BANK-SPECIFIC DECISIONS AND BANKS' PROVISIONING BEHAVIOUR IN NIGERIA: THE ROLE OF IFRS ADOPTION AND BANKS' RISKINESS

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Goal: this study examines the relationship between bank loan loss provisioning behaviour and various bank-specific decisions on loan loss reporting. The evidence is derived from several cases of non-performing exposures of Nigerian deposit money banks. **Methodology:** to investigate the relationship between bank loan loss provisioning behaviour and various bank-specific decisions on loan loss reporting there was created the loan loss bank-specific decisions index (*BDI*) according to the International Financial Reporting Standards (IFRSs). The hypotheses are tested by using the estimates of panel corrected standard errors regression model. **Findings:** the results showed that discretionary adjustments to loan loss provisions (*LLPV*) are typical of Nigerian banks although the earnings manipulations imbedded in discretionary *LLPV*s (*DLPV*) are not factored in. However, during IFRS a reversal is evident suggesting bank-specific decisions prompting increased *DLPV* except for seemingly financially-distressed banks. These findings also confirm the relationship between *BDI* components and provisioning behaviour in individual tests. The study also found out that the provisioning behaviour in Nigeria during global financial crisis was pro-cyclical (nonrational) while during the local economic recession of 2016–2017, it was counter-cyclical (rational). The latter, which happened during the IFRS period, was characterized by income smoothing while the former was addressed at the level of bank-specific decisions. **Originality and contributions of the author:** the study contributes to the literature by testing a list of bank-specific factors engendering adjustments to loan loss decisions. It is unique in terms of the empirical reference to numerous bank-specific decisions as a single factor in accounting for loan losses. The paper also establishes the parochial success of institutional changes in the corporate Nigeria and offers useful suggestions for the way forward.

Keywords: bank-specific decisions, loan loss provisions, institutional change, bank financial health, Nigeria.

JEL: M4, G21, C33, G32, G38

INTRODUCTION

Loan loss provisions (*LLPVs*) are not only a key financial reporting tool in the banking industry but also use for numerous decisions which originate from two circumstances: bank financial condition and economic condition of a country [Salami, 2021]. The decisions in accounting for loan losses that require adjustments to bank financial condition which are referred to as loan loss bank-specific decisions include managerial discretionary use of *LLPV*s, funding and diversification strategies and corporate taxation [Amidu, Kuipo, 2015; Andries, Gallemore, Jacob, 2017; Soedarmono, Pramono, Tarazi, 2017].

In Nigeria, series of multi-dimensional issues necessitating an empirical study providing a nexus between bank-specific decisions and loan loss discretionary accounting are in the public domain. The issues of financial reporting irregularities established against Stanbic IBTC Holdings Plc and capital smoothing of former Skye Bank Plc [FRC, 2015; Proshare, 2017] are testimonies. The sudden feeble financial condition and weak capital base that followed rosy financial health of former Diamond Bank Plc (with trillion naira assets) if not for its acquisition by Access Bank Plc would have caused heavy loss of funds and investments for depositors and investors respectively. Without prejudice to the breakdown in the soundness of corporate governance practices in FBN Holdings Plc in 2021, the magnitude of non-performing loans identifiable with one of its subsidiaries, First Bank of Nigeria Limited, and level of regulatory forbearances allowed by the Central Bank of Nigeria (CBN) connect funding strategy with *LLPV*s decisions in a diversified firm.

The risk of insolvency has been linked to the propensity of banks towards accounting manipulations embedded in *LLPV*s [Leventis, Dimitropoulos, Anandarajan, 2011; Yasuda, Okuda, Konishi, 2004]. This was revealed subsequent to the 2009 CBN special audit of Nigerian deposit money banks

(DMBs). The majority of DMBs who had their management taken over and which were provided with bailouts post-CBN audit were found to have hidden their non-performing loans crisis via manipulative loan loss reporting [Otusanya, Uadiale, 2014; Sanusi, 2010; 2012]. The 2009 scenarios necessitated reforms of Prudential Guidelines [CBN, 2010], establishment of Assets Management Corporation of Nigeria (AMCON) and early adoption of International Financial Reporting Standards (IFRSs) by Nigerian DMBs [Sanusi, 2012].

The exit to reporting in *IFRSs* according to [Sanusi, 2012] is to integrate Nigerian banks into global best practices in financial reporting, reduce uncertainties, improve market disciplines and enable greater transparency in financial disclosures. The CBN confidence in the efficacy of *IFRS* reporting is reinforced by similar experience reported in the literature [Gebhardt, Novotny-Farkas, 2011; Leventis, Dimitropoulos, Anandarajan, 2011]. However, the occurrence of traces of events established during 2009 CBN special audit in post-*IFRS* adoption era [FRC, 2015; Proshare, 2017] necessitates an empirical study investigating the role of *IFRSs* on the nexus between various bank-specific decisions and loan loss reporting in Nigeria.

While it is acknowledged that similar attempts have been made previously in the literature, majority of these attempts focused on the bank-specific decisions embedded in the managerial discretionary use of *LLPV*s for income smoothing, signalling and regulatory capital management [Chen et al., 2021; Leventis, Dimitropoulos, Anandarajan, 2011; 2012; Nikulin, Downing, 2021; Ozili, Outa, 2019]. Only few studies are available connecting funding and diversification strategies with loan loss reporting [Amidu, Kuipo, 2015; Salami, Uthman, 2022; Salami et al., 2022]. Thus, this study advances literature via testing a long list of bank-specific factors causative to adjustments to *LLPV*s. Another contribution of this study to knowledge is in the derivation of index

of bank-specific decisions (*BDI*). The derivation facilitates the reference to loan loss bank-specific decisions as a single factor despite being represented by numerous measures in the literature.

There are four other sections of literature review, methodology, results presentation and concluding remarks in the study. The literature review is structured into theory, concepts and previous empirical studies. Methodology unveils the materials and methods applied in the conduct of the study while results presentation includes data analysis and discussion of the study's findings. The final section of concluding remarks summarises, draws inferences and states practical implications and recommendations for policy making.

LITERATURE REVIEW

This study is premised on three theories: prospect theory (PT); positive accounting theory (PAT); and institutional change theory (ICH). While PT and PAT reinforce managerial opportunistic behaviour, the approaches to reducing the practice are encapsulated in institutional change theory (ICH). The relevance of PT to the loan loss decisions is evident in its application to corporate inclination to manage earnings to exceed threshold [Wasiuzzaman, Sahafzadeh, Nejad, 2015]. This also reflects in banking institutions attempting to appear well-funded [Salami et al., 2022], maintain holding company status in a conglomerate of financial services and avoid sanctions owing to failure to meet capital adequacy benchmark [Salami, Uthman, 2022; Salami, Uthman, Owoade, 2022]. Similarly, PAT explains managerial opportunistic behaviour which prompts choice of accounting methods as a result of managerial explicit contract [Ozili, 2017a; Watts, Zimmerman, 1986]. However, ICH encapsulates the improvement in the institutional arrangements and structures when there is institutional change [Samadi, Alipourian, 2021].

The adoption of *IFRSs* which is a global phenomenon is an example of institutional reform aimed at improving financial reporting quality and increasing corporate disclosures and access to financial information by capital providers [Eiler, Miranda-Lopez, Tama-sweet, 2021]. Though reforms following the 2009 banking crisis in Nigeria are many [Sanusi, 2012], *IFRS* reporting mandate is central as it extends to other sectors. Therefore, PT and PAT alongside ICH are used to explain the relationship between bank-specific decisions and bank provisioning behaviour in Nigeria upon adoption of *IFRSs*.

Bank-specific decisions in the context of loan loss provisioning are better conceptualised when reference is made to managerial discretions, funding strategy and diversification strategy [Salami, 2021]. Managerial discretionary attributes of bank management involve three decisions of management/smoothing of capital and earnings and signalling of earnings in the literature [Curcio, Hasan, 2015]. The relationship between *LLPV*s and bank earnings before *LLPV*s and tax (*BEBLT*) will reveal smoothing of earnings if positive [Muriu, Josea, 2020]. For earnings signalling, banks will show their ability to absorb future losses if one-year-ahead percentage change in *BEBLT* (*SINL*) exerts positive influence on *LLPV*s [Leventis, Dimitropoulos, Anandarajan, 2012; Salami, Uthman, Abdulrauf, 2021].

Bank regulatory capital, which could be Tier 1 or core capital (*CCR*) and total regulatory capital incorporating core capital and Tier 2 capital (*TCR*), has to be inversely related to *LLPV*s for real case of capital management to be established [Salami, Uthman, Owoade, 2022]. Like *LLPV*s, discretionary component of *LLPV*s (*DLPV*) can also be used to manage capital, smooth bank earnings and signal strength with the earlier established relationships subsisting [Salami, Uthman, Owoade, 2022]. This is realistic subsequent to the segregation of *LLPV*s into discretionary and non-discretionary components [Zhang, Mclntyre, 2021].

Using the approach of [Amidu, 2013; Amidu, Wolfe, 2013; Amidu, Kuipo, 2015] three funding strategies of wholesale/non-deposit funding (*FNDP*), internal funding (*FIGR*) and deposit funding (*FDEP*) are identified. Another bank-specific decision prompting bank loan loss behaviour but considered another funding strategy [Salami, 2021] is the bank motive for external financing [Othman, Mersni, 2014]. As argued in the literature, banks' desire of external funds may prompt reduction of perceived risk (in this case *LLPV*s) to facilitate the increase in the reported earnings [Othman, Mersni, 2014; Seppanen, 2000]. As a favourable consequence, banks with stable and positive earnings overtime have higher chance of accessing market for funding [Kanagaretnam, Lobo, Mathieu, 2003]. The proportion of bank total credit (loans) to total deposits from customers (*FLD*) is used to measure bank external funding motive in the relevant literature [Shawtari et al., 2015; Zoubi, Al-Khazali, 2007]. Based on the foregoing evidence from the literature, *FNDP, FIGR, FDEP* and *FLD* constitute funding strategies in loan loss reporting.

Thus diversification strategy can be an instrument for unholy adjustments to bank earnings [Salami, Uthman, 2022]. In bank financial reporting, diversification strategy can be devised using revenue, products, deposit (liability) and assets [Gambacorta, Scatigna, Yang, 2014; Olarewaju, Migiro, Sibanda, 2017]. Diversification can be measured traditionally using simple ratio [Ozili, 2017b] but a better approach is the measurement via constructing Herfindahl-Hirschman Index (HHI) [Doumpos, Gaganis, Pasiouras, 2016]. Based on deductions from [Amidu, Kuipo, 2015; Doumpos, Gaganis, Pasiouras, 2016], diversification within bank revenue (*RDIV*), non-interest activities (*NDIV*), earnings assets (*EDIV*) and statement of financial position (*BDIV*) constructed using HHI are adopted and specified in the Appendix 1–3.

To find index of bank-specific decisions, the study's main independent variable, con-

densation technique adopted by [Abdulmumin et al., 2019; Salami et al., 2022; Salami, Uthman, 2022] is applied. This facilitates via application of principal component analysis (PCA) the reduction of a long list of decisions related to managerial discretions (*BEBTL, SINL, CCR* and *TCR*), diversification strategy (*RDIV, NDIV, EDIV* and *BDIV*) and funding strategy (*FDEP, FNDP, FIGR* and *FLD*) to *BDI*.

From the empirical literature of *BDI* components, only S. Ghosh reported the evidence of earnings smoothing, earnings signalling and capital management [Ghosh, 2007] in the managerial discretionary use of *LLPV*s. The majority of other evidence in the literature is mixed. The authors [Anandarajan, Hassan, McCarthy, 2007; Chang, Shen, Fang, 2008; Pinho, Martins, 2009; Misman, Ahmad, 2011; Abdullah, Bujang, Ahmad, 2013; Adzis, Anuar, Mohd Hishamuddin, 2015; Bryce et al., 2015; Dushku, 2016; Abdullah, Bujang, Sahudin, 2017; Curcio, De Simone, Gallo, 2017; Skała, 2018; Muriu, Josea, 2020; Salami, Uthman, Owoade, 2022] found the case of earnings and/or capital management except for authors [Ashour, 2011; Alessi, Di Colli, Lopez, 2014] with no clear-cut evidence. Only signaling of earnings was prioritized in the Middle-East and North Africa, Jordan and Italy as found by [Olson, Zoubi, 2014; Abu-Serdaneh, 2018; Caporale et al., 2018] respectively. For D. Curcio and I. Hasan [Curcio, Hasan, 2015] findings revealed that Euro Area (EA) banks smooth earnings while non-EA banks manage capital and signal earnings using *LLPV*s.

For discretionary use of *DLPV,* earnings smoothing and signaling and/or capital management are reported by [Kwak, Lee, Eldridge, 2009; Shawtari et al., 2015; Tran, Hassan, Houston, 2022; Salami, Uthman, Abdulrauf; 2021; Salami, Uthman, Owoade, 2022]. In the bank diversification literature, evidence of bank diversification strategy having inverse relationship with discretionary use of *LLPV*s is predominant [Amidu, Kuipo, 2015; Saona, Azad, 2020] except for

the authors [Salami, Uthman, 2022] reporting contrary evidence for activity mix within bank revenue. The literature documentation related to funding strategy-earnings smoothing nexus of banks revealed positive signs for non-deposit and internal funding [Amidu, Kuipo, 2015], Syirkah funding (a source of funding to Islamic bank which entitles the holders to returns only if the bank makes profit) and debt funding [Mukhibad, Nurkhin, 2019] and deposit funding [Saona, Azad, 2020] for African, Indonesian Islamic and Asian banks respectively.

Furthermore, evidence of reduction in *LLPV*s to bring down risk related to the banks' ability to attract external funding is reported by [Ashour, 2011; Zoubi, Al Khazali, 2007]. Similarly but with the use of DLPV, increase in *DLPV* (income smoothing) was found by [Kanagaretnam, Lobo, Mathieu, 2003; 2004; Kwak, Lee, Eldridge, 2009; Othman, Mersni, 2014; Shawtari et al., 2015; Bhattarai, 2018] as a result of increased motive for external funding. As found by [Salami et al., 2022], smoothing of earnings is identifiable with deposit and non-deposit funding against internal funding and bank motive for external funding.

Since the majority of evidence in the literature showed that one or more components of *BDI* prompt the adjustments to *LLPVs* for discretionary purpose, the study's first hypothesis is stated as:

Hypothesis H1. Adjustment to LLPVs for various bank-specific decisions is typical of banks in Nigeria.

If banks' reporting behaviour during economic crisis and while they are threatened by risk of default is comparable [Salami, Uthman, Owoade, 2022], the approaches to the adjustments to *LLPV*s for discretionary purposes by banks can be relatively similar. Given the argument, the study's review of previous studies incorporates discretionary loan loss behaviour of banks when threatened by solvency risk and during financial crisis. The evidence of discretionary use of *LLPV*s during economic crisis is documented by the authors [El-Sood, 2012; Skała,

2014; Curcio, De Simone, Gallo, 2017; Carbo-Valverde, Rodriguez-Fernandez, 2018]. There are also empirical findings of riskier banks indulging in managerial discretionary use of *LLPV*s [Leventis, Dimitropoulos, Anandarajan, 2011; 2012; Bryce et al., 2015; Salami, Uthman, Abdulrauf, 2021; Salami et al., 2022; Salami, Uthman, Owoade, 2022]. Similar evidence is also obtainable from the bank diversification and funding strategy literature [Salami et al., 2022; Salami, Uthman, 2022].

Having noted that there are higher cases of discretionary use of *LLPV*s for components of *BDI* by seemingly financially distressed banks as documented in the literature, the study hypothesis as follows:

Hypothesis H2. Nigerian banks threatened by risk of insolvency are prone to adjusting LLPVs for various bank-specific decisions.

From previous empirical studies of [Van Oosterbosch, 2009; Gebhardt, Novotny-Farkas, 2011; Leventis, Dimitropoulos, Anandarajan, 2011; 2012] to those of [Duru, Tsitinidis, 2013; Ozili, 2015; Adzis, Tripe, Dunmore, 2016; Arbak, 2017; Ozili, Outa, 2019], evidence of improvement in discretionary use of *LLPVs* during *IFRSs* is reported. No evidence of capital management but earnings management via *LLPV*s is reported during *IFRS* by [Atoyebi, Simon, 2018]. As found by [Amidu, Issahaku, 2019; Saona, Azad, 2020] adoption of *IFRSs* improves diversification strategy-discretionary *LLPV*s nexus of African and Asian banks respectively. Similar evidence is also obtained by [Salami, Uthman, 2022] for Nigerian banks including riskier ones except for revenue and non-interest activity mix.

There is no evidence of any measure of funding strategy being incidental to discretions embedded in *LLPV*s during *IFRSs* except internal funding which is insignificant [Salami et al., 2022]. In contrast, management of earnings via *LLPV*s is identifiable with banks reporting in *IFRS* within Organisation of Islamic Cooperation [Ashraf, Hassan, Basher, 2015] and in South Africa [Ozili, Outa, 2018]. Similar scenario of discretions in

*LLPV*s except to signal earnings is also reported in the global study of [Ashraf et al., 2019] for banks reporting in principles-based accounting standards like *IFRSs*. Nigerian banks (including riskier ones) are found to use *LLPV*s to smooth earnings and capital but not to signal earnings [Salami, Uthman, Abdulrauf, 2021; Salami, Uthman, Owoade, 2022].

Since *IFRS* reporting appears to bring more blessing than curse as previously documented in the literature regarding discretionary use of *LLPV*s, the third and fourth hypotheses are stated as:

Hypothesis H3. There is considerable reduction in discretionary adjustments to LLPVs for various bank-specific decisions by Nigeria banks upon switch to IFRS reporting;

Hypothesis H4. Discretionary adjustments to LLPVs for various bank-specific decisions are not characteristic of financially unhealthy Nigerian banks subsequent to adoption of IFRSs.

METHODOLOGY

Data and methods of estimation

Since all variables required to attain the objective of the study are bank-specific in nature, a hand-extraction of relevant data from audited financial statements of Nigerian banks is carried out over the period 2007–2017. The duration for data collection covers both *pre-IFRS* and *IFRS* reporting era as the adoption of *IFRSs* by public interest entities including banks took effect on 1 January, 2012 in Nigeria. A halt in data collection in 2017 is premised on avoiding the distortion of the study's findings as switch to *IFRS* 9: *Financial Instruments* from International Accounting Standards No. 39 (IAS 39): *Financial Instruments: Recognition and Measurement* was based on partial implementation for four years from 1 January 2018 as instructed by CBN.

The halt is also attributed to the fact that the partial reporting in *IFRS* 9 for loan losses in Nigeria was in embryo as

at the time of extracting data for the study. The basic criterion for inclusion of a bank among the sampled *DMBs* is the access to annual report and accounts of the bank for not less than 60 % of the study's sampled period covering both *pre-IFRS* and *IFRS* regimes. This results in the use of 169 bank-year observations instead probable 176 bank-year events (based on 16 sampled *DMBs* for 11 years) given unavailability of annual reports of a couple of banks for seven years. The unavailability of the said annual audited financial statements was due to the period useful annual financial records of one of the sampled banks began to be in public domain which is 2011. Another bank was absorbed by a bigger bank within the sampled period resulting in the acquiree having useful financial records up to 2014. The unavailability of the financial records of the former for four years (2007–2010) and the latter for three years (2015–2017) account for the use of 169 bank-year events.

The study's data are estimated using both univariate and multivariate techniques. The univariate techniques adopted are summary statistics of mean, median, standard deviation, minimum and maximum values used to facilitate detection of basic attributes of the study's variables. The basic multivariate techniques adopted are PCA used for deriving index of loan loss bank-specific decisions and panel regression model given the nature of data collection which is longitudinal. The choice of PCA, despite existence of plethora of other condensation techniques including principal axis factor analysis (PAFA), maximum likelihood estimate and cluster analysis [Abeyasekera, 2005; Mabel, Olayemi, 2020], is not attributed to its popularity [De Winter, Dodou, 2016] but its superiority [Mabel, Olayemi, 2020]. The superiority of PCA can be inferred from its ability to produce factors loading heavily on the study's variables which the factors actually represent [Mabel, Olayemi, 2020]. The probable increase in interpretability makes

PCA a viable extraction technique using economic datasets [Tsoulfidis, Athanasiadis, 2022] as used in this study. As found by [De Winter, Dodou, 2016], PAFA, a close substitute of PCA, is somewhat subject to a higher improper outcomes. This superiority informs its popularity in accounting for loan losses' studies [Olszak et al., 2017; Salami, Uthman, Owoade, 2022].

The study followed basic procedures in panel data modelling. These include the choice between fixed-effects model (PFE) and random-effects model (PRE) using results of Hausman statistics (HST) and the choice between PRE (in case of insignificance of HST at *p-value* < 0.05) and pooled ordinary least squared regression (POLS) using the results of Breusch-Pagan Langrange Multiplier statistics (BPLM). However, using concurrent significance at *p-value* < 0.05 of the tests of heteroscedasticity, cross-sectional dependence and serial correlation, panel corrected standard errors (PCSE) regression analysis is majorly opted for as presented in Tables 8, 9, 10, 11 and 12.

In PCSE estimates, problems of disturbances being autocorrelated within the panel at first order, heteroscedastic and contemporaneously correlated across panels and temporally dependent are rectified [Beck, Katz, 1995; Salami, 2021]. For heteroscedasticity test, Wooldridge test for heteroscedasticity (PFE-HET) for PFE and Breusch-Pagan/Cook-Weisberg test for heteroscedasticity with fitted values of dependent variable (POLS-H1) and independent variables (POLS-H2) for POLS are adopted. Wooldridge panel data first-order autocorrelation test (PAR-1) and Breusch-Pagan LM test of independence (CR-DPD) are performed for serial correlation and cross-sectional dependence respectively. As an aid to proper specification of study's econometric models, pairwise correlation analysis and variance inflation factor (VIF) are used to detect cases of multi-collinearity problems among the explanatory variables.

Econometric models

The *BDI* which is the study's main independent variable is derived from the identified loan loss bank-specific factors of managerial discretions, funding strategy and diversification strategy using PCA as follows:

$$BDI_{it} = \delta_1 CCR_{it} + \delta_2 TCR +$$
$$+ \delta_3 BEBLT_{it} + \delta_4 SINL_{it} + \delta_5 FDEP_{it} +$$
$$+ \delta_6 FNDP_{it} + \delta_7 FIGR_{it} + \delta_8 FLD_{it} +$$
$$+ \delta_9 RDIV_{it} + \delta_{10} NDIV_{it} + \delta_{11} EDIV_{it} +$$
$$+ \delta_{12} BDIV_{it}. \qquad (1)$$

The BDI_{it} in equation (1) represents an index of bank-specific factors of DMB *i* at time period *t*; where *i* ranges from 1–16 and *t* ranges from 2007–2017; δ is the is the eigenvector or factor loading used as the weight in the computation *BDI* using PCA. The measurements of other variables are presented in the Appendix 1.

Following the approach of [Salami, 2021], banks' loan loss provisions are assumed to be actual (*LLPV*s) and discretionary (*DLPV*). In the literature, *DLPV* is derived using various non-discretionary loan loss models [Amidu, Kuipo, 2015; Beaver, Engel, 1996; Kanagaretnam, Lobo, Mathieu, 2003; 2004]. However, this study adopts K. Kanagaretnam, G. Lobo, R. Mathieu's [Kanagaretnam, Lobo, Mathieu, 2003; 2004] model as it contains all variables sufficiently accessible in the financial records of Nigerian DMBs. The model which makes provision for loan losses a function of three non-discretionary components is as specified in equation (2):

$$PLLS_{it} = \beta_0 + \beta_1 NPFL_{it-1} +$$
$$+ \beta_2 CHNPFL_{it} + \beta_3 + LOAN_{it} + \varepsilon_{it}. \qquad (2)$$

In equation (2), the dependent variable and three explanatory variables (non-discretionary components) are measured as:

$PLLS_{it}$ — loan loss provisions of current period scaled by beginning loans and advances;

$NPFL_{it-1}$ — non-performing loans of year $t–1$ scaled by loans and advances of year $t–1$;

$CHNPFL_{it}$ — difference between nonperforming loans of year t and year $t–1$ divided by gross loans and advances at year $t–1$;

$DLOAN_{it}$ — change in value of gross loans and advances between year t and year $t–1$ scaled by loans and advances at year $t–1$.

The residuals (εit) of equation (2) represent *DLPV* but the absolute value of *DLPV* (*ADLPV*) is used as second measure of bank provisioning behaviour since distinction is not made between income-increasing and income-decreasing earnings smoothing in this study.

Subsequent to derivation of *BDI* and *DLPV*, bank provisioning behaviour is made a function of *BDI* following the approach of [Salami, 2021] as follows:

$$LLPV_{it} = \propto_0 + \propto_1 BDI_{it} + \propto_2 + \\ + NPL_{it} + \propto_3 LVR_{it} + \propto_4 LTA_{it} + \\ + \propto_5 LTN_{it} + \mu_{it}, \qquad (3)$$

$$ADLPV_{it} = \propto_0 + \propto_1 BDI_{it} + \\ + \propto_2 LAS_{it} + \propto_3 LVR_{it} + \propto_4 + \\ + LTA_{it} + \propto_5 LTN_{it} + \mu_{it}, \qquad (4)$$

$$LLPV_{it} = \propto_0 + \propto_1 BDI_{it} + \propto_2 IFRS_{it} + \\ + \propto_3 (IFRS \cdot BDI)_{it} + \propto_4 RIS_{it} + \\ + \propto_5 (RIS \cdot BDI)_{it} + \\ + \propto_6 (IFRS \cdot RIS \cdot BDI)_{it} + \propto_7 + \\ + NPL_{it} + \propto_8 LVR_{it} + \propto_9 LTA_{it} + \\ + \propto_{10} LTN_{it} \mu_{it}, \qquad (5)$$

$$ADLPV_{it} = \propto_0 + \propto_1 BDI_{it} + \\ + \propto_2 IFRS_{it} + \propto_3 (IFRS \cdot BDI)_{it} + \\ + \propto_4 RIS_{it} + \propto_5 (RIS \cdot BDI)_{it} + \\ + \propto_6 (IFRS \cdot RIS \cdot BDI)_{it} + \\ + \propto_7 LAS_{it} + \propto_8 LVR_{it} + \\ + \propto_9 LTA_{it} + \propto_{10} LTN_{it} + \mu_{it}. \qquad (6)$$

The equations (3) and (4) are specified to test the first hypothesis while equations (5) and (6) are specified to test the second, third and fourth hypotheses. The specification of dependent variables (*LLPV* and *ADLPV*), independent variable (*BDI*), moderating variables (*IFRS*, *RIS* and their interactions with independent variables) and control variables is based on deductions from [Leventis, Dimitropoulos, Anandarajan, 2011; 2012; Salami, 2021].

The control variables included in the study's econometric models are relevant to loan loss provisioning decisions based on previous literature [Salami, 2021]. Both change in non-performing loans (ΔNPF) and gross loans to total assets (*LAS*) are included to control for riskiness in banks' financial statements and loan defaults cyclicality [Gebhardt, Novotny-Farkas, 2011; Ozili, 2017a]. A positive sign is expected for the coefficient of ΔNPF because higher growth in loan defaults when loan supply increases is causative to increased *LLPV*s [Ozili, 2017a]. The behaviour of *LAS* in relation to provisioning practices is comparable to that of growth in bank lending where issue of loan loss cyclicality is considered [Soedarmono, Pramono, Tarazi, 2017]. Banks' size often measured as natural logarithm of banks' total assets (*LTA*) is often included in the *LLPV* models [Amidu, Kuipo, 2015; Leventis, Dimitropoulos, Anandarajan, 2011].

The larger proportion of "loans and advances" in the assets structure of depository financial institutions reinforces the argument that banks having larger assets are prone to having higher level of business and by implication having higher *LLPV*s to compensate for increased levels of activity and risk [Anandarajan, Hassan, McCarthy, 2007]. The inclusion of banks' cross listing status (*LTN*) following the approach of [Leventis, Dimitropoulos, Anandarajan, 2011] is subject to the fact that manipulation of earnings prompted by the urge to increase stocks price or improve financial condition is identifiable with banks listed in other jurisdictions other than their places of incorporation. According to [Amidu, Kuipo,

2015], level of leverage (*LVR*) is also an important component of loan loss model. The subsisting arguments in this regard are two. First, high leverage is causative to earnings smoothing [Jaggi, Lee, 2002; Othman, Zhegal, 2006] since the reduction in creditors' perceived risks and increase in firms' bargaining power are often prioritised. Second, financially-weak firms or those being threatened by risk of insolvency are identifiable with high leverage [Mohd Saleh, Ahmed, 2005]. Nonetheless, considering the place of "deposits", the largest part of depository financial institutions' liabilities structure, and their complementary role in banks' lending ability from which higher interest income accrues, inverse relationship between level of leverage and *DLPV* is probable [Salami, 2021].

RESULTS PRESENTATION

Derivation of *BDI*

While measurements of all variables specified in equations (3), (4), (5) and (6) are presented in Table 1, it is important to note that *RIS* (risk of insolvency) is derived from banks' *Z-index* computed from the addition of return on assets and equity-assets ratio scaled by standard deviation of return on assets following Salami's approach [Salami, 2018].

The PCA eigenvalues and proportions are presented in Table 2 while eigenvectors are presented in Table 3 based on estimation of equation (1). There are four components having eigenvalues more than 1 but the first principal component has the highest value of 3.41 which explains 28.41% of total variance as presented in Table 2. This allows the factor loadings or eigenvectors of first principal component to be used for computation of *BDI* adopted as the independent variable. For calculations we used the Stata 15 database[1].

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[1] Stata 15. URL: www.stata.com/stata15/ (accessed: 15.12.2023).

Derivation of discretionary *LLPVs*

The regression estimates of K. Kanagaretnam, G. Lobo and R. Mathieu's loan loss model which facilitate the derivation of *DLPV* are presented in Table 4 [Kanagaretnam, Lobo, Mathieu, 2003; 2004]. POLS which has the capacity to correct problem of autocorrelated residuals, Cochrane-Orcutt regression (Corc-OLS), is opted for following the approach of [Chang, Shen, Fang, 2008; Salami, Uthman, Owoade, 2022]. As revealed in Table 4, upward change in non-performing loans, positive loan growth and higher level of previous period non-performing loans are all causative to increase in provision for loan losses. This is evident in the significant and positive coefficients of *CHNPFL*, Δ*LOAN* and *NPFLt-1* presented in Table 4. These findings are relatively similar to those of [Kanagaretnam, Lobo, Mathieu, 2003; 2004; Salami, Uthman, Owoade, 2022].

Summary statistics

The descriptive statistics of the study are based on sampled banks' financial health (Table 5) and accounting regime (Table 6) following the approach of [Salami, 2021]. As revealed in Table 5, statistics appear to favour less risky DMBs than riskier ones. Lower *LLPV*, negative *DLPV* and lower *ADLPV*, in terms of mean values, are characteristics of less risky DMBs. This may indicate increase profitability, income-increasing earnings smoothing and lower earnings management for the DMBs' category. The negative value of *BDI* (–0.36) for riskier DMBs may suggest use of loan loss bank-specific decisions to increase the level of profitability while the positive value (0.36) for less risky DMBs may show their attempt to reduce their profitability.

While riskier DMBs prioritise signalling financial strength, less risky DMBs' focus might be reducing their liability to tax. There is higher growth in non-performing loans (Δ*NPL*) of less risky DMBs relative to riskier banks if mean (maximum) values of their

Definition and measurement of variables

Variable	Variable name	Description
$LLPV_{it}$	Actual provision for loan losses	$LLPVs$ divided by total loans
$DLPV_{it}$	Abnormal $LLPVs$	Disturbances of equation (2)
$ADLPV_{it}$	Absolute values of $DLPV$	Absolute values of equation (2) disturbances
BDI_{it}	Index of loan loss bank-specific decisions	Index of bank-specific decisions derived from equation 1 using PCA
$IFRS_{it}$	Reporting in $IFRS$	"1" is assigned for $IFRS$ period, otherwise "0"
RIS_{it}	Risk of insolvency	"1" is assigned for bank with Z-$index$ that is less than median Z-$index$ of all sampled banks and "0" otherwise
$IFRS \cdot BDI_{it}$	$IFRS$ and BDI	Interaction between bank-specific decisions index and IFRS reporting
$RIS \cdot BDI_{it}$	Default risk and BDI	Interaction between bank-specific decisions index and financial distress status
$IFRS \cdot RIS \cdot BDI_{it}$	$IFRS$, insolvency risk and BDI	$IFRS$, bank default risk level and BDI interactions
ΔNPL_{it}	Change in non-performing loans (credit risk)	Difference between non-performing loans in the year t and year $t-1$ divided by the year $t-1$ loans defaults
LAS_{it}	Credit risk	Gross loans to total assets ratio
LVR_{it}	Leverage	Ratio total debts to total equity
LTA_{it}	Bank size	Natural Logarithm of bank total assets
LTN_{it}	Bank cross listing status	An indicator variable represented by "1" when a bank is listed in other outside Nigeria but "0" otherwise

ΔNPL are compared. The higher ΔNPL of less risky DMBs does not prevent them from appearing more stable in terms of higher mean, median, minimum and maximum Z-$index$. Nonetheless, in terms of bank-year events, there is no palpable difference between less risky and riskier DMBs given 85 and 84 respectively. In Table 6, lower $LLPV$ and leverage are noticeable pre-IFRS while lower $ADLPV$, Z-$index$ and ΔNPL are evident during $IFRS$ in terms of their mean values. The negative mean and median values of $DLPV$ during $IFRS$ suggest a relatively pure income-increasing earnings smoothing in the period while a mix of negative and positive values of $DLPV$ pre-$IFRS$ gives an indication of a relative balance between income-increasing and income-decreasing earnings smoothing. Other variables' descriptive statistics are as presented in both tables.

Correlation matrix and Variance Inflation Factor

The results for diagnostics for multi-collinearity are presented in Table 7 using pairwise correlation analysis and VIF for the study's main explanatory variables while correlation matrix among the components of BDI are presented in the Appendix 2. Using correlation coefficient more than 0.80 as a benchmark for multi-collinearity problem to set in, there is no any two variables with

Principal components eigenvalue and proportion for Bank-Specific Decisions Index

Component	Eigenvalue	Difference	Proportion	Cumulative
Comp 1	3.40868	0.909788	0.2841	0.2841
Comp 2	2.49889	0.823937	0.2082	0.4923
Comp 3	1.67495	0.510172	0.1396	0.6319
Comp 4	1.16478	0.298956	0.0971	0.7289
Comp 5	0.865827	0.188016	0.0722	0.8011
Comp 6	0.677811	0.0842931	0.0565	0.8576
Comp 7	0.593517	0.123882	0.0495	0.9070
Comp 8	0.469636	0.0464366	0.0391	0.9462
Comp 9	0.423199	0.314412	0.0353	0.9814
Comp 10	0.108787	0.0185438	0.0091	0.9905
Comp 11	0.0902432	0.0665704	0.0075	0.9980
Comp 12	0.0236728	—	0.0020	1.0000

Note: the last cell of the "difference" column of the principal components/correlation is left empty based on Stata 15 outputs.

correlation coefficient less than 0.80 in Table 7. Also, no *VIF* and tolerance (1/*VIF*) have coefficient more than 10 and less than 0.10 respectively. This represents an indication of no multi-collinearity problem. However, in the Appendix 2, correlation coefficient between TCR and CCR is 0.88 which is more than 0.80. The case of multi-collinearity between TCR and CCR necessitates their separation in the regression estimates presented in Tables 10 and 11.

Empirical regression results

The results for the tests of the study's four hypotheses are presented in Table 8. As evident in the table, estimates are presented with and without interaction of the moderating variables of *IFRS* and *RIS* with respect to the study's dependent variables: *LLPV* and *ADLPV*. While negative coefficient of *BDI* in the *LLPV*'s models indicates that Nigerian banks' loan loss bank-specific decisions are targeted at reducing *LLPV*s to ensure increased net income, similar negative coefficient in the *ADLPV*'s models

shows that increased profitability as a result of reduced *LLPV*s is not imbued with earnings smoothing motive. Thus, despite attempts to increase profits Nigerian banks do not prioritise earnings manipulations over the study's sampled period.

However, during *IFRS*, loan loss bank-specific decisions bring about increased *LLPV* and *ADLPV* given the significantly positive coefficient of *IFRS·BDI* in both models. The increased *LLPV* which may be targeted at reducing these DMBs' income tax is reinforced by increased earnings smoothing during *IFRS*. The increased earnings smoothing practices are also identifiable with financially unhealthy Nigerian DMBs based on significantly positive coefficient of RIS but somewhat in their various provisioning-inclined bank-specific decisions as coefficient of *RIS·BDI* which is positive is not significant in *ADLPV* model. The financially unhealthy DMBs' motive to increase net income based on negative coefficient *RIS·BDI* in the *LLPV* model cannot be completely said to be causative to earnings smoothing as the same variable in the *ADLPV* model is not signifi-

Table 3

Principal component eigenvectors for Bank-Specific Decisions Index

Variable	Comp 1	Comp 2	Comp 3	Comp 4	Comp 5	Comp 6	Comp 7	Comp 8	Comp 9	Comp 10	Comp 11	Comp 12	Unexplained
CCR	0.486	0.172	-0.043	-0.054	0.096	-0.058	-0.251	0.160	-0.146	0.261	-0.616	0.400	0
TCR	0.497	0.108	0.041	-0.093	-0.034	-0.190	-0.075	-0.007	-0.250	0.441	0.648	-0.103	0
BEBLT	0.026	0.534	0.229	0.142	0.056	0.132	-0.225	0.399	0.257	-0.374	0.321	0.321	0
SINL	0.105	-0.411	-0.273	0.000	0.343	-0.395	0.032	0.484	0.479	0.033	0.074	-0.027	0
RDIV	0.181	0.426	0.106	-0.150	-0.158	-0.247	0.567	-0.235	0.506	0.104	-0.141	-0.058	0
NDIV	-0.073	0.063	0.028	-0.737	0.498	0.355	0.218	0.100	-0.101	0.007	0.056	0.038	0
EDIV	0.307	-0.132	-0.166	0.317	-0.181	0.588	0.504	0.349	-0.054	0.050	0.009	-0.025	0
BDIV	0.030	0.250	-0.199	0.484	0.689	-0.100	0.216	-0.274	-0.218	-0.091	0.019	-0.027	0
FLD	0.119	-0.262	0.499	0.193	0.277	0.373	-0.210	-0.300	0.437	0.300	0.009	0.001	0
FDEP	-0.335	0.102	-0.545	0.018	-0.085	0.175	-0.062	-0.189	0.218	0.419	0.192	0.493	0
FNDP	-0.296	-0.194	0.487	0.116	0.014	-0.272	0.394	0.175	-0.255	0.206	0.056	0.504	0
FIGR	-0.397	0.351	0.087	0.130	0.064	0.031	-0.086	0.404	-0.021	0.517	-0.169	-0.472	0

Regression model of K. Kanagaretnam, G. Lobo, R. Mathieu

Variable	Dependent variable: *PLLS*			
	Coefficient	**Std. error**	***t***	***P > t***
CHNPFL	0.0123769*****	0.0025912	4.78	0.000
ΔLOAN	0.0240941º	0.0140127	1.72	0.088
NPFL$_{t-1}$	0.0598154º	0.0313902	1.99	0.059
Const	0.0192356*****	0.0065295	2.97	0.003
R^2	0.1526			
Adj R^2	0.1356			
F-test	8.94 (0.0000)*			
RMSE	0.04758			
PAR 1	30.87 (0.0001)*			
Observation	169			
Model type	Corc-OLS			

Note: º and * indicate significance at 90% and 99% confidence levels respectively.
Based on: [Kanagaretnam, Lobo, Mathieu, 2003; 2004].

cant though positive. However, the improvement in the financial reporting quality of riskier Nigerian banks is noticeable during *IFRS* given the significantly negative coefficient of *IFRS · RIS · BDI* in the *ADLPV* model. This is regardless of reduction in *LLPV*s which may be targeted at increased profitability as indicated by significantly negative estimate of *IFRS · RIS · BDI* in the *LLPV* model.

The higher credit risk prompts increased *LLPV*s and smoothing of earnings by Nigerian DMBs as indicated by significantly positive coefficients of *ΔNPL* and *LAS* respectively in the models with interaction variables. However, DMBs with higher leverage are known for increased profitability achievable via lower *LLPV*s but not for earnings smoothing/management with reference to negative coefficient of LVR in all models. For *LTA* and *LTN*, the remaining control variables, bigger Nigerian DMBs and those cross-listed respectively are not indulging in earnings smoothing despite being identifiable with the lower *LLPV*s based on negative coefficients of both variables except in the *LLPV* model with interaction variables.

Based on the findings presented in Table 8, both first and second hypotheses are retained. However, the evidence of adjustments to *LLPV*s for various bank-specific decisions established as proposed in the first hypothesis is not laden with earnings manipulations via *DLPV*. Since the improvement envisaged upon adoption of *IFRS*s is only identifiable with Nigerian DMBs having questionable financial health, the fourth hypothesis is retained while the third one is rejected.

These results, though with different motives, are comparable with findings of [Salami, Uthman, Owoade, 2022]. There are also similarities between the findings of this study and those of [Leventis, Dimitropoulos, Anandarajan, 2011; 2012]. More so, sharing the same findings with the present study are those of [Ashraf, Hassan, Basher, 2015; Ozili, Outa, 2018; Ashraf et al., 2019] on the positive relationship between discretionary provisioning and bank-specific decisions upon reporting in *IFRS*. However, contrary

Table 5

Descriptive statistics based on Banks' Financial Health

| | DMBs' Category | | | | | | | | | | | | | | |
| Variable | All sampled banks (169) | | | | | Riskier Nigerian DMBs (84) | | | | | Less risky Nigerian DMBs (85) | | | | |
	Mean	Median	Std. dev.	Min	Max	Mean	Median	Std. dev.	Min	Max	Mean	Median	Std. dev.	Min	Max
LLPV	0.05	0.02	0.23	−0.28	2.93	0.07	0.03	0.32	−0.28	2.93	0.02	0.01	0.02	−0.01	0.08
DLPV	0.00	−0.01	0.05	−0.28	0.30	0.01	0.00	0.07	−0.28	0.30	−0.01	−0.02	0.02	−0.07	0.04
ADLPV	0.03	0.02	0.04	0.00	0.30	0.04	0.02	0.06	0.00	0.30	0.02	0.02	0.01	0.00	0.07
BDI	0.00	0.07	1.00	−10.05	1.55	−0.36	−0.07	1.27	−10.05	1.19	0.36	0.28	0.36	−0.11	1.55
ΔNPL	0.54	0.13	1.54	−0.99	8.11	0.38	0.11	1.20	−0.99	5.79	0.70	0.15	1.81	−0.76	8.11
LAS	0.45	0.45	0.13	0.06	1.01	0.44	0.43	0.14	0.06	1.01	0.45	0.46	0.11	0.17	0.65
LVR	7.47	6.05	14.94	−9.64	191.21	9.60	7.28	20.98	−9.64	191.21	5.36	5.66	1.52	2.50	9.75
LTA	20.67	20.76	0.85	18.68	22.45	20.46	20.68	0.87	18.68	22.28	20.87	20.80	0.79	19.20	22.45
LTN	0.33	0.00	0.47	0.00	1.00	0.36	0.00	0.48	0.00	1.00	0.29	0.00	0.46	0.00	1.00
Z-index	14.84	15.29	10.64	−38.34	43.08	6.59	7.19	7.47	−38.34	14.94	22.99	22.11	5.99	15.29	43.08

Table 6

Descriptive statistics based on accounting regime

Variable	Full sample period (169)					IFRS period (93)					Pre-IFRS period (76)				
	Mean	Median	Std. dev.	Min	Max	Mean	Median	Std. dev.	Min	Max	Mean	Median	Std. dev.	Min	Max
LLPV	0.05	0.02	0.23	−0.28	2.93	0.06	0.02	0.30	−0.02	2.93	0.04	0.02	0.06	−0.28	0.31
DLPV	0.00	−0.01	0.05	−0.28	0.30	0.00	−0.01	0.03	−0.04	0.07	0.00	−0.01	0.07	−0.28	0.30
ADLPV	0.03	0.02	0.04	0.00	0.30	0.02	0.02	0.01	0.00	0.07	0.04	0.02	0.06	0.00	0.30
BDI	0.00	0.07	1.00	−10.05	1.55	−0.13	0.00	1.15	−10.05	0.74	0.16	0.20	0.76	−3.80	1.55
ΔNPL	0.54	0.13	1.54	−0.99	8.11	0.30	0.15	0.95	−0.99	6.91	0.84	0.10	2.01	−0.77	8.11
LAS	0.45	0.45	0.13	0.06	1.01	0.45	0.46	0.11	0.06	0.77	0.45	0.42	0.14	0.18	1.01
LVR	7.47	6.05	14.94	−9.64	191.21	8.60	6.51	19.25	−1.65	191.21	6.09	5.10	6.49	−9.64	35.03
LTA	20.67	20.76	0.85	18.68	22.45	20.98	20.95	0.80	18.87	22.45	20.29	20.28	0.76	18.68	21.77
LTN	0.33	0.00	0.47	0.00	1.00	0.38	0.00	0.49	0.00	1.00	0.26	0.00	0.44	0.00	1.00
Z-index	14.84	15.29	10.64	−38.34	43.08	13.46	14.38	9.39	−38.34	29.52	16.53	17.13	11.83	−4.93	43.08

Correlation matrix and Variance Inflation Factor

	BDI	**IFRS**	**RIS**	**ΔNPL**	**LAS**	**LVR**	**LTA**	**LTN**
BDI	1.00							
IFRS	−0.14	1.00						
RIS	−0.36*	0.07	1.00					
ΔNPL	0.06	−0.17*	−0.10	1.00				
LAS	−0.07	0.01	−0.02	0.18*	1.00			
LVR	−0.09	0.08	0.14	−0.05	−0.12	1.00		
LTA	0.23*	0.41*	−0.24*	−0.05	0.03	−0.12	1.00	
LTN	0.06	0.12	0.07	0.03	0.10	−0.03	0.47*	1.00
VIF	1.26	1.37	1.28	1.08	1.07	1.06	1.87	1.38
1/VIF	0.79	0.73	0.78	0.93	0.94	0.94	0.53	0.73

Notes: * — indicates significance at 95% confidence level; mean *VIF* is 1.30.

scenarios are reported by [Gebhardt, Novotny-Farkas, 2011; Leventis, Dimitropoulos, Anandarajan, 2011; 2012; Adzis, Tripe, Dunmore, 2016; Arbak, 2017; Amidu, Kuipo, 2019; Ozili, Outa, 2019].

Economic crisis effect of loan loss bank-specific decisions

Since the study's sampled period (2007–2017) falls within time of global financial crisis (*GFC*) of 2007–2009 and local economic recession (*LFC*) of 2016–2017 in Nigeria, it is deemed necessary to examine the economic crisis effect of Nigerian DMBs' provisioning behaviour via various bank-level decisions. The results of the regression estimates (models specified in the Appendix 3) are presented in Table 9 with "crisis effect" and "crisis and insolvency risk effect" in separate columns for both *LLPV* and *ADLPV* models. As obtainable in Table 9, it is evident that Nigerian DMBs charge higher *LLPV*s during global financial crisis (*GFC*) indicating loan loss pro-cyclicality which eventually results in higher income smoothing as the coefficients of *GFC* are significantly positive in both *LLPV* and *ADPLV* models. During local economic recession (*LFC*), provisioning behaviour appears to be counter-cyclical as

the coefficient of *LFC* in the *LLPV* models is negative except in the model without interaction variables.

However, counter-cyclical provisioning during *LFC* as evident under *LLPV* models could not lead to clear-cut income-smoothing practices as the coefficients of *LFC* in all *ADLPV* models which are positive are not statistically significant. The evidence of pro-cyclical provisioning identifiable with Nigerian DMBs during *GFC* is similar to the findings of [Adzis Anuar, Mohd Hishamuddin, 2015; Arbak, 2017] for Malaysian and Belgian banking respectively while loan loss counter-cyclicality found during *LFC* is comparable to the conclusion of [Caporale et al., 2018] regarding 2011–2015 Italian recession. Both findings are, however, in contrast with those of [Salami, Uthman, Ajape, 2022].

The pro-cyclical provisioning identifiable with Nigerian banking environment during *GFC* can also be confirmed in the Nigerian DMBs' loan loss bank-specific decisions during *GFC* as the coefficients of *GFC·BDI* and *RIS·GFC·BDI* are positive and statistically significant in *LLPV* models. This shows that all categories of Nigerian banks, including financially-weak ones, are involved in imprudent provisioning practices in their bank-specific decisions during *GFC*. Not-

Table 8

Bank-Specific Decisions Index (*BDI*) and provisioning behaviour

Variable	Dependent variable: *LLPV*		Dependent variable: *ADLPV*	
	Without moderation	With moderation	Without moderation	With moderation
BDI	−0.2174 (0.0595)*	−0.0178 (0.0128)	−0.0052 (0.0021)$^\lambda$	−0.0105 (0.0051)$^\lambda$
IFRS		−0.0513 (0.0146)*		−0.0221 (0.0052)*
IFRS·BDI		0.0638 (0.0219)*		0.0402 (0.0148)*
RIS		−0.0069 (0.0090)		0.0167 (0.0038)*
RIS·BDI		−0.0455 (0.0182)$^\lambda$		0.00013 (0.0097)
IFRS·RIS·BDI		−0.2786 (0.0349)*		−0.0349 (0.0189)ø
ΔNPL	−0.0006 (0.0072)	0.0032 (0.0019)ø		
LAS			0.0320 (0.0131)$^\lambda$	0.0263 (0.0127)$^\lambda$
LVR	−0.00115 (0.00042)$^\lambda$	−0.0013 (0.0004)*	−0.00013 (0.00006)$^\lambda$	−0.00008 (0.0002)
LTA	−0.0664 (0.0373)ø	0.0270 (0.0111)$^\lambda$	−0.0149 (0.0026)*	−0.0024 (0.0025)
LTN	−0.0242 (0.025))	0.0083 (0.01281)	−0.0001 (0.0025)	−0.0066 (0.0026)$^\lambda$
Const	1.4361 (0.7714)ø	−0.5074 (0.2219)$^\lambda$	0.3249 (0.0550)*	0.0729 (0.0544)
HST	39.56 (0.0000)*	19.98 (0.0294)$^\lambda$	9.37 (0.0953)ø	13.28 (0.2084)
PFE–HET	6802.62 (0.0000)*	24252.34 (0.0000)*		
BPLM			0.00 (1.0000)	0.00 (1.0000)
POLS–H1			8.54 (0.0035)*	19.97 (0.0000)*
POLS–H2			9.39 (0.0946)ø	23.39 (0.0094)*
PAR–1	0.133 (0.7204)	19.191 (0.0005)*	36.509 (0.0000)*	24.551 (0.0002)*
CR–DPD	273.345 (0.0000)*	332.761 (0.0000)*	435.155 (0,0000)*	474.575 (0.0000)*
R^2	0.7145	0.8795	0.1849	0.1282
F–Stat/Wald	10.11 (0.0002)*	549.30 (0.0000)*	100.80 (0.0000)*	120.53 (0.0000)*
Observation	169	169	169	169
Model type	*PFE* with *RSE*	*PCSE*	*PCSE*	*PCSE*

Notes: regression coefficients are reported with standard errors in parentheses; diagnostic tests other than R^2 report statistics with *p-value* in parentheses; ø, λ, and * indicate significance at 90, 95 and 99 % confidence levels respectively; where a cell is empty, the item in the extreme left of the row is not applicable.

withstanding imprudent provisioning and evidence of income smoothing during *GFC*, bank-specific decisions of Nigerian DMBs are not geared towards income smoothing during GFC as the coefficients of *GFC·BDI* and *RIS·GFC·BDI* are negative in the *ADPLV* models.

Similarly, counter-cyclical/prudent provisioning and no clear-cut earnings-smoothing practices during *LFC* appears not to be sustainable as bank-specific decisions are imbued with income smoothing for all banks (given positive coefficient of *LFC·BDI*) other than those threatened by risk of insolvency (based on positive but insignificant coefficient of *RIS·LFC·BDI*). Since *LFC* fell within *IFRS* period, it is a fact based on the positive coefficients of *LFC·BDI* and *RIS·LFC. BDI* that banks' maneuvering of *IFRS*s in their loan loss decisions does not have economic boundary. This shows that *IFRS* reporting of loan losses during eco-

Table 9

BDI, provisioning behaviour and economic crisis effect

Variable	Dependent variable: LLPV			Dependent variable: ADLPV		
	Without moderation	With moderation		Without moderation	With moderation	
	Crisis effect	Crisis effect	Crisis & risk effect	Crisis effect	Crisis effect	Crisis & risk effect
BDI	$-0.212\ (0.06)^*$	$-0.048\ (0.005)^*$	$-0.046\ (0.006)^*$	$-0.006\ (0.002)^*$	$-0.008\ (0.003)^*$	$-0.004\ (0.003)$
GFC	$-0.004(0.038)$	$0.024\ (0.011)^Λ$	$0.030\ (0.009)^*$	$0.014\ (0.004)^*$	$0.016\ (0.004)^*$	$0.011\ (0.005)^Λ$
LFC	$0.049\ (0.019)^Λ$	$-0.005\ (0.011)$	$-0.036\ (0.013)^*$	$0.002\ (0.004)$	$0.004\ (0.004)$	$0.002\ (0.004)$
GFC·BDI		$0.025\ (0.006)^*$			$-0.014\ (0.004)^*$	
LFC·BDI		$-0.217\ (0.005)^*$			$0.005\ \ (0.003)^θ$	
RIS			$-0.011\ (0.009)$			$0.012\ (0.004)^*$
RIS·GFC·BDI			$0.020\ (0.009)^Λ$			$-0.018\ (0.005)$
RIS·LFC·BDI			$-0.218\ (0.006)^*$			$0.002\ (0.004)$
ΔNPL	$-0.001\ (0.009)$	$0.005\ (0.001)^*$	$0.006\ (0.001)^*$			
LAS				$0.024\ (0.012)$	$-0.006\ 0.010$	$-0.002\ (0.012)$
LVR	$-0.001\ (0.0004)^Λ$	$-0.0004\ (0.0002)^θ$	$-0.0002\ (0.0002)$	$-0.0001\ (0.0001)$	$-0.0002\ (0.0001)^Λ$	$-0.0002\ (0.0001)^θ$
LTA	$-0.089\ (0.037)^Λ$	$0.005\ (0.002)^Λ$	$0.008\ (0.004)^Λ$	$-0.013\ (0.002)^*$	$-0.010\ (0.002)^*$	$-0.008\ (0.002)^*$
LTN	$-0.019\ (0.025)$	$0.0002\ (0.004)$	$0.004\ (0.007)$	$0.0001\ (0.002)$	$-0.001\ (0.002)$	$-0.002\ (0.002)$
Const	$1.893\ (0.771)^Λ$	$-0.074\ (0.049)$	$-0.135\ (0.081)^θ$	$0.285\ (0.046)^*$	$0.235\ (0.038)^*$	$0.186\ (0.051)^*$
HST	$42.12\ (0.0000)^*$ $643.22(0.0000)^*$	$11.89\ (0.2196)$	$8.52\ (0.5786)$	$10.74\ (\ 0.1504)$	$10.76\ (0.2926)$	$8.88\ (\ 0.5434)$
PFE–HET	$9194.6\ (0.000)^*$					

BPLM		0.00 (1.0000)	0.00 (1.0000)	0.00 (1.0000)	0.00 (1.0000)	0.00 (1.0000)
POLS–H1		24.63 (0.0000)*	21.82 (0.0000)*	10.51 (0.0012)*	18.25 (0.0000)*	19.49 (0.0000)*
POLS–H2		29.58 (0.0005)*	26.53 (0.0031)*	21.06 (0.0119)$^\lambda$	21.03 (0.0125)$^\lambda$	22.24 (0.0139)$^\lambda$
PAR–1	0.107 (0.7479)	5.089 (0.0394)$^\lambda$	5.971 (0.0274)	27.556 (0.0001)*	9.484 (0.0076)*	8.996 (0.0090)*
CR–DPD	278.3 (0.0000)*	379.5 (0.0000)*	407.5 (0.0000)*	435.98 (0.0000)*	436.2 (0.0000)*	445.6 (0.0000) *
R^2	0.7196	0.8909	0.9102	0.1931	0.1287	0.1381
F–Stat/Wald	21.38 (0.0000)*	33180.96 (0.0000)*	57180.95 (0.0000)*	142.08(0.0000)*	231.47 (0.0000)*	152.62 (0.0000)*
Observation	169	169	169	169	169	169
Model type	*PFE* with *RSE*	*PCSE*	*PCSE*	*PCSE*	*PCSE*	*PCSE*

Notes: regression coefficients are reported with standard errors in parentheses; diagnostic tests other than R^2 report statistics with *p-value* in parentheses; ø, λ, and * indicate significance at 90, 95 and 99% confidence levels respectively; *GFC* is measured "1" for *GFC* period and "0" otherwise; *LFC* is also dichotomous like GFC; where a cell is empty the item in the extreme left of the row is not applicable.

nomic crisis is a function of income smoothing practices. The behaviour of other variables, the control variables, is similar to what is obtainable in Table 8.

Supplementary empirical regression estimates

Though this study advances relevant literature via conceptualisation of *BDI*, continued specification of components of *BDI* by recent studies [Muriu, Josea, 2020; Salami et al., 2022; Salami, Uthman, 2022; Tran, Hassan, Houston, 2020] necessitates further analyses as presented in Tables 10, 11 and 12. While Tables 10 and 11 depict the results of managerial discretionary components of *BDI* following the approach of [Curcio, Hassan, 2015], Table 12 presents the results of estimates related to funding and diversification components as adopted by [Amidu, Kuipo, 2015]. This is in addition to the interaction variable approach of [Salami, 2021]. Similar approach adopted in the estimates presented in Table 8 is followed in Tables 10, 11 and 12 but relevant econometric models are specified in the Appendix 3.

From Tables 10 and 11, use of actual provisions (*LLPV*s) to smooth earnings indicated by positive coefficient of *BEBLT* and manage bank capital indicated by negative coefficients of *CCR* and *TCR* might be responsible for the negative coefficient of *BDI* in Table 8. The management of capital and earnings has the potential to prompt increase in net income as engendered by negative coefficient of *BDI*. However, the case of non-use of *DLPV* to smooth earnings and signal might explain the negative coefficient of *BDI* in *ADLPV* models. The non-use of *DLPV* to manage capital and earnings alongside the negative coefficient of *BDI* in *ADLPV* model are consequent upon improved financial reporting quality of Nigeria banks. The rejection of third hypothesis owing to positive coefficient of *IFRS·BDI* in *ADLPV* model may have something to do with two cases of management and signalling of

earnings indicated by positive coefficients of *IFRS·BEBLT* and *IFRS·SINL* respectively in Tables 10 and 11.

There is also a connection between no clear-cut increased discretions in provisioning practices of riskier Nigerian DMBs prompted by provisioning-inclined bank-specific decisions in Table 8 and virtually no discretionary use of *LLPV*s found for financially unhealthy banks in Tables 10 and 11. However, similar circumstance cannot also be adduced for nexus between *IFRS·RIS·BDI* in Table 8 and findings for managerial discretionary use of *LLPV*s by financially comatose DMBs in Tables 10 and 11. In Table 8, for instance, the significantly negative coefficient of *IFRS·RIS·BDI* provides that *BDI* of riskier Nigerian DMBs is an ingredient of improved financial reporting quality during *IFRS*. In contrasts, signs of coefficients of each component of *BDI* especially in *ADLPV* models are not in any way causative to loan loss reporting quality owing to increased *DLPV* as evident in Tables 10 and 11.

In Table 12, the higher number of significant coefficients of funding and diversification components of *BDI* in the *ADLPV* model (without interaction variables) confirms the evidence of adjustments to *LLPV*s as a result of bank-specific decisions reported in Table 8. Similarly, the case of adjustments to *LLPV*s not imbued with earnings manipulations given the higher number of insignificant and negative components of *BDI* in the *ADLPV* model with moderating variables is another confirmation. Second, the fact that there is no improvement in the financial reporting quality of banks in Nigeria during *IFRS* can be inferred from having six out of eight components in that category with positive coefficients. Third, the significantly negative coefficients of three out of four diversification components and insignificant two and one coefficients of funding and diversification components respectively for riskier DMBs in Table 12 confirm that *RIS·BDI* is not favourable to earnings smoothing/management as contained in

Table 10

Discretionary attributes and provisioning behaviour of Nigerian DMBs (*CCR*)

Variable	Dependent variable: *LLPV*		Dependent variable: *ADLPV*	
	Without moderation	With moderation	Without moderation	With moderation
CCR	−0.8925 (0.3241)^λ	0.1268 (0.0759)^ø	−0.0223 (0.0098)^λ	−0.0034 (0.0248)
BEBLT	1.5634 (0.2896)*	2.2743 (0.8222)*	−0.7010 (0.0784)*	−0.4761 (0.1991)^λ
SINL	−0.1629 (0.6317)	0.6323 (0.5229)	−0.3094 (0.0844)*	0.1197 (0.1304)
IFRS		0.1641 (0 .0201)*		−0.0353 (0.0130)*
IFRS·CCR		−0.3185 (0.1074)*		0.0221 (0.0356)
IFRS·BEBLT		−2.7829 (0.7216)*		0.7582 (0.2491)*
IFRS·SINL		−0.9194 (0.6003)		0.0414 (0.1921)
RIS		0.1552 (0.0344)*		0.0179 (0.0100)^ø
RIS·CCR		−0.00481 (0.0855)		0.0985 (0.0369)*
RIS·BEBLT		−3.2619 (0.8701)*		−0.9020 (0.1722)*
RIS·SINL		−1.0506 (0.5346)^λ		−0.8298 (0.1667)*
IFRS·RIS·CCR		−1.0803 (0.1408)*		−0.1368 (0.0337)*
IFRS·RIS·BEBLT		1.4453 (0.8128)^ø		0.8000 (0.2552)*
IFRS·RIS·SINL		−0.5506 (0.8208)		0.6764 (0.2321)*
Δ*NPL*	0.0050 (0.0071)	0.0061 (0.0019)*		
LAS			−0.0307 (0.0200)	0.0007 (0.0229)
LVR	−0.0001 (0.0003)	−0.0019 (0.0002)*	−0.0003 (0.00012)^λ	−6.95e−06 (0.0001)
LTA	−0.0712 (0.0448)	0.0203 (0.0067)*	−0.0060 (0.0026)^λ	−0.0049 (0.0024)^λ
LTN	−0.0215 (0.0243)	0.0149 (0.0155)	0.0036 (0.0040)	−0.0017 (0.0038)
Const	1.6154 (0.9638)	−0.5071 (0.1567)*	0.1896 (0.0537)*	0.1407 (0.0554)^λ
HST	24.47 (0.0009)*	33.72 (0.0091)*	6.65 (0.4663)	5.83 (0.9943)
PFE–HET	27266.95 (0.0000)*	23631.70 (0.0000)*		
BPLM			0.00 (1.0000)	0.00 (1.0000)
POLS–H1			37.94 (0.0000)*	22.28 (0.0000)*
POLS–H2			38.05 (0.0000)*	38.95 (0.0029)*
PAR–1	3.550 (0.0791)^ø	6.156 (0.0254)^λ	13.504 (0.0023)*	13.579 (0.0022)*
CR–DPD	313.744 (0.0000)*	346.923 (0.0000)*	375.125 (0.0000)*	452.356(0.0000)*
R^2	0.6390	0.8912	0.4832	0.3728
F–Stat/Wald	136.95 (0.0000)*	1380.36 (0.0000)*	588.63 (0.0000)*	230.06 (0.0000)*
Observation	169	169	169	169
Model type	*PFE* with *RSE*	*PCSE*	*PCSE*	*PCSE*

Notes: regression coefficients are reported with standard errors in parentheses; diagnostic tests other than R^2 report statistics with *p-value* in parentheses; ø, λ, and * indicate significance at 90, 95 and 99% confidence levels respectively; where a cell is empty the item in the extreme left of the row is not applicable.

Discretionary components and provisioning behaviour of Nigerian DMBs (TCR)

Variable	Dependent variable: *LLPV*		Dependent variable: *ADLPV*	
	Without moderation	**With moderation**	**Without moderation**	**With moderation**
TCR	−1.0234 (0.1956)*	0.1103 (0.0714)	−0.0200 (0.0105)ᵉ	0.0055 (0.0251)
BEBLT	1.4828 (0.6010)λ	2.4229 (0.6753)*	−0.7790 (0.0703)*	−0.3948 (0.1980)λ
SINL	−0.4355 (0.7642)	0.5111 (0.4769)	−0.3675 (0.0749)*	0.1352 (0.1309)
IFRS		0.1745 (0.0227)*		−0.0357 (0.0113)*
IFRS·TCR		−0.4176 (0.1062)*		0.0443 (0.0379)
IFRS·BEBLT		−2.590 (0.6587)*		0.5920 (0.2061)*
IFRS·SINL		−0.7170 (0.5733)		0.0735 (0.1955)
RIS		0.1991 (0.0310)*		0.0202 (0.0097)λ
RIS·TCR		−0.4525 (0.0791)*		0.0639 (0.0354)ᵉ
RIS·BEBLT		−2.3261 (0.7666)*		−0.7190 (0.2464)*
RIS·SINL		−0.6217 (0.5801)		−0.7864 (0.1786)*
IFRS·RIS·TCR		−0.4945 (0.1205)*		−0.1323 (0.0375)*
IFRS·RIS·BEBLT		−0.6473 (0.8398)		0.7760 (0.3334)λ
IFRS·RIS·SINL		−1.8033 (0.8778)λ		0.6026 (0.2424)λ
ΔNPL	−0.00001 (0.0061)	0.0041 (0.0019)λ		
LAS			−0.0232 (0.0195)	−0.0127 (0.0218)
LVR	−0.0014 (0.0002)*	−0.0016 (0.0003)*	−0.00024 (0.00006)*	−0.00002 (0.0001)
LTA	−0.0809 (0.0334)λ	0.0295 (0.0074)*	−0.0070 (0 .0024)*	−0.0016 (0.0023)
LTN	−0.0139 (0.0266)	0.0129 (0.0181)	0.0038 (0.0048)	0.0003 (0.0044)
Const	1.8832 (0.7156)λ	−0.6973 (0.1675)*	0.2099 (0.0503)*	0.0723 (0.0496)
HST	46.97 (0.0000)*	25.30 (0.0882)ᵉ	4.84 (0.6800)	4.92 (0.9980)
PFE–HET	5462.68 (0.0000)*			
BPLM		0.00 (1.0000)	0.00 (1.0000)	0.00 (1.0000)*
POLS–H1		35.33 (0.0000)*	34.37 (0.0000)*	32.99 (0.0000)*
POLS–H2		55.27 (0.0000)*	35.23 (0.0000)*	41.00 (0.0015)*
PAR–1	0.618 (0.4440)	7.553 (0.0149)λ	9.051 (0.0088)*	5.995 (0.0254)λ
CR–DPD	300.320 (0.0000)*	268.682 (0.0000)*	369.535 (0.0000)*	404.069 (0.0000)*
R^2	0.7612	0.8898	0.3888	0.5181

End of Table 11

Variable	Dependent variable: *LLPV*		Dependent variable: *ADLPV*	
	Without moderation	**With moderation**	**Without moderation**	**With moderation**
F–Stat / Wald	216.99 (0.0000)*	2086.72 (0.0000)*	468.19 (0.0000)*	607.18 (0.0000)*
Observation	169	169	169	169
Model type	*PFE* with *RSE*	*PCSE*	*PCSE*	*PCSE*

Notes: regression coefficients are reported with standard errors in parentheses; diagnostic tests other than R^2 report statistics with *p-value* in parentheses; ø, λ, and * indicate significance at 90, 95 and 99% confidence levels respectively; where a cell is empty the item in the extreme left of the row is not applicable.

Table 8. While three positive and significant coefficients of *BDI* diversification components of riskier DMBs in the *ADLPV* model during *IFRS* presented in Table 12 reverse similar results presented in Table 8, two negative coefficients on one hand and two insignificantly positive coefficients on the other hand of the funding components reinforce, in comparisons with estimates in Table 8, that there is considerable improvement in financial reporting quality of Nigerian riskier banks during *IFRS*.

CONCLUDING REMARKS

This study addresses the problems revolving around non-performing loans crisis which has become a major feature of Nigerian banking system in the recent time. The problems which have overall influence on accounting for loan losses are linked to quite a number of issues in the literature. These issues, though having a long list, can be categorised into those affecting bank-specific decisions and macroeconomic matters in loan loss reporting. The bank-specific decisions which also have a long list of pressing decisions principally classified as managerial discretionary, funding strategy and diversification strategy matters are empirically addressed in this study. These bank-specific decisions are condensed into an index (*BDI*), as advancement in the literature, and its relationship with loan loss provisioning behaviour, measured as loan loss provisions (*LLPV*s) as reported in the banks' financial records and discretionary loan loss provisions *(DLPV)*, having reference to risk of insolvency and reforms imbedded in *IFRSs* is examined. The data are extracted from the audited annual financial reports of a sample of 16 Nigerian DMBs over a period 2007–2017 divisible into *pre-IFRS* and *IFRS* periods.

The results from panel regression analyses subsequent to the tests of four research hypotheses reveal overall that adjustments to *LLPV*s while making various bank-specific decisions are characteristic of Nigerian DMBs but not laden with earnings smoothing/management in the form *DLPV*. For financially unhealthy DMBs, the adjustments, as found, are geared towards increased profitability but do not have conclusive evidence of being imbued with earnings manipulations. For the reforms imbedded in *IFRSs*, the impact is favourably parochial as the improvements are only identifiable with financially unhealthy DMBs rather than all sampled DMBs. These overall findings are also evident, to a large extent, in the relationship between provisioning behaviour and individual components of *BDI*. In relation to economic crisis, the study establishes that the loan loss counter-cyclicality, the hallmark of Nigerian DMBs' provisioning behaviour during LFC (which fell within *IFRS* period) is manipulated to smooth earnings

Diversification and funding components and provisioning behaviour of Nigerian DMBs

Variable	Dependent variable: *LLPV*		Dependent variable: *ADLPV*	
	Without moderation	**With moderation**	**Without moderation**	**With moderation**
RDIV	0.0519 (0.0306)ᵒ	0.0068 (0.1722)	0.0446 (0.0092)*	0.0887 (0.0813)
NDIV	0.1142 (0.0404)*	–0.0058 (0.0238)	–0.0002 (0.0144)	0.0414 (0.0172)ᵏ
EDIV	–0.3278 (0.1754)ᵒ	0.0330 (0.1293)	–0.0512 (0.0400)	–0.0521 (0.0490)
BDIV	0.0821 (0.0636)	0.0035 (0.0543)	–0.0710 (0.0170)*	0.0328 (0.0226)
FLD	0.0058 (0.0419)	0.0446 (0.0239)ᵒ	0.0576 (0.0327)ᵒ	–0.1027 (0.0287)*
FDEP	1.0074 (0.1110)*	0.2350 (0.0704)*	0.2355 (0.0356)*	–0.1446 (0.0607)ᵏ
FNDP	0.8894 (0.1221)*	0.1534 (0.0959)	0.1550 (0.0216)*	0.0021 (0.0464)
FIGR	0.7062 (0.1230)*	0.2687 (0.1201)ᵏ	–0.2131 (0.0284)*	0.1274 (0.0752)ᵒ
IFRS		–0.2881 (0.2335)		–0.1476 (0.0936)
IFRS·RDIV		0.0145 (0.1616)		–0.1701 (0.0968)ᵒ
IFRS·NDIV		0.0416 (0.0306)		–0.0151 (0.0221)
IFRS·EDIV		0.2550 (0.1536)ᵒ		0.1049 (0.0651)
IFRS·BDIV		0.0061 (0.0502)		0.0058 (0.0287)
IFRS·FLD		0.0492 (0.0385)		0.0074 (0.0363)
IFRS·FDEP		0.1079 (0.2145)		0.1987 (0.0761)*
IFRS·FNDP		0.1572 (0.2051)		0.1681 (0.0828)ᵏ
IFRS·FIGR		0.0472 (0.1676)		0.1856 (0.1234)
RIS		–0.3726 (0.1631)ᵏ		–0.0909 (0.0880)
RIS·RDIV		0.0573 (0.1741)		0.0013 (0.0703)
RIS·NDIV		0.2990 (0.0682)*		–0.1621 (0.0321)*
RIS·EDIV		0.1831 (0.1879)		–0.3052 (0.1238)ᵏ
RIS·BDIV		0.0507 (0.0884)		–0.2906 (0.0289)*
RIS·FLD		0.0129 (0.0637)		0.0917 (0.0372)ᵏ
RIS·FDEP		0.2315 (0.1269)ᵒ		0.4791 (0.0939)*
RIS·FNDP		–0.0399 (0.1274)		0.0530 (0.0645)
RIS·FIGR		–0.4835 (0.1372)*		–0.0783(0.0808)
IFRS·RIS·RDIV		–0.2091 (0.1767)		0.1339 (0.1337)
IFRS·RIS·NDIV		–0.2809 (0.0810)*		0.1255 (0.0403)*
IFRS·RIS·EDIV		–0.1988 (0.2276)		0.5078 (0.1362)*
IFRS·RIS·BDIV		–0.1190 (0 .1018)		0.1842 (0.0567)*
IFRS·RIS·FLD		–0.0811 (0.0790)		–0.0597 (0.0506)

End of Table 12

Variable	Dependent variable: LLPV		Dependent variable: ADLPV	
	Without moderation	**With moderation**	**Without moderation**	**With moderation**
IFRS·RIS·FDEP		0.2699 (0.1248)$^\lambda$		–0.5601 (0.0969)*
IFRS·RIS·FNDP		0.7615 (0.1942)*		0.0398 (0.1307)
IFRS·RIS·FIGR		1.2355 (0.2808)*		0.0135 (0.1793)
ΔNPL	0.0080 (0.0024)*	0.0082 (0.0009)*		
LAS			–0.0742 (0.0563)	0.1335 (0.0563)$^\lambda$
LVR	–0.0002 (0.0004)	–0.00039 (0.00019)$^\lambda$	–0.0005 (0.0001)*	–0.0005 (0.00018)*
LTA	–0.0102 (0.0085)	–0.0056 (0.0041)	–0.0109 (0.0036)*	–0.0077 (0.0025)*
LTN	–0.0275 (0.0107)	–0.0117 (0.0057)$^\lambda$	0.0024 (0.0047)	0.0025 (0.0036)
Cons	–0.5758 (0.2712)$^\lambda$	–0.1079 (0.1596)	0.0915 (0.0742)	0.25244 (0.0873)*
HST	39.81 (0.0001)*	52.90 (0.0547)$^\text{ø}$	12.75 (0.3873)	10.20 (1.0000)
PFE–HET	3853.58 (0.0000)*			
BPLM		0.00 (1.0000)	0.00 (1.0000)	0.00 (1.0000)
POLS–H1		0.04 (0.8420)	41.69 (0.0000)*	96.05 (0.0000)*
POLS–H2		66.65 (0.0028)*	43.81 (0.0000)*	124.78 (0.0000)*
PAR–1	11.036 (0.0046)*	28.029 (0.0001)*	5.945 (0.0279)$^\lambda$	5.839 (0.0289)$^\lambda$
CR–DPD	333.850 (0.0000)*	420.893 (0.0000)*	407.081 (0.0000)*	420.794 (0.0000)*
R^2	0.9111	0.9811	0.4393	0.6457
Wald	5692.50 (0.0000)*	487602 (0.0000)*	401.70 (0.0000)*	14424.74 (0.0000)*
Observation	169	169	169	169
Model type	*PCSE*	*PCSE*	*PCSE*	*PCSE*

Notes: regression coefficients are reported with standard errors in parentheses; diagnostic tests other than R^2 report statistics with *p-value* in parentheses; ø, λ, and * indicate significance at 90, 95 and 99 % confidence levels respectively; where a cell is empty the item in the extreme left of the row is not applicable.

when pressing loan loss bank-specific decisions are made. In contrast, the unfavourable provisioning behaviour of loan loss pro-cyclicality evident during *GFC* is not found to warrant practices of income smoothing when loan loss bank-specific decisions are considered.

Though *IFRS* period has a general feature of reduction in *DLPV* as found, the reduction is however not reflected in the Nige-rian DMBs' loan loss reporting decisions. This is an indication of failure of reforms in corporate Nigeria. The inability of reforms to materialize fully may affect the leadership role of Nigerian banks who have built a niche in the West African Sub-region. This may also inhibit their access to global capital markets and funds as many Nigerian banks are known for accessing global depository receipts to boost their capital

base. For the case of Nigerian DMBs threatened by risk of insolvency that appears to be favourable, the situation is attributed to the level of attention of regulators on them. The role being played by CBN, AMCON and Nigeria Deposit Insurance Corporation in this perspective is evident in the corporate Nigeria. The Nigerian banking scenario, as a matter of urgency, beckons similar attention being paid on all banks to save investors' and depositors' funds. These regulators can employ the services of independent consultants if they are short of competent hands that can carry out the assignments on regular basis.

The need for requisite competencies may also be prompted by the extent of discretions imbedded in the application of *IFRS* 9. Having established the situation in *IAS* 39 regime, managerial discretionary tendencies may be pervasive leading to increased earnings smoothing practices by Nigerian DMBs in the *IFRS* 9 regime. To avoid a replica of *IAS* 39 scenario or worsening one, CBN should develop a more rule-based guidelines of application of *IFRS* 9 with little or no opportunity for "comply or explain" nature of *IFRS* standards. This is

without prejudice to the previous ones developed by the body. This has the capacity to enhance the ability of regulators to detect areas of lapses and/or infringements and impose sanctions where appropriate.

The palpable evidence of increased earnings manipulations as a result of provisioning-inclined bank-specific decisions beckons the return of disclosure of off-balance sheet items below statement of financial position as used to be prior to the *IFRS* adoption. The present approach of disclosure only in the notes appears an instrument of earnings smoothing since it is too sophisticated for investors/users without requisite knowledge to discern. The access to the financial records of primary mortgage banks and related financial institutions majority of which is not in public domain will better the generalisations of findings of future research. It will also enable comparisons with those of DMBs established in this study. The findings of this study also call for a comparative analysis, in a future study, between *IAS* 39 and *IFRS* 9 regimes in accounting for loan losses but become meaningful post-partial *IFRS* 9 adoption era.

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Банковские решения по формированию резервов в Нигерии: внедрение МФСО и банковские риски

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Цель исследования: проверка наличия взаимосвязи между поведением банков в части формирования резервов на покрытие возможных потерь по ссудам и разнообразными банковскими решениями по учету кредитных потерь на примере нескольких случаев незакрытых кредитов, которые затрагивают нигерийские депозитные банки. **Методология исследования:** в рамках международных стандартов финансовой отчетности (МСФО) исследуемая взаимосвязь сопряжена с риском неплатежеспособности. Для ее анализа построен индекс банковских решений по кредитным потерям. Проверка гипотез осуществляется на основе оценок параметров регрессионной модели с учетом корректировки стандартной ошибки, применяемой в случае панельных данных. **Результаты исследования:** показано, что дискреционные корректировки резервов на возможные потери по ссудам характерны для банков Нигерии, однако при этом не учитывается манипулирование прибылью, свойственное дискреционным корректировкам. В случае использования МСФО наблюдается увеличение дискреционных резервов на покрытие потерь по ссудам при принятии решений банками. Исключением являются финансово неустойчивые банки. Эти результаты в значительной степени подтверждаются при индивидуальном тестировании связи компонентов индекса банковских решений с поведением по формированию резервов. Согласно исследованию, поведение по формированию резервов в Нигерии в период глобального финансового кризиса является проциклическим (нерациональным), а во время местной экономической рецессии 2016–2017 гг. — контрциклическим (рациональным). Для последнего случая, когда уже был принят набор МСФО, стало характерно сглаживание прибыли на уровне банковских решений. **Оригинальность и вклад автора:** работа развивает исследования посредством проверки более длинного списка специфичных для банка факторов, вызывающих корректировку решений, касающихся кредитных потерь. Она уникальна тем, что опирается на эмпирическую базу, включающую в себя многочисленные банковские решения, которые рассматриваются как единый фактор при учете кредитных потерь. Также констатируется локальный успех институциональных изменений в организациях Нигерии и предлагаются полезные предложения по дальнейшей деятельности.

Ключевые слова: банковские решения, резервы на возможные потери по ссудам, институциональные изменения, финансовое благополучие банков, Нигерия.

Variable	Variable name	Description
CCR	Core capital component	Tier 1 capital-risk-weighted assets ratio
TCR	Total capital component	Addition of Tier 1 and Tier 2 capital scaled by risk-weighted assets
BEBLT	Earnings management component	Bank earnings before *LLPVs* and taxes scaled by total assets
SINL	Earnings signalling component	(*BEBLT* of year t+1 — *BEBTL* of year t) scaled by total assets
RDIV	Revenue diversification component	Bank activity mix within revenue as defined in equation (A1)
NDIV	Non-interest income diversification component	Bank activity mix within non-interest income as defined in equation (A2)
EDIV	Earnings assets diversification component	Bank activity mix within earnings assets as defined in equation (A3)
BDIV	Statement of financial position diversification component	Bank activity mix within bank statement of financial position as defined in equation (A4)
FLD	Demand for external financing component	Ratio of gross loans to customers' deposits
FDEP	Deposit funding component	Bank customers' deposits — total assets ratio
FNDP	Non-deposit funding component	Debts other than customers' deposits scaled by total assets
FIGR	Internal funding component	Net earnings less extraordinary items and *LLPVs* divided by gross loans

Appendix 2

Correlation matrix of the components of Bank-Specific Decisions Index

	CCR	TCR	BEBLT	SINL	RDIV	NDIV	EDIV	BDIV	FLD	FDEP	FNDP	FIGR
CCR	1.00											
TCR	0.88*	1.00										
BEBLT	0.27*	0.15*	1.00									
SINL	0.06	0.04	−0.52*	1.00								
RDIV	0.36*	0.40*	0.50*	−0.34*	1.00							
NDIV	0.04	−0.08	0.00	−0.04	0.07	1.00						
EDIV	0.36*	0.35*	−0.13	0.19*	0.01	−0.23*	1.00					
BDIV	0.16*	0.06	0.26*	−0.03	0.14	−0.10	0.06	1.00				
FLD	0.03	0.07	−0.06	0.08	−0.19*	−0.06	0.13	−0.10	1.00			
FDEP	0.50*	−0.59*	−0.10	−0.04	−0.17*	0.04	−0.20*	0.15*	−0.54*	1.00		
FNDP	0.63*	−0.48*	−0.15*	−0.06	−0.22*	−0.02	−0.30*	−0.17*	0.26*	−0.22*	1.00	
FIGR	0.45*	−0.57*	0.55*	−0.44*	0.04	0.09	−0.46*	0.19*	−0.30*	0.45*	0.33*	1.00

Note: * — indicates significance at 95% confidence level.

The model specification for the derivation of the diversification components of *BDI*

Diversification within revenue activities for each bank is presented as:

$$RDIV = \left(\frac{NIIC}{NOPI}\right)^2 + \left(\frac{NIC}{NOPI}\right)^2, \quad (A1)$$

where $NOPI = NIIC + NIC$; $NIIC$ — non-interest income (net); while NIC is the net interest income and NOPI represents net operating income.

Diversification within non-interest activities for each bank is presented as:

$$NDIV = \left(\frac{FCR}{NIIC}\right)^2 + \\ + \left(\frac{TRDI}{NIIC}\right)^2 + \left(\frac{OPI}{NIIC}\right)^2, \quad (A2)$$

where $NIIC$ which is non-interest income stands for the aggregate of FCR, $TRDI$ and OPI; FCR represents fee and commission revenue; $TRDI$ captures trading income while OPI is the other operating income.

Diversification within earnings assets for each bank is presented as:

$$EDIV = \left(\frac{NLAD}{(NLAD + OEAT)}\right)^2 + \\ + \left(\frac{OEAT}{(NLAD + OEAT)}\right)^2, \quad (A3)$$

where $NLAD$ stands for net loans and advances; $OEAT$ is the other earning assets other than net loans and advances.

Diversification index within the bank statement of financial position or balance sheet (*BDI*V):

$$BDIV = \left(\frac{TAS}{(TAS + OFBS)}\right)^2 + \\ + \left(\frac{OFBS}{(TAS + OFBS)}\right)^2, \quad (A4)$$

where TAS represents total bank assets excluding off-balance sheet, $OFBS$ stands for off-balance sheet items.

When 1 is deducted from each index, the higher index of each component represents higher diversification.

Model specification for *BDI* components

Model specification for managerial discretionary components of *BDI*:

$$LLPV / ADLPV_{it} = \infty_0 + \infty_1 CCR_{it} + \\ + \infty_2 TCR_{it} + \infty_3 BEBLT_{it} + \infty_4 SINL_{it} + \\ + \infty_5 IFRS_{it} + \infty_6 (IFRS \cdot CCR_{it}) + \\ + \infty_7 (IFRS \cdot TCR_{it}) + \\ + \infty_8 (IFRS \cdot BEBLT_{it}) + \\ + \infty_9 (IFRS \cdot SINL_{it}) + \infty_{10} RIS_{it} + \\ + \infty_{11} (RIS \cdot CCR_{it}) + \infty_{12} (RIS \cdot TCR_{it}) + \\ + \infty_{13} (RIS \cdot SINL_{it}) + \infty_{14} (RIS \cdot SINL_{it}) + \\ + \infty_{15} (IFRS \cdot RIS \, CCR_{it}) + \\ + \infty_{16} (IFRS \cdot RIS \, TCR_{it}) + \\ + \infty_{17} (IFRS \cdot RIS \cdot BEBLT_{it}) + \\ + \infty_{18} (IFRS \cdot RIS \cdot SINL_{it}) + \\ + \infty_{19} \Delta NPL / LAS_{it} + \infty_{20} LVR_{it} + \\ + \infty_{21} LTA_{it} + \infty_{22} LTN_{it} + \mu_{it}. \quad (B1)$$

Model specification for funding and diversification components of *BDI*:

$$LLPV / ADLPV_{it} = \infty_0 + \infty_1 RDIV_{it} + \\ + \infty_2 NDIV_{it} + \infty_3 EDIV_{it} + \infty_4 BDIV_{it} + \\ + \infty_5 FLD_{it} + \infty_6 FDEP_{it} + \infty_7 FNDP_{it} + \\ + \infty_8 FIGR_{it} + \infty_9 IFRS_{it} +$$

$$+\infty_{10}\left(IFRS\cdot RDIV\right)_{it}+$$
$$+\infty_{11}\left(IFRS\cdot NDIV\right)_{it}+$$
$$+\infty_{12}\left(IFRS\cdot EDIV\right)_{it}+$$
$$+\infty_{13}\left(IFRS\cdot BDIV\right)_{it}+$$
$$+\infty_{14}\left(IFRS\cdot FLD\right)_{it}+$$
$$+\infty_{15}\left(IFRS\cdot FDEP\right)_{it}+$$
$$+\infty_{16}\left(IFRS\cdot FNDP\right)_{it}+$$
$$+\infty_{17}\left(IFRS\cdot FIGR\right)_{it}+\infty_{18}RIS_{it}+$$
$$+\infty_{19}\left(RIS\cdot RDIV\right)_{it}+$$
$$+\infty_{20}\left(RIS\cdot NDIV\right)_{it}+$$
$$+\infty_{21}\left(RIS\cdot EDIV\right)_{it}+\infty_{22}\left(RIS\cdot BDIV\right)_{it}+$$
$$+\infty_{23}\left(RIS\cdot FLD\right)_{it}+\infty_{24}\left(RIS\cdot FDEP\right)_{it}+$$
$$+\infty_{25}\left(RIS\cdot FNDP\right)_{it}+\infty_{26}\left(RIS\cdot FIGR\right)_{it}+$$
$$+\infty_{27}\left(IFRS\cdot RIS\cdot RDIV\right)_{it}+$$
$$+\infty_{28}\left(IFRS\cdot RIS\cdot NDIV\right)_{it}+$$
$$+\infty_{29}\left(IFRS\cdot RIS\cdot EDIV\right)_{it}+$$
$$+\infty_{30}\left(IFRS\cdot RIS\cdot BDIV\right)_{it}+$$
$$+\infty_{31}\left(IFRS\cdot RIS\cdot FLD\right)_{it}+$$
$$+\infty_{32}\left(IFRS\cdot RIS\cdot FDEP\right)_{it}+$$
$$+\infty_{33}\left(IFRS\cdot RIS\cdot FNDP\right)_{it}+$$
$$+\infty_{34}\left(IFRS\cdot RIS\cdot FIGR\right)_{it}+$$
$$+\infty_{35}\Delta NPL\:/\:LAS_{it}+\infty_{36}LVR_{it}+$$
$$+\infty_{37}LTA_{it}+\infty_{38}LTN_{it}+\mu_{it}. \qquad (B2)$$

Model specification for economic crisis effect of loan loss bank-specific decisions

Model specification for *GFC* and *LFC* effect:

$$LLPV\:/\:ADLPV_{it}=\infty_0+\infty_1 BDI_{it}+$$
$$+\infty_2 GFC_{it}+\infty_3 LFC_{it}+$$
$$+\infty_4\left(GFC\cdot BDI\right)_{it}+\infty_5\left(LFC\cdot BDI\right)_{it}+$$
$$+\infty_6\Delta NPL\:/\:LAS_{it}+\infty_7 LVR_{it}+$$
$$+\infty_8 LTA_{it}+\infty_9 LTN_{it}+\mu_{it}. \qquad (C1)$$

Model specification for crisis and insolvency risk effect:

$$LLPV\:/\:ADLPV_{it}=\infty_0+\infty_1 BDI_{it}+$$
$$+\infty_2 GFC_{it}+\infty_3 LFC_{it}+\infty_4 RIS_{it}+$$
$$+\infty_5\left(RIS\cdot GFC\cdot BDI\right)_{it}+$$
$$+\infty_6\left(RIS\cdot LFC\cdot BDI\right)_{it}+$$
$$+\infty_7\Delta NPL_{it}+\infty_8 LVR_{it}+$$
$$+\infty_9 LTA_{it}+\infty_{10}LTN_{it}+\mu_{it}. \qquad (C2)$$