss Provision Ratio respectively.

Source: Authors own Analysis.

According to Panel A of Table 3, the banks NPL for the study period is between 0.08 and 0.74, which means that on the average, Nigeria Banks NPL is 8% and it is as high as 74%. Both the average and the maximum values are far from the industry benchmark of 5% set for all banks by the Central Bank of Nigeria (CBN, 2007), which serves as the main regulatory body for financial institutions in Nigeria. These figures raised important issues as to the factors that contributed to the high NPL and those that can mitigate banks NPL in Nigeria. By identifying the factors that could affect banks' NPL, this study would enable the regulators and financial experts to find out how BAQ can be improved and factors that could lead to the deterioration of BAQ.

Accordingly, based on the second group of variables i.e. board credit committee characteristics, the size of the committee (CCSZ) is between 3 and 17. Similarly, the mean value for the proportion of the independent directors' in credit committee (CCIND) is 10%, while the maximum value is 50%, which means that the highest proportion of independent directors on the CC is not more than half of directors on the committee. The mean value for the proportion of non-executive directors (CCNED) in the credit committee is 47%, while some committee contain fully non-executive directors. In addition, the mean value for the proportion of females on the CC (CCGEN) is 15%, while the maximum proportion of female directors on the CC is 60%. However, only 16% of the credit committee have a female as the chairperson of the CC (CCCG). In terms of financial expertise of CC members (CCEX), the mean value is 44%, while the maximum value is 85%. With respect to the frequency of CC meeting (CCMET), a minimum of 1 and maximum of 20 meetings are held per annum. Likewise, 82% of the Nigerian banks CC have presence of CEOs and 18% of banks CC have an independent director as the chairperson (CCIC).

With regards to the macro-economic variables in Panel C, the real GDP (RGDP) is between -1.60% and 11.30%. Over the period of 13 years, Nigerian economy grew at a rate of 4.90% on the average. Similarly, the mean value of lending rate (LNRT) is 16.89% and the maximum value is 18.99%. However, in terms of real exchange rate (REXRT), Naira to USD is between ₦90.62 and ₦124.49. The inflation rate (INFRT) is between -0.54% and 1.14%. The mean value of global financial crisis (GFC) is 7%, with a maximum value of 100% in the crisis period. Other than the descriptive statistics on macro-economic variables that are presented in Table 3, the Panel D of Table 3 also shows the descriptive statistics of bank's specific variables. Among the bank's specific variables presented, are return on assets (ROA), bank size (LNTA), inefficiency (INEFC), capitalization (CPTLZ) and loan loss provision (LLP). In terms of ROA, the mean value is 1% and the maximum value is 10%. The mean value of LNTA is 20.66 million on the average in Nigeria with as much as 22.82 million in some banks. Similarly, the mean value of CPTLZ is 16%, while the maximum value is 232%. In general, Nigerian banks have maintained high-level of CAR than the minimum regulatory threshold of 10% for national/regional banks, and 15% for international/active banks. The average INEFC value is 3.19. Likewise, the mean value of LLP is 3%, while the maximum value is 54%.

4.2 Correlation Analysis

This section discusses the correlation results among the variables used in this study. That is the correlation between the dependent (bank asset quality), independent (board credit committee), and control variables (macro-economic and bank-specific variables). The correlation results provide useful pre-estimation hints regarding the potential associations among the variables and the likely problem (e.g., multicollinearity) that

may be associated with the data. This is because multicollinearity problem may cause the coefficients to change signs, and weaken the statistical power of the analysis by denouncing the influence of the related t-statistics and p-value to assess the significance of the independent variables (Bowerman et al., 2004; Gujarati et al., 2012). The outcome of this analysis typically indicates that all correlations are less than 0.80, which is consistent with Gujarati et al. (2012) assertion that correlation matrix should not exceed 0.80. Hence, the correlation results are presented in Tables 4, 5.

Table 4. Correlation Matrix

Variables	1	2	3	4	5	6	7	8	9	10
1)NPL	1.00									
2)CCSZ	-0.09*	1.00								
3)CCIND	-0.19***	0.08	1.00							
4)CCNED	0.08	-0.41***	-0.59***	1.00						
5)CCGEN	-0.07	-0.03	0.17**	0.09	1.00					
6)CCEX	-0.07	-0.08	0.11	-0.18**	-0.06	1.00				
7)CCMET	-0.09	0.26***	-0.00	0.22***	0.15**	-0.11	1.00			
8)CCCEO	0.13*	0.40***	0.17**	-0.62***	-0.19***	-0.02	-0.12	1.00		
9)CCCGEN	-0.10	-0.00	0.05	0.05*	0.48***	-0.12	0.22***	-0.19***	1.00	
10)CCCIND	-0.08	0.08	0.41***	-0.28***	0.10	0.08	-0.04	-0.08	0.14*	1.00
11)RGDP	0.32***	-0.19***	-0.28***	0.17**	-0.25***	0.16**	-0.06	-0.03	-0.14*	-0.10
12)LNRT	0.21***	-0.09	-0.00	0.04	0.03	0.01	-0.07	-0.09	0.04	-0.04
13)REXRT	-0.30***	0.20***	0.12	-0.09	0.13*	-0.10	0.19***	-0.00	0.10	0.14*
14)CINFRT	0.02	-0.04	-0.00	0.03	-0.01	0.00	-0.05	-0.04	0.01	-0.03
15)GFC	0.31***	-0.16**	-0.10	0.09	-0.08	0.06	-0.13*	-0.08	-0.01	-0.08
16)ROA	-0.11	0.03	0.06	-0.06	-0.03	0.05	0.00	-0.14*	-0.08	0.03
17)LNTA	-0.28***	-0.08	0.37***	-0.07	0.25***	-0.05	0.19**	-0.28***	0.20***	0.14*
18)CPTLZ	0.00	0.23***	-0.08	-0.04	-0.17**	0.17**	0.06	0.01	-0.21***	0.16**
19)INEFC	-0.04	0.02	0.03	0.01	0.12	0.02	-0.10	0.05	0.15**	-0.00
20)LLP	0.51***	0.00	-0.13*	0.04	-0.22***	0.03	-0.02	0.02	-0.20***	-0.03

Source: Authors own Analysis.

Table 5. Correlation Matrix (continued)

Variables	11	12	13	14	15	16	17	18	19	20
1)NPL										
2)CCSZ										
3)CCIND										
4)CCNED										
5)CCGEN										
6)CCEX										
7)CCMET										
8)CCCEO										
9)CCCGEN										
10)CCCIND										
11)RGDP	1.00									
12)LNRT	0.13*	1.00								
13)REXRT	-0.33***	-0.27***	1.00							
14)CINFRT	-0.11	-0.32***	-0.08	1.00						
15)GFC	0.30***	0.70***	-0.41***	-0.00	1.00					
16)ROA	-0.00	-0.10	0.04	0.09	-0.25***	1.00				
17)LNTA	-0.38***	-0.05	0.31***	0.01	-0.18***	0.23***	1.00			
18)CPTLZ	0.17**	-0.04	-0.08	0.11	0.08	0.16**	-0.14*	1.00		
19)INEFC	-0.11	0.01	0.10	-0.02	-0.05	-0.10	0.02	-0.02	1.00	
20)LLP	0.15**	0.02	-0.07	0.05	0.14*	0.05	-0.00	0.30***	0.00	1.00

Source: Authors own Analysis.

According to Table 4, nine variables (CCSZ, CCIND, CCCEO, RGDP, LNRT, REXRT, GFC, LNTA and LLP) are significantly correlated with the BAQ (NPL). In particular, CCSZ is negatively correlated with NPL at 10% level of significance. Similarly, CCIND is also negatively correlated at 1% level, suggesting that the proportion of independent directors in credit committee are more efficient in managing banks NPL thereby improving the BAQ. While CCCEO is positively correlated with NPL at 10% level of significance. Concerning the macro-economic variables, contrary to this study's expectations, RGDP is positively correlated with NPL. This implies that a healthy economy is associated with higher NPL. Likewise, LNRT is positively correlated with NPL at 1% level of significance. Similarly, GFC is positively correlated with NPL at 1% level of significance, while REXRT is negatively correlated with NPL at 1% level of significance. In the case of bank-specific variables, LNTA is negatively correlated with NPL at 1% level of significance, which indicates that large banks are able to control their NPL, leading to a better asset quality. In contrast,

LLP is positively correlated with NPL at 1% level of significance. In order to have a better picture on how the independent and control variables are associated with NPL, the study proceeds to conduct a regression analysis.

3.3. Regression Analysis

This section presents the regression analyses of the study model. The regression analysis is presented in Table 6, which shows the results of the association between board credit committee characteristics on NPL. The details on the process and procedure followed in the whole study's analyses are presented as follows:

Generally, the study adopts a panel regression technique. This comprises of the static model, which was estimated using the pooled OLS (POLS), random effect (RE) and fixed effect (FE) models. The Breusch-Pagan (LM) test was conducted to identify if the POLS or RE models is appropriate but the results choose the POLS model. Meanwhile, the POLS model is subjected to further tests, which include autocorrelation and heteroscedasticity tests. These two tests are important in order to ensure the suitability of the use of POLS model. However, the results of the Breusch-Pagan/Cook-Weisberg test for heteroskedasticity indicated that there is presence of heteroscedasticity (P-value < 0.05), in the model, indicating that the model suffer from heteroscedasticity problem. Similarly, the result of Wooldridge test for autocorrelation in respect to the POLS model shows that the p-value is less than 5% (P-value < 0.05), and this indicates the presence of autocorrelation in the model. It shows that the regression model suffers from autocorrelation problem. In addition, using the POLS model may lead to contradictory and biased estimates in case of endogeneity issue (Lee et al., 2016).

Given the aforementioned discussions on violations of the POLS model, it is necessary to extend the analysis to the Robust-POLS regression and conduct a regression estimates between RE and FE. The Hausman test conducted between RE and FE models chooses FE indicating that the FE is preferred than the RE model. However, Tan (2016 (P:36)) pointed out that FE model does not cater for issues like autocorrelation, endogeneity, unobserved heterogeneity and persistency, thus, this study employs the GMM technique. Therefore, the discussion of results presented in Table 6 would focus on the Robust-POLS and GMM-Robust techniques. The table consists of seven (7) columns. They are: one (1) presents the POLS result, while column two (2) provides the RE result. The column three (3) reports the FE result, while column four (4) captures the Robust-POLS result. In column five (5), the GMM result is presented. This followed by the GMM-Robust result in column six (6), while the last column presents the VIF result. In line with the explanation on the representation of each column, the discussion in subsequent section would focus on the Robust-POLS and GMM-Robust estimations.

Table 6. Credit Committee and Bank Asset Quality (NPL) Result

Variables	POLS	Random Effect	Fixed Effect	POLS Robust	GMM	GMM Robust	VIF
CCSZ	-0.00	-0.00	-0.01**	-0.00	-0.01***	-0.01***	1.95
CCIND	-0.08	-0.08	-0.14	-0.08	-0.25**	-0.24**	2.40
CCGEN	0.13**	0.13**	0.24***	0.13**	0.32***	0.33***	1.48
CCMET	0.00	0.00	-0.00	0.00	0.00	0.00*	1.58
CCCI	0.02	0.02	0.02	0.02	0.03*	0.03**	1.49
CCCEO	0.05**	0.05**	0.00	0.05*	-0.00	-0.00	2.58
CCEX	-0.06	-0.06	0.01	-0.06	-0.08	-0.07	1.20
CCNED	-0.01	-0.01	0.09	-0.01	0.00	0.00	4.20
CCCG	-0.01	-0.01	0.03	-0.01	0.03	0.03	1.55
ROA	-0.08	-0.08	0.09	-0.08	0.79***	0.95**	1.20
LNTA	-0.02***	-0.02***	-0.05***	-0.02**	-0.10***	-0.09***	1.93
INEFC	-0.00	-0.00	-0.00	-0.00	0.00	0.00	1.13
CPTLZ	-0.07***	-0.07***	-0.13***	-0.07	-0.06**	-0.07	1.47
LLP	0.48***	0.48***	0.58***	0.48***	0.51***	0.49***	1.21
RGDP	0.00***	0.00***	0.00	0.00**	-0.00	-0.00	1.56
REXRT	-0.00*	-0.00*	-0.00	-0.00***	-0.00	-0.00	1.44
CINFRT	0.02	0.02	0.02	0.02	-0.00	-0.00	1.21
LNRT	0.02**	0.02**	0.01**	0.02**	0.00	-0.01	1.29
CONS	0.36	0.36	0.90**	0.36			
NPL _{t-1}					0.00	0.01	
GFC						0.04**	
R ²	0.52	0.52	0.35	0.52			
Adjusted R	0.45						

Table 6 (cont.). Credit Committee and Bank Asset Quality (NPL) Result

Breusch-Pagan (CW)	0.00						
Breusch-Pagan (LM)	1.00						
Hausman-Test		0.00					
Sargan-Test					0.06		
AR (1)					0.00		
VIF Mean							1.72
No of Obsvt.	159	159	159	159	126	126	

Note: The asterisks, ***, **, * denote significance level at 1%, 5% and 10% respectively.

Source: Authors own Analysis.

3.4. Regression Results

According to the Pooled OLS-Robust and the GMM-Robust results displayed in Table 5, the proportion of female directors sitting on the credit committee (CCGEN) is positively associated with NPL, suggesting that the presence of more female in the credit committee deteriorates the BAQ. The findings contradict the general theoretical assumption that female directors are more conscious when granting loans. Similarly, a positive association is reported between the presence of the chief executive officer in the credit committee (CCCEO) and the NPL. Some other variables are also found to be significantly associated with NPL under the GMM-Robust results. For instance, a negative association is discovered between the size of the credit committee (CCSZ) and NPL at 1% level of significance. This is in line with Boussaada and Labaronne (2015) with respect to the size of board committee and NPL. Similarly, the proportion of independent directors on credit committee (CCIND) is negatively associated with NPL. The negative association could be explained by sufficient and adequate monitoring by independent committee members because of their adequate technical knowledge and the experience needed to accomplish their effective monitoring role. This supports Faleye and Krishnan's (2017) position that, effective bank boards with credit committee minimizes risky lending. This is consistent with the perspective of the agency's theory and supports the evidence reported by Ibrahim and Yusof's (2019) findings in Sub-Saharan Africa.

In addition to the negative influence of independent credit committee, other variables are also found with positive impact on NPL. This includes the frequency of credit committee meeting (CCMET) and the independent credit committee chairperson (CCCI). The CCMET is positively associated with NPL, which signifies that higher frequency of credit committee meetings arise because of high NPL. The findings corroborate Ibrahim and Yusof's results, that reveal a positive association between credit committee meetings and NPL. Similarly, the association between independent credit committee chairperson and NPL is positively associated with NPL. Likewise, a positive association is reported between GFC and NPL, which implies that NPL of Nigerian banks increased during the GFC in 2009. For example, the average NPL for the banks before the crisis (2006-2007) was 9.30% but increased during the crisis period (2008-2009) to 37.25%. Therefore, the results suggest that the years before the crisis are also associated with increase in NPL during the crisis period. Other variables discovered to be significantly associated with NPL are bank size (LNTA) and real exchange rate (REXRT). Both variables are negatively associated with NPL at 5% and 1% levels of significance respectively. However, loan loss provisions (LLP), returns on assets (ROA), real gross domestic product (RGDP), and lending rate (LNRT) are positively associated with NPL at 1% and 5% levels, respectively.

Conclusion

The purpose of this study is to evaluate the effect of board credit committee characteristics on bank asset quality in Nigeria. The result of the relationship between the proportion of independent directors on credit committee and Nigerian banks' asset quality backs up a number of prior studies, such as (Faleye & Krishnan, 2017; Ibrahim & Yusof, 2019), and is also compatible with agency theory. Similarly, regarding the size of the credit committee supports the view that bigger size matters a lot when influencing the quality of bank asset and is also consistent with the agency theory (Boussaada & Labaronne, 2015). Conversely, on the association between credit committee meeting and NPL, this study supports Ibrahim and Yusof (2019) and contradicts the findings of Waterhouse (1993). Likewise, concerning the independence of credit committee chairperson, our findings contravenes Haniffa and Cooke (2002). In the same vein, regarding the gender of the credit committee chairperson, contradicts the assertions that females membership on the bank's board possibly improve the BAQ (Lu & Boateng, 2018). In addition, the position of Tao and Hutchinson (2013) regarding CEO-presence on board committees is not supported by this study.

Overall, the findings indicate that only proportion of independent directors on credit committee and credit committee size are the most significant determinants of the bank asset quality in Nigerian banks. Whereas, proportion of female in credit committee, meeting frequency of credit committee, CEO presence in credit committee and independence of the chairperson of the credit committee happened to be the variables that jeopardize the bank asset quality in Nigerian banks. This study's implications are important for both regulators and practitioners. Policymakers and bank executives in Nigeria should concentrate their efforts on the characteristics of credit committee as a whole, rather than on a few elements that have been scientifically demonstrated to have an impact on bank asset quality. According to the study, Proportion of Independent Directors in Credit Committee (CCIND); Proportion of Nonexecutive Directors in Credit Committee (CCNED); Credit Committee Size (CCSZ); Credit Committee Females (CCGEN); Credit Committee Expertise (CCEX); Credit Committee Meetings (CMET); Credit Committee CEO-Presence (CCCEO); Credit Committee Chairperson Gender (CCCG); Credit Committee Chairperson Independence (CCCI), as essential components of the studied model, are substantial in the effective supervision of NPL in Nigeria. Although, this paper adds to the theory and practice but one major study limitation is that the researchers relied solely on published data, which has limitations such as total reliance on publishers' views, which may not be the absolute reality on the ground. Therefore, future research can replicate this study and test the effects of these and other board credit committee characteristics on BAQ in various contexts.

Author Contributions

Conceptualization: Karaye, A. I.; **writing-original draft preparation:** Karaye, A. I; **writing-review and editing:** Badru, B.O.; **methodology:** Karaye, A. I. and Badru, B.O.; **supervision:** Ahmad-Zaluki, N.A., Badru, B.O.; **project administration:** Ahmad-Zaluki, N.A.

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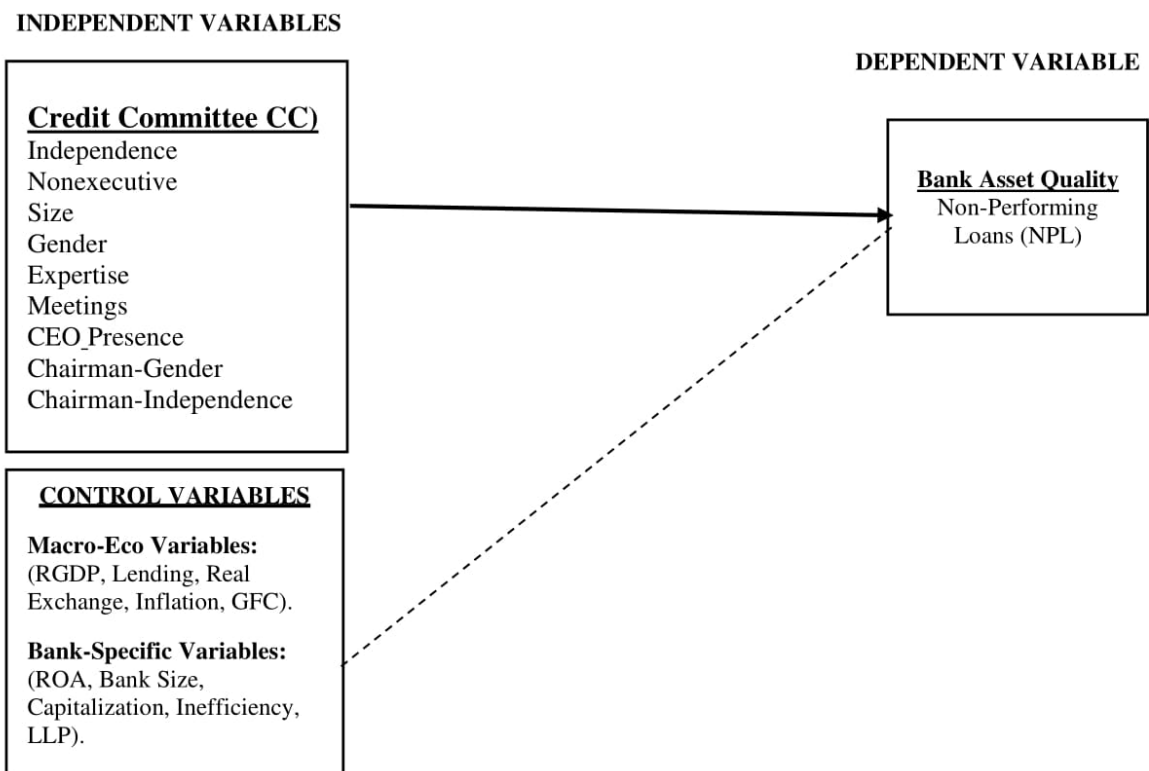
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Appendix



Source: Compiled by author.