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DETERMINANTS OF BANK PERFORMANCE IN NIGERIA: DO THEY BEHAVE DIFFERENTLY WITH RISK-ADJUSTED RETURNS?

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Abstract: The failure of banks in Nigeria has hitherto become a recurring phenomenon. Worried by the syndrome, this paper examines the determinants of bank performance in Nigeria taking into cognizance the duality of financial measures of bank performance. From an analysis of 115 bank-year observations of a sample of 17 Nigerian deposit money banks and macroeconomic data for the period 2012-2018 using Arellano-Bover one-step system GMM estimation approach, differences in the explanatory potential of these factors between the models with risk-neutral and risk-adjusted measures of performance as dependent variables are empirically established. This suggests that there is a higher probability of investors, depositors and other stakeholders being indecisive when analyzing the performance of banks. However, relying on the assumptions of risk-return hypothesis and level of risk embedded in banks' operations could warrant them opting for determinants of risk-adjusted returns in their decision making. This study is exceptional in the bank performance literature for its long list of measures and drivers of bank performance.

Keywords: risk-adjusted returns, risk-neutral returns, performance, bank, Nigeria

JEL Codes: G21, G28, L25, M41

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1. Introduction

A well-functioning and safe banking system is a hallmark of any economy with specific focus on sustained growth and development (Olson & Zoubi, 2011; Tan, 2016). When banks are functioning as expected, depositors' money are safe, active developmental roles banks are expected to play in the economy are not thwarted, little or no pressure is mounted on government to bail-out banks in crisis and most importantly banking operating activities are sustainably profitable. The linkage of the profitability of a bank to its smooth running has made the studies on the determinants of bank performance to be a world-wide phenomenon (Demirgüç-Kunt, & Huizinga, 1999).

Although there are several measures of bank performance (Okafor, Ikechukwu & Adebimpe, 2010), profitability measures of bank performance have hitherto received huge presence in the literature among the country-based and panel of countries studies (Ali, 2016; Athanasoglou, Brissimis, & Delis, 2008; Bourke, 1989; Demirgüç-Kunt, & Huizinga, 1999; Kasman, Tunc, Vardar, & Okan, 2010; Sbârcea, 2017; Tan, 2016). The profitability measures of bank performance as evident in the literature can be "risk-adjusted" or "risk-neutral" (Ahmad, Koh, & Shaharuddin, 2016). Despite the dichotomy or duality of the profitability measures of bank performance, evidence shows that the variability of their determining factors has not been hitherto incorporated in a single study. The past studies have either adopted purely risk-neutral measures (Athanasoglou et al., 2008; Salami & Uthman, 2018; Tan, 2016) or wholly risk-adjusted measures (Ahmad et al., 2016; Mercieca, Schaeck & Wolfe, 2007; Salami, 2018; Stiroh, 2004).

Modern banking system, which dated back to 1892 in Nigeria when a South African-based bank- African Banking Corporation was established, has reached an advanced stage in the country given the Nigerian banks (especially those with international licence) domination of financial sector in the West Africa by having subsidiaries across the sub-region. There are more than 4000 players in the Nigerian banking sector consisting of banking financial institutions and other specialised banks (Central Bank of Nigeria-CBN, 2017). Being signatory to the international convergence in the regulation of banks globally as superintended by the Basel Committee on Banking Supervision (BCBS), the Nigerian banking regulators- CBN often makes frantic efforts to ensure that Nigerian banks are safe, sound and profitable. The reality of this is palpable in the CBN's introduction of various reforms including consolidation exercise of 2004 and corporate governance reforms of 2009 (Sanusi, 2012; Somoye, 2008). In spite of this, the present scenarios in the Nigerian banking sector call for further investigation of the determinants of Nigerian bank profitability. While a bank with international licence was found guilty of accounting manipulations and was subsequently directed to

restate its financial records (Financial Reporting Council of Nigeria-FRCN, 2015), another with the status of systemically important bank has its management taken over by the CBN after it acquired one of the bridge banks in the country (Proshare, 2017). The case of another bank with international operating licensing whose collapse would have caused great loss in the corporate Nigeria but subsequently rescued via acquisition by a bigger one very recently is also in the news.

Although Nigerian financial system is not alien to studies on determinants of bank profitability (see Agu, 1992; Akinkunmi, 2017; Ani, Ugwunta, Ezeudu & Ugwuanyi, 2012; Ebenezer, Bin Omar & Kamil, 2017; Obamuyi, 2013; Osuagwu, 2014), there are, however, no studies in the country that have considered the imperative of the change in explanatory potential of these determinants when two broad categories of profitability measures are involved. At a global level, studies of this nature often adopt purely risk-neutral or risk-adjusted profitability indicators. The combination of these two basic measures of bank financial performance distinguishes this study. It also accentuates its contribution to knowledge and in particular bank performance literature. Thus, this study has the potential of arousing the consciousness of the investors when analyzing the performance of these banks. The investors, depositors and other stakeholders are also provided with the alternative approaches to the analysis of Nigerian banks' financial strength to enable them make better informed decisions.

This study is structured into five sections. In addition to Section One which provides the background of the study, other sections are as follows. Section Two which is tagged "Review of Related Literature" spells out the conceptual, theoretical and empirical literature related to the objective of the study. Section Three focuses on the materials and methods used in carrying out the study. Section Four presents the findings of the study after the data analysis. The last section, Section Five, concludes the study and makes appropriate recommendations based on the conclusion drawn.

2. Review of Related Literature

This section uses the window of previous studies to review theories and explain concepts including their measurements in the bank performance literature. The a priori expectations for the relevant variables are identified while the review of the past empirical findings is not left out.

2.1. Theoretical Bank Performance Literature

As evident in the literature, several theoretical perspectives have been used to explain drivers of bank/firm performance (Herciu, 2017; Odunga, 2016). These theories include but are not limited to market-power and efficient-structure theories (Athanasoglou et al., 2008; Berger, 1995a; Ferrouhi, 2017), signalling theory and

expected bankruptcy cost hypothesis (Berger, 1995b; Trujillo-Ponce, 2013), concentration-stability and concentration-fragility hypotheses (Adusei, 2015a) and dual-investor theory (Herciu, 2017), as well as resource-based theory and risk-reduction hypothesis (Brahmana et al., 2018) among a host of others.

In general terms and as argued by Ferrouhi (2017), market-power and efficient-structure hypotheses are two major theoretical postulations through which bank financial performance is analyzed. While efficient-structure hypothesis provides a linkage between bank profitability and internal factors, market-power hypothesis relates the performance of a bank to external factors (Ferrouhi, 2017). Market-power hypothesis which doubles as structure-conduct-performance hypothesis emphasizes that a firm makes monopoly profit through increased market power (Athanasoglou et al., 2008). This is exemplified by the "relative-market-power hypothesis" which proposes that only business entity with large market shares and well-differentiated products or services have potential to exercise market power and earn monopoly profit (Berger, 1995a). This suggests that the performance of a bank is determined by its market share (Ferrouhi, 2017). However, using structure – conduct - performance (SCP) model, the performance of a bank can also be a function of its structure and behaviour in the market (Ferrouhi, 2017). By SCP model, activities of a bank become less competitive and by implication highly profitable given its extent of concentration (Akinkunmi, 2017). Like market-power hypothesis, efficient-structure hypothesis is applied in two dimensions, X-efficiency and scale-efficiency hypotheses (Berger, 1995a). The proposition of X-efficiency hypothesis is that, "firms with superior management or production technologies have lower costs and therefore higher profit" (Berger, 1995a, p. 404). In contrast, scale-efficiency hypothesis argues that firms producing at more efficient scales incur lower unit cost and become more profitable (Berger, 1995a; Ferrouhi, 2017).

In specifics, signalling theory and expected bankruptcy cost hypothesis are used to explain the relationship between capitalization and profitability in the previous studies (Berger, 1995b; Obamuyi, 2013; Trujillo-Ponce, 2013). Although, it is often argued in the banking industry that funding costs are on the increase with higher capital requirements (Trujillo-Ponce, 2013), the two theories have been used to explain the positive relationship between bank capitalization and profitability (Berger, 1995b; Trujillo-Ponce, 2013). Given the information asymmetry, banks are able to use the knowledge of future cash flows to signal their better future prospects through increase in capital adequacy (Berger, 1995b). Regarding the expected bankruptcy cost hypothesis, Berger (1995b) provides that banks that raise their capital ratios towards increased expected bankruptcy costs to meet new equilibrium have the benefits of paying lower rates on their uninsured debts and having relatively high returns on shareholders' funds. From the bank stability

viewpoint, concentration-stability and concentration-fragility hypotheses have been used to explain the relationship between banks' size and their stability/performance (Adusei, 2015a; Uhde & Heimeshoff, 2009). For concentration-stability hypothesis, the basic argument is that size of a bank (large bank) prompts enhanced profitability and reduced financial fragility achieved through increased capital buffers while concentration-fragility hypothesis submits that public sympathy received by large banks via being granted "systemically important status" heightens moral hazard problems which come in form of taking riskier investments given the reliance on government's safety net (Uhde & Heimeshoff, 2009).

The relationship between bank performance and diversification is exemplified using resource-based theory and risk-reduction hypothesis (Brahmana et al., 2018; Lee et al., 2014a). A firm with more resources which include assets, capabilities, knowledge and organizational processes accompanied by better production efficiency and unparalleled service delivery has higher tendency to be more profitable based on resource-based theory (Bharadwaj, 2000; Brahmana et al., 2018). On the other hand, the submission of risk-reduction hypothesis is that increased profitability engendered by low level of risk is a function of good diversification (Brahmana et al., 2018). Another proposition that reinforces the importance of the analysis of firm performance is the "dual-investor theory" (Herciu, 2017). Based on Schlossberger's (1994) proposition, dual-investor model of business identifies two types of investors in every business venture: the shareholders and the society. The stockowners (including partners and sole proprietors) provide the venture's specific capital while the society as a whole provides "opportunity capital" for the venture (Schlossberger, 1994, p. 459). By this argument, it is logical to conclude that society is equally a shareholder in every business indicating that all businesses are both privately and publicly owned (Schlossberger, 1994). The basic deduction from this theory regarding the determinants of bank performance is that, the drivers of bank performance are not only intrinsic but also extrinsic in nature. Thus, both internal and external factors determining bank performance in Nigeria are examined in this study.

2.2. Conceptual Literature and Prior Expectations of the Study's Variables

Two broad categories of concepts are identified in this sub-section. These are concepts related to bank performance and those related to the drivers of bank performance. From these concepts, the study's variables are developed and their prior expectations are established.

2.2.1. Bank Corporate Performance

The performance of a firm is identified by its attainment of a given task effectively and efficiently beyond the present known standards (Herciu, 2017). The

performance of a business entity according to Caroll (2004) is multi-dimensional, that is, it can be identified with level of profitability, market value, growth, returns on shareholder's funds, stability and economic value-added among others. However, recent banking studies have focused on financial performance (Brahmana et al., 2018; Garcia & Trindade, 2019; Salami, 2018; Salami & Uthman, 2018) because financial performance is critical to the informed economic decisions taken by investors, creditors, government and a number of other stakeholders (Herciu, 2017). Thus, bank performance involves maximization of profit while minimizing costs (Sbârcea, 2017). In the banking literature, profitability measures of bank performance often adopt include returns on assets-ROA, return on equity-ROE and net interest margin-NIM (Al-Homaidi et al., 2018; Garcia & Guerreiro, 2016; Salami & Uthman, 2018; Tan, 2016). However, given the importance attached to the earnings per share (EPS) in the world of corporate reporting, EPS is also considered a significant measure of bank performance. The importance of EPS is noted in the dedication of an accounting standard, that is, International Accounting Standard No. 33 (IAS 33) to it by the International Accounting Standards Board. This significance was empirically acknowledged by Wang et al. (2019) who used EPS as one of the measures of firm's performance in a Taiwanese study. Also, as a measure of performance, EPS is an important mandatory disclosure in corporate reporting in Nigeria.

ROA represents the relationship between net income and total assets of a bank while ROE is the result of the relationship between the after-tax earnings and shareholders' funds (Salami & Uthman, 2018; Tan, 2016). NIM, an important measure of profit margin in the banking industry, symbolizes interest income to earning assets ratio (Grochulski et al., 2018). Loans, securities and a number of other assets from which interest are earned by the banks other than fixed assets stand for earning assets (Grochulski et al., 2018; Tan, 2016) while the difference between interests earned on these assets and those incurred on their corresponding liabilities is known as net interest income (Grochulski et al., 2018). EPS, which is a measure of the amount of earnings in an accounting period for each equity share, is defined according to IAS 33 as the relationship between after-tax profit net of preference dividends and average number of equity shares in issue during the period.

ROA, ROE, NIM and EPS, as described in this study, are risk-neutral measures of bank performance based on deductions from previous studies (Mercieca et al., 2007; Stiroh, 2004). They, however, become more robust and serve as measures of bank stability when they are risk-adjusted (Ahmad et al., 2016; Aris, 2010). These measures of bank performance are made risk-adjusted when scaled by their standard deviations (Brahmana et al., 2018). Thus, the relationship between these annual returns and their standard deviations over a period of time is called risk-

adjusted rate of return (Ahmad et al., 2016; Brahmana et al., 2018; Mercieca et al., 2007; Stiroh, 2004). Although risk-adjusted return on assets-RAROA and risk-adjusted return on equity-RAROE are often adopted in the literature including recent studies (Brahmana et al., 2018; Mercieca et al., 2007), the importance of NIM as a unique proxy of profit margin in the banking industry (Grochulski et al., 2018) and EPS as a performance indicator in the world of corporate reporting consider them additional measures of bank stability when adjusted by risk. Therefore, as identified in this study, the risk-adjusted measures of bank performance include RAROA, RAROE, risk-adjusted net interest margin-RANIM and risk-adjusted earnings per share-REPS.

2.2.2. Drivers of Bank Corporate Performance

The factors driving financial performance of banks are categorized as either bank-specific, industry-specific and macroeconomic (Athanasoglou et al., 2008) or internal and external (Ferrouhi, 2017; Rodean & Balteş, 2014). The internal factors are bank-specific and within the control of bank management while the external factors relate bank performance to the macroeconomic environment and industry within which banks operate (Athanasoglou et al., 2008; Salike & Ao, 2018; Trujillo-Ponce, 2013). A significant number of these determinants based on previous empirical evidence (Ahmad et al., 2016; Al-Homaidi et al., 2018; Athanasoglou et al., 2008; Garcia & Guerreiro, 2016; Garcia & Trindade, 2019; Salami & Uthman, 2018; Tan, 2016; Trujillo-Ponce, 2013) are examined and adopted in this study.

An important factor driving the performance of financial institutions is capitalization (Tan, 2016). The international guidance, called Basel Accords executed by Basel Committee on Banking Supervision (BCBS) and enforced / regulated by central banks/supervisory authorities in various jurisdictions, is a testimony for the vital role being played by capital adequacy in the banking industry (Salami, 2018). The positive relationship between capital and bank financial performance is attributable to the fact that having higher capital reduces funding cost, acts as safety net, ensures prudent lending and reduces bank dependence on borrowing (Athanasoglou et al., 2008; Tan, 2016). Although capital adequacy is measured in several ways (Salami, 2018), the positive impact of total regulatory capital and traditional capital ratio was evident in the past (Salami & Uthman, 2018). Thus, these two measures of capital adequacy which are expected to have positive impact on bank performance are adopted for this study. Equally an important determinant of bank performance is banks' asset quality (Salike & Ao, 2018). The asset quality of a bank is a function of its loans portfolio and tools used in the internal credit administration (Salike & Ao, 2018). The proportion of impaired loans, otherwise known as non-performing loans, suggests whether the

quality of a bank asset is good or bad (Athanasoglou et al., 2008). The poor quality of banks' asset often prompts the allocation of large chunk of earnings to provisions to cover expected credit losses (Trujillo-Ponce, 2013). This accounts for why bank asset quality is measured using ratios of impaired loans to gross loans, impairment charge for loan losses in income statement to net interest revenue and loan loss reserve to gross loans in the related literature (Ahmad et al., 2016; Athanasoglou et al., 2008; Salami, 2018). These measures of asset quality which are also referred to as the indicators of credit risk (Athanasoglou et al., 2008; Tan, 2016) are expected to have inverse relationship with bank profitability based on prior empirical evidence (Ahmad et al., 2016; Almaqtari et al., 2019). Also measured credit risk is the proportion of net loans in total assets but positively related to bank performance because higher credit risk in this case requires charging higher margins which culminates in higher profitability (Malim & Masron, 2018). Another measure of risk, in this case, an overall measure of risk, which expresses relationship between risk-weighted assets and total assets has been empirically established to be a driver of bank performance (Yanikkaya et al., 2018).

The management of expenses in the banking industry reveals a lot about the efficiency of operation (Athanasoglou et al., 2008). The expenses management in such a way to improve bank profitability attests to the ability of bank management to control costs (Berger & Humphrey, 1994). This confirms the proposition of X-efficiency hypothesis that superiority in management capability and production technologies facilitates improved profitability through reduced costs (Berger, 1995a). The ratio of cost to income, which is, operating expenses to operating income, is used as a measure of bank operating efficiency and is empirically proved (Salami & Uthman, 2018; Trujillo-Ponce, 2013). Since the lower the cost-to-income ratio the more profitable a bank is (Trujillo-Ponce, 2013), the cost-to-income ratio is expected to be inversely related to bank performance. Closely related to cost-to-income income ratio is the cost of funding. Cost of funding expresses relationship between interest expenses and customers' deposit of a bank (Garcia & Guerreiro, 2016). The basic source of bank funding is deposit (Hamdi et al., 2017) and bank activities can only be profitable if funds are raised at low costs (Dietrich & Wanzenried, 2011). Thus, like cost-to-income ratio, the ratio of interest expenses to customers' deposit is expected to be inversely related to bank performance (Garcia & Guerreiro, 2016). However, from the point of view of bank's financial structure, higher proportion of customers' deposits in the total liabilities of a bank has the potential to increase bank profitability (Trujillo-Ponce, 2013) given the cheapness and stability of deposits as a source of funding bank's activities (García-Herrero et al., 2009) while deposits growth which attracts payment of higher rate when positive and highly aggressive in a highly competitive

financial market is likely to be inversely related to bank performance (Trujillo-Ponce, 2013).

The size of a bank is another determinant of performance though with no specific direction of its behaviour in the bank performance literature (García-Herrero et al., 2009; Tan, 2016). Although it has been argued that larger size of a bank is positively related to its profitability given reduced costs achieved through scale efficiency, bureaucracy and complex structure have tendency to reverse the relationship (Athanasoglou et al., 2008). This might not be unconnected with conflicting propositions of concentration-stability and concentration-fragility hypotheses respectively as applicable to the relationship between bank size and stability (Adusei, 2015a). The size of a bank, as measured by natural logarithm of bank' total assets in the relevant literature (García-Herrero et al., 2009; Salami & Uthman, 2018), is adopted in this study. Diversification is also an important driver of bank performance (Hamdi et al., 2017; Nisar et al., 2018) as the non-interest income has become an integral part of bank gross income subsequent to financial system liberalization (Olarewaju, 2018). The impact of diversification on bank performance depends on the measure of profitability adopted, net income or net interest margin (Salami & Uthman, 2018). Thus, diversification is expected to be negatively related to NIM but positively related to ROA, ROE and EPS because the latter are measured with net income. Like other corporate entities, activities of banks are subject to taxation. This has made taxation to be an important determinant of bank performance (Tan & Floro, 2012a; 2012b). Although taxation is a statutory responsibility, the argument in the literature is that taxes paid are banks' additional cost and expected to be inversely related to their performance (Tan, 2016). As indicated in the recent studies (Garcia & Guerreiro, 2016; Garcia & Trindade, 2019; Tan, 2016) and adopted in this study, taxation is measured as the ratio of taxes paid as contained in the statement of cash flows to earnings before tax and labelled effective tax rate following the approach of Garcia and Guerreiro (2016) and Garcia and Trindade (2019).

At industry level, previous studies had tested the impact of ownership and industry concentration (Athanasoglou et al., 2008; Trujillo-Ponce, 2013), banking sector development, competition and stock market development (Tan, 2016) and number of bank branches (Al-Homaidi et al., 2018; Almaqtari et al., 2019). However, only the impact of number of branches and banking sector development are examined in this study because no empirical evidence of their relevance have been provided in the recent Nigerian bank performance literature (Akinkunmi, 2017; Ebenezer, Bin Omar & Kamil, 2017; Kajola et al., 2018). Banks' branch network signifies their market share and power and should reflect in their performance (Almaqtari et al., 2019). Banking sector development, measured as the ratio of banking industry assets to gross domestic products (GDP) annually,

should be significantly and positively related to bank performance if there is increased demand for banking services and entry into financial market is not restricted (Tan, 2016).

At macroeconomic level, variables that have been used to explain bank performance include: real GDP growth rate; real interest rate; annual consumer price index growth rate; exchange rate and annual household disposable income growth rate (Ahmad et al., 2016; Almaqtari et al., 2019; Athanasoglou et al., 2008; Demirgüç-Kunt, & Huizinga, 1999; Garcia & Guerreiro, 2016; Garcia & Trindade, 2019; Tan, 2016; Trujillo-Ponce, 2013). Other factors include economic crisis (Almaqtari et al., 2019; Malim & Masron, 2018), corruption index and crude oil price for oil producing economy (Garcia & Trindade, 2019). The behaviour of bank profitability with economic cycle can either be pro-cyclical or countercyclical (Athanasoglou et al., 2008). If pro-cyclical, an increase in the economic activities of a Nation should prompt increased bank profitability because of increased demand for bank credits by households and firms (Dietrich & Wanzenried, 2011; Garcia & Guerreiro, 2016; Trujillo-Ponce, 2013). Other factors other than GDP growth are also attributes of the economic performance with influence on banking activities of a country. The inflation rate is a good indicator of macroeconomic stability of a country as the price instability tends to affect the creditworthiness of bank debtors and/or their loan repayment ability (Salike & Ao, 2018). The positivity or negativity of the relationship between inflation and bank performance depend on whether bank anticipates upward inflation or the reverse respectively (Ahmad et al., 2016). In a competitive banking environment with low rate of interest, the difficulty in setting considerable prices for deposits and loans by banks has tendency to affect the performance of a bank negatively (Trujillo-Ponce, 2013). Similarly, Avkiran (2009) argued that if a bank institutes a regime of high interest rate, an increase in the rate of interest will be inversely related to its profitability. Based on these arguments, negative relationship between interest rate and bank performance is probable. However, given the evidence of positive relationship by a number of previous studies (Alper & Anbar, 2011; Demirgüç-Kunt, & Huizinga, 1999; García-Herrero et al., 2009) having specific expectation is not tenable. Since commercial banks are an important participant in the money market, real exchange rate is an important determinant of bank profitability (Al-Homaidi et al., 2018; Yanikkaya et al., 2018). The average exchange of a country's currency to United States of America's (US) dollar in a year, which is often, used as a measure of real exchange rate in previous studies (Almaqtari et al., 2019; Garcia & Trindade, 2019; Yanikkaya et al., 2018) is adopted in this study and is expected to be positively related to bank performance. The annual household disposable income growth rate defined as the proportion of difference between GDP less tax of current year and GDP less tax of previous year in GDP less tax of previous year is also an

important determinant of bank performance (Garcia & Guerreiro, 2016). As positive growth of annual household disposable income has tendency to increase customers' deposits, an important source of banks' funding, its relationship with bank performance should be positive (Garcia & Guerreiro, 2016). Also, the score of a country's global corruption index as rolled out by Transparency International and global crude oil price of an oil producing economy is critical to the performance of banking industry (Garcia & Trindade, 2019). Since Nigeria is an oil-rich economy and regularly features in Transparency International corruption perception index, these two variables are relevant to the analysis of Nigerian banks' profitability. Furthermore, an important dummy in the analysis of bank performance in the previous studies is economic crisis (Almaqtari et al., 2019) as financial meltdown/recession prompts incurring huge bad debts which signal banks' failure in the long run (Bapat, 2018).

2.3. Empirical Bank Performance Literature

Despite the gap in the literature, it has been argued by Garcia and Trindade (2019) that empirical bank performance literature is so huge that reviewing all studies is beyond the scope of an academic publication. Given this rationale, a significant number of empirical studies within the last two decades are reviewed with more focus on country-specific studies comparable to this study than cross-country studies.

2.3.1. Empirical Country-Specific Studies on Bank Performance

From Greek banking, Athanasoglou et al. (2008) who examined drivers of bank profitability using bank-level data between 1985 and 2001 with the aid of Generalized Method of Moment (GMM) found that bank-specific factors of capital, productivity growth, credit risk, expenses management and size and the macroeconomic factor of deviation from real GDP have significant impact on the profitability of Greek banks. However, the size of the Greek banks for the sampled period was inversely related to their level of profitability as measured by ROA and ROE. Chiorazzo's et al. (2008) focus on the diversification and bank profitability in the Italian context revealed that the ratio of non-interest income to gross earnings has a significantly positive impact on the risk-adjusted returns (RAROA and RAROE) of Italian banks between 1993 and 2003 using panel fixed-effects model regression analysis. Chinese corporate bank performance evidence provided by García-Herrero et al. (2009) showed that improved level of profitability of banks are subject to level of capitalization, higher deposit ratio, X-efficiency and low concentration based on the results of Arellano-Bond GMM estimation. Additional Chinese evidence with focus on 12 Chinese joint stock and 4 State-owned commercial banks by Sufian (2009) for the period 2000-2007 revealed that

capitalization, credit risk, size GDP and inflation rate are positively while operating costs, increased branch network and liquidity are negatively related to bank profitability as indicated by ROA and NIM. Also, a series of other Chinese evidence revealed that bank profitability as measured by ROA and NIM is positively related to inflation (Tan & Floros, 2012a) but negatively related to GDP growth (Tan & Floros, 2012b) and competition (Tan, 2016). An additional factor that favourably propels Chinese banks' profitability according to these studies (Tan, 2016; Tan & Floros, 2012a; Tan & Floros, 2012b) is banking sector development.

As found by Alper and Anbar (2011), only the bank-specific variables of capital adequacy, diversification as measured by non-interest income, and loan-to-asset ratio affect ROA while only capital adequacy and real interest rate affect the ROE of Turkish banks for the period 2002-2010. While all the identified variables as found by Alper and Anbar (2001) were positively significant, the volume of loans given by Turkish banks were inversely related to their profitability. Dietrich and Wanzenried (2011) concluded from a panel dataset of 372 Swiss commercial banks for the period 1999-2009 using Arellano-Bover system GMM estimation that improved bank profitability as measured by ROA and ROE is driven by operating efficiency, growth in lending, reduced funding costs, enhanced business model, reduced effective tax rate, low level of equity, real GDP growth and interest rate. However, there are changes in the behaviour of these variables with NIM as a measure of profitability given significantly positive coefficients of capital ratio and funding costs. Similar scenarios are also observable in the behaviour of a number of these determinants during financial crisis as they were found either insignificant or significant with reversal of earlier results. Trujillo-Ponce (2013) submitted after the analysis of Spanish commercial and savings banks' accounting data for the period 1999-2009 using GMM technique that high bank profitability measured by ROA and ROE is equally driven by large loan proportion in assets, low impaired loans/loss provisions, high deposit proportion, low operating costs, bank industry concentration, GDP growth and low interest rate. In addition, increased capitalization according to Trujillo-Ponce (2013) increases ROA but reduces ROE. The analysis of 15 Romanian commercial banks annual accounting data for the period 2003-2011 using panel random-effect model by Roman and Dănuleţiu (2013) showed that increased profitability as measured by ROA and ROE is driven by low impaired loans, improved cost efficiency, low market concentration and GDP growth. With focus on two Romanian listed banks, Carpatica commercial bank and Banca Transilvania, Balteș and Rodean (2015) found from ordinary least squared (OLS) regression analysis that low loss provisions and high solvency (capital adequacy) influence significantly the performance (ROA and ROE) of the two banks.

While analyzing the performance and stability of German savings, cooperative and commercial banks, Busch and Kick (2015) established empirically that proportion of fee income in gross income, size, level of capitalization and loan-to-asset ratio are determinants of German commercial banks' risk-neutral (ROA and ROE) and risk-adjusted (RAROA and RAROE) rate of returns except that capital adequacy represented by equity-to-assets ratio affect significantly only RAROE but negatively. Chronopoulos et al. (2015) examined the drivers of United States of America (US) commercial banks taking into consideration changes in regulation and global financial crisis. Based on a panel dataset of 17,500 US banks obtained between 1984 and 2010 and analyzed using GMM estimation technique, US banks' profitability (ROA) is driven by their size, level of diversification, liquidity, credit risk, asset growth and capital adequacy. Others are economic fluctuations as measured by GDP and economic crisis. Surprisingly, as found by Chronopoulos et al. (2015), low level of capitalization (equity-to-asset) and low level of income diversification improve US banks' ROA given their significantly negative coefficients. In addition, improved level of ROA noticeable during global financial crisis was attributed to government policy interventions in terms of bailouts provided for failing banks. From the findings of Pervan et al. (2015) for Croatian banking, it appears there are more factors driving the performance of Croatian banks. According to the results of Arellano-Bond GMM estimation using individual banks' data and macroeconomic data for the period 2002-2010, bank size, improved solvency (capital adequacy), low credit risk, improved credit risk management, operating efficiency, market concentration, deposit growth, GDP growth and downward price level changes contributed to increased ROA of Croatian banks. Evidence from rural banking in Ghana as obtained from quarterly reports of 112 rural and community banks for the period 2009_{Q1}-2013_{Q4} showed that bank size and funding stability are the main drivers of rural banks' risk-adjusted returns, RAROA and RAROE (Adusei, 2015a) while risk-neutral returns, ROA and ROE, are driven by distance to default (z-score), investment diversification, liquidity and size (Adusei, 2015b). However, funding stability, indicated by number of deviations by which banks' deposits have to fall to warrant recapitalization, is significantly and inversely related to risk-neutral returns (Adusei, 2015b).

Erdogan and Aksoy (2016) were able to provide from Turkish banking given the establishment of regulatory and supervisory agency in 2000 that Turkish banks' improved ROA and ROE within 1995 and 2007 are subject to increased equity level, reduced credit risk in terms impaired loans, size, low market concentration and liquidity risk. However, the positive impact of capital adequacy could not be established post-regulation as the coefficient became insignificant. In the Portuguese banking, Garcia and Guerreiro (2016) could not find any internal

and external bank performance determinants that equally affect all measures of bank performance (ROA, ROE and NIM). However, factors that determine the profitability of 27 Portuguese universal banks for the period 2002-2011 with differing influence on ROA, ROE and NIM include capital ratio, cost-to-income ratio, provision-to-loans and deposit growth, difference between market and bank growth in total loans and real GDP growth. In the Serbian context, Knezevic and Dobromirov's (2016) analysis of bank-level data of 29 banks and Serbian macroeconomic data for the period 2004-2011 using panel data model revealed that other than market concentration, majority of other factors are negatively related to bank profitability as measured by ROA. These factors include size, cost-to-income ratio, loan-to-deposit ratio and market-specific variables, though the behaviour of cost-to-income ratio is favourable to increased profitability. What determines the long-term performance of Moroccan commercial banks as measured by ROA, ROE and NIM based on bank-level data obtained between 2005 and 2015 and analysed with the aid of Johansen Cointegration estimation technique by Ferrouhi (2017) include increased deposits and liquidity, bank size, improved bank funding (both external and internal), deposit interest rates and increased foreign direct investments.

Al-Homaidi et al. (2018) documented from a panel dataset of 69 Indian commercial banks for the period 2008-2017 that a significant number of bank-specific and macroeconomic factors drive bank interest margin (NIM) in India. These factors include size, capital adequacy, asset quality, liquidity deposit ratio, asset management and operating efficiency other than number of bank branches. Others are GDP growth, inflation, interest and exchange rates. Nevertheless, only few of these factors determine Indian commercial banks' ROA and ROE as measures of performance. Malaysian evidence of bank performance as empirically established by Brahmana et al. (2018) for bank-level data of 15 Malaysian banks obtained between 2005 and 2015 using panel fixed-effects model showed that increased income diversification streams improved bank risk-adjusted returns (RAROA and ROROE). Further evidence revealed that Malaysian banks are more stable (increased RAROA and RAROE) with higher regulatory capital ratio and proportion of loan to total assets. Recent empirical evidence from Vietnamese commercial banks from the bank-specific and macroeconomic data obtained between 2006 and 2014 by Batten and Vo (2019) and analyzed using panel fixed-effects model and GMM revealed that bank profitability is determined by bank size, capital adequacy, provisions-to-total loans, expenses-to-assets, market structure and business cycle. However, the behaviour of these factors depends on the profitability measure as capital ratio was positively related to NIM and ROA but negatively related to ROE. This also applies to the real GDP growth rate which was pro-cyclical to ROA and ROE but counter-cyclical to NIM. Despite examining

a long list of determinants of bank performance, the conclusion of Garcia and Trindade (2019) is that only few are associated with Angolan banking sector's profitability. Based on the bank-level data of 17 banks comprising 5 and 12 foreign and national banks respectively for the period 2010-2016, improved level of Angolan banks' ROA and ROE depend on foreign ownership and reduced effective tax rates. However, increased equity level engenders low profitability as measured by ROE.

What distinguishes this study from previous Nigerian studies on bank performance is that past studies are often identifiable with risk-neutral measures of bank profitability. However, some of their findings are also worthy of note. The findings of a number of these studies are also in tandem with the fact that Nigerian banks' profitability are driven by capital strength, asset quality in terms of low impaired loans, low operating cost, liquidity, larger proportion of loans in total assets and size (Adeusi et al., 2014; Akinkunmi, 2017; Bolarinwa, Obembe, & Olaniyi, 2019; Ebenezer et al., 2017; Echekoba et al., 2014; Kajola et al., 2018; Obamuyi, 2013; Owoputi et al., 2014; Ozili, 2015; Ugwunta et al., 2012). There is also evidence that bank profitability is positively affected in the short run by market concentration (Akinkunmi, 2017), driven by upward GDP growth (Ebenezer et al., 2017; Obamuyi, 2013) and inversely related to economic situations as represented by GDP growth, inflation rate and interest rate (Owoputi et al., 2014; Ozili, 2015).

2.3.2. Empirical Cross-Country Studies on Bank Performance

Lee et al. (2014b) obtained from the bank-specific data of 967 Asian banks from 22 countries for the period 1995-2009 that non-interest activities as a measure of diversification is a tool for risk reduction rather than increased profitability. However, improved ROA is noticeable from bank size, higher deposit and level of equity. In a comparative study of determinants of bank profitability between 78 and 89 East Asian and Latin American banks respectively for bank-level and macroeconomic data obtained between 2003 and 2014, Ahmad et al. (2016) found differences in the drivers of financial performance between banks in the two regions. Based on the results of two-step system GMM, cost-to-income ratio and bank market concentration are joint determinants of risk-adjusted return on assets (RAROA) in both regions. However, RAROA of East Asian banks can be identified with level of capitalization and size while those of Latin America rely on the economic situations given significantly positive coefficients of real GDP and price level changes. Among 5 bank-specific factors examined by Menicucci and Paolucci (2016) to establish the drivers of bank performance among top 35 banks from Europe for the period 2009-2013, bank size, higher capital and lower impaired loans were found to jointly cause increased profitability as measured by

ROA, ROE and NIM. On the other hand, their analysis further revealed that increased ROA and ROE is a function of higher deposit rate while increased NIM is subject to higher volume of lending. Based on a sample of 66 and 39 commercial and Islamic banks respectively in 15 Organization of Islamic Countries, profitability (measured by net profit margin and net intermediation margin respectively) of these two bank types is driven, according to Sun et al. (2017) using GMM estimation technique, by increased capitalization, management quality and diversification as measured by earnings from trading activities, fee and commission. From a sample of 37 Islamic and 52 conventional banks in 5 Asian countries of Qatar, United Arab Emirates, Malaysia, Kuwait and Saudi Arabia,
Malim and Masron (2018) while attempting to determine the impact of economic crisis on banks' spread (NIM) found that the determinants of interest margin between the two types of banks differ. While size, regulatory quality and consumer price index feature prominently for Islamic banks; the determinants of conventional bank performance include credit risk, overhead cost and market power given their significant coefficients. However, the profitability of Islamic banks improved during global financial crisis while there was no clear-cut improvement on the profitability of conventional banks. After establishing that poor asset quality as indicated by higher proportion of impaired loans has a significantly negative impact on profitability of 1,455 banks from 12 Asian countries, Salike and Ao (2018) further evidence showed that profitability measured by ROA is increased if capital is adequate, income streams are diversified, operating cost is low, liquidity level is high and there is upward GDP growth. Addendum to the findings of Salike and Ao (2018) on diversification, Olarewaju (2018) provided Sub-Saharan evidence from 160 commercial banks in 19 low-income countries that income diversification improves bank financial performance as measured by ROA. The positive impact of diversification on bank profitability and stability is also reinforced by Nisar et al. (2018) in a study analyzing bank-level data of 200 South Asian commercial banks. According to Nisar et al. (2018) all measures of diversification adopted have significantly positive impact on risk-neutral returns (ROA and ROE) and bank stability as measured by RAROA. South Asian banks' profitability and stability are also found to be on downward trend during global financial crisis. Other significant results include funding cost, capital adequacy and asset quality measured by impaired loans with negative, positive and negative coefficients respectively.

3. Materials and Methods

Following the approach of previous studies in the bank performance literature (Athanasoglou et al., 2008; Batten & Vo, 2019; Garcia & Guerreiro, 2016; Pervan

et al., 2015; Salike & Ao, 2018), bank performance is made a function of bank-specific, industry-specific and macroeconomic factors. That is:

Bank financial performance = f (Bank-specific, Industry-specific and macroeconomic factors) (1)

Since relevant data for the study are collected at time-series and cross-sectional levels, panel data model is appropriate for the study. In the relevant literature, a choice is made between static panel data model and dynamic panel data model (Al-Homaidi et al., 2018; Batten & Vo, 2019; Chronopoulos et al., 2015; Garcia & Trindade, 2019; Tan, 2016). However, recent studies have opted for dynamic panel data model giving the fact that a number of problems associated with bank performance drivers' estimation like bank's margins persistence, unobserved heterogeneity, autocorrelation and endogeneity are better resolved with dynamic generalized method of moments-GMM technique than static panel data model of fixed-effects and random-effects (Batten & Vo, 2019; Malim & Masron, 2018; Tan, 2016). Thus, following the approach of Garcia and Guerreiro (2016) with some inputs from Ahmad et al. (2016), Dietrich and Wanzenried (2011), Pervan et al. (2015) and Trujillo-Ponce (2013), the following econometric model is specified:

$$BFP_{it} = \propto + \delta BFP_{i,t-1} + \sum_{j=1}^{14} \beta_j BSF_{it} + \sum_{k=15}^{16} \beta_k IND_{it} + \sum_{l=17}^{24} \beta_l MACR_t + \mu_{it}$$

$i = 1, 2, \ldots, N$; $t = 1, 2, \ldots, T$; $N = 17$; $T = 7$ (2)

From the above econometric relationship, BFP which stands for "Bank Financial Performance" is a general indicator for all measures of profitability adopted for the study. Profitability measures as adopted for this study are 8 in number and categorized into risk-neutral returns (ROA, ROE, NIM and EPS) and risk-adjusted returns (RAROA, RAROE, RANIM and REPS). $BFP_{i,t-1}$ is one-year lagged performance measure, δ represents the speed of adjustment to equilibrium; BSF stands for the vector of bank-specific factors which are 14; IND is the vector of 2 industry-specific factors to be estimated, MACR is the matrix of 8 macroeconomic factors in the model while μ is the disturbance term. The panel comprises 17 deposit money banks (DMBs) and time lag for data collection is 7 years, thus N=17 while T=7. All the study's variables, both dependent and explanatory, are described in Table 1.

Data related to the bank-specific and some industry-specific factors are extracted from the annual reports and account of the sample banks while macroeconomic data are obtained from CBN Statistical Bulletin and/or World Development

Indicators of the World Bank Group/Transparency International corruption perception report/National Bureau of Statistics GDP report for Nigeria.

Table 1 Study's Variables Description

S/N	Notation	Variable Name	Description
1	ROA	Return on Asset	Net Income scaled by Total Assets
2	ROE	Return on Equity	Net Income-to-Shareholders' funds
3	NIM	Net Interest Margin	Net interest Income scaled by earnings assets
4	EPS	Earnings per Share	After-tax profit scaled by total equity shares
5	RAROA	Risk-adjusted ROA	ROA scaled by standard deviation of ROA
6	RAROE	Risk-adjusted ROE	ROE scaled by standard deviation of ROE
7	RANIM	Risk-adjusted NIM	NIM scaled by standard deviation of NIM
8	REPS	Risk-adjusted EPS	EPS scaled by standard deviation of EPS
9	BRC	Regulatory capital	Tier1+Tier2 capital scaled by risk-weighted assets
10	TEC	Traditional capital	Total equity-to-Total Assets
11	IMGL	Asset quality	Ratio of impaired loans to gross loans
12	INR	Asset quality	Impairment charges scaled by Net interest income
13	RGL	Asset quality	Loan loss reserve-to-Gross loans
14	NLTA	Credit risk	Net loans scaled by Total assets
15	RWTA	Overall credit risk	Risk-weighted assets to Total assets
16	ETI	Expenses management	Ratio of operating expenses to operating income
17	ECD	Cost of funding	Interest expenses to Customers' deposits
18	DTL	Funding Management	Customers' deposit proportion in total liabilities
19	DGL	Deposit Growth	Difference between current year and previous year deposit scaled by previous year deposit
20	LgTA	Size	Natural logarithm of Total assets
21	NIGI	Diversification	Ratio of Non-interest income to Gross income
22	CPT	Taxation	Taxes paid scaled by Profit before tax
23	LNB	Branch Network	Natural Logarithm of Number of each bank branches
24	BGDP	Banking sector growth	Banking industry assets scaled by GDP
25	RGDP	GDP Growth	Real GDP Growth Rate
26	RIR	Interest Rate	Real Interest Rate
27	ACPI	Inflation	Annual consumer price index growth rate
28	EXR	Exchange rate	Average exchange rate of Naira to US Dollar yearly
29	ADYR	Disposable income	GDP net of tax_t – GDP net of tax_{t-1} scaled by GDP net of tax_{t-1}
30	CPI	Corruption	Annual corruption perception index for Nigeria
31	GCP	Crude oil price	Annual Global Average crude oil price
32	CRSS	Economic Crisis	"1" for 2016 and 2017 during recession, "0" Otherwise

Source: Authors' compilation, 2019

Items 1-8 represent measures of bank performance, 9-23 are bank-specific factors; 24-25 stand for industry-specific variables while 26-33 are macroeconomic variables.

Although there are 27 DMBs in Nigeria as at 13 May 2019 (CBN, 2019), only 14 of them are listed on the floor of Nigerian Stock Exchange-NSE. However, prior to the merger or acquisition of some listed DMBs, information provided covered substantial part of the study's sample period. Thus, the information is useful in this study. Some subsidiaries of foreign banks which are not listed also publish their financial records. Aside one non-interest bank, data related to the variables of the study are obtainable from financial statements of 17 DMBs. Data are obtained for

the period 2012-2018 because prior to 2012 Nigerian banks were engulfed in series of crises. Based on a sample of 17 DMBs and 7-year time frame, 119 bank-year events are probable for data collection. However, due to missing annual audited financial statements and reports of a number of sampled DMBs, an unbalanced panel dataset of 115 bank-year observations is used for data analysis.

Data extracted are analyzed descriptively and inferentially. Descriptive statistics are meant to summarize the data into a useful form. The inferential statistics like correlation analysis as used in this study is meant to establish level of multi-collinearity among the explanatory variables while regression analysis is meant to reveal the true determinants of bank performance in Nigeria. One-step Arellano-Bover system GMM is opted for because it is suitable for small sample as used in this study and it is less biased and has lesser standard deviation of estimation compared to first-differenced (Arellano-Bond) GMM estimation technique.

4. Analysis and Discussion

The results of various statistical analyses carried out are presented in this section. Descriptive statistics results are presented in sub-section 4.1 while those of correlation analysis and regressions are elaborated in sub-sections 4.2 and 4.3 respectively.

4.1. Summary Statistics

As revealed in Table 2, all the measures of performance have positive mean and maximum values. However, with six out of eight performance measures having negative minimum values, there is sufficient evidence to conclude that a number of Nigerian DMBs reported losses during the sampled period. Based on mean values of 15% and 11% for regulatory and traditional capital ratios respectively, capital adequacy levels of Nigerian DMBs are satisfactorily adequate. Nevertheless, negative minimum values of 199% and 155% respectively suggest a questionable capital adequacy level. Overall, the level of loan default in Nigeria also appears to be satisfactory given non-performing loans to a gross loan of 5.2% and a minimum proportion of 0.18%. Conversely, a maximum loan default level of 27.9% is not unconnected with a maximum impairment charge of 72.7% in the DMBs' income statement for the sampled period.

It is also evident that the cost-to-income ratio is high with an average of 76% and a maximum of 284%. To a great extent, diversification of revenue within non-interest activities is palpable with an average of 26.7% of the proportion of non-interest income in gross income. The eligible amounts of profit distributable to shareholders are said to be adequate given an average of 13.3% tax payment out of earnings before tax of Nigerian DMBs. At a macroeconomic level, the significant role played by the banking sector in the Nigerian economy is revealed by the

higher proportion of Nigerian banks' assets in GDP averaging 30.5%. However, the growth in real GDP and national disposable income with mean values of 3.06% and 4.28% respectively is considered to be low. The low growth in GDP and national disposable income is likely to have a negative impact on the level of savings and ultimately the customers' deposits in the banks' financial statements and overall performance of the banking sector. Other variables' summary statistics are as presented in Table 2.

Table 2 Study's Variables Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
ROA	115	0.0173	0.0189	-0.0953	0.0562
RAROA	115	3.3347	2.6758	-2.1184	9.0993
ROE	115	0.1579	0.3795	-0.8004	3.9432
RAROE	115	3.5417	3.1338	-2.6118	11.4643
NIM	115	0.0621	0.0419	0.0220	0.4705
RANIM	115	7.5526	3.1078	0.5250	14.3524
EPS	115	1.7860	2.2432	-2.9900	11.7000
REPS	115	2.3542	1.8964	-2.2716	7.7268
BRC	115	0.1467	0.3031	-1.9856	0.4915
TEC	115	0.1136	0.1954	-1.5475	0.2858
IMGL	115	0.0515	0.0472	0.0018	0.2791
INR	115	0.1873	0.1783	-0.1240	0.7266
RGL	115	0.0275	0.0737	0.0000	0.6965
NLTA	115	0.4101	0.1096	0.0572	0.5877
RWTA	115	0.6174	0.1283	0.3109	0.9400
ETI	115	0.7602	0.3238	0.2910	2.8436
ECD	115	0.0627	0.0379	0.0081	0.2365
DTL	115	0.7511	0.1075	0.4609	0.9636
DGL	115	0.1019	0.1522	-0.2091	0.5820
NIGI	115	0.2674	0.0925	0.0367	0.6666
CPT	115	0.1330	0.1099	-0.1521	0.5702
LNB	115	330	244.259	3	1000
BAGDP	115	0.3053	0.0069	0.2966	0.3166
RGDP	115	0.0306	0.0277	-0.0162	0.0667
RIR	115	0.0881	0.0301	0.0579	0.136
ACPI	115	0.1174	0.0365	0.0796	0.1855
EXR	115	261.9042	99.9352	160.8575	395.42
ADYR	115	0.0428	0.0389	-0.0152	0.096
CPI	115	0.2670	0.0089	0.25	0.28
GCP	115	78.5830	27.5683	43.8067	113.72
CRSS	115	0.2783	0.4501	0	1
Size	115	1.73E+09	1.42E+09	8.30E+07	5.96E+09

Source: Authors' computation, 2019, based on Stata 14 outputs

4.2. Test of Multi-collinearity

The level of multi-collinearity among the explanatory variables is detected using pair-wise correlation analysis. The correlation matrix of the explanatory variables is divided into two: correlation matrix of bank-specific variables on one hand and that of industry-specific and macroeconomic variables on the other hand. These correlation matrices are presented in Tables 3 and 4 respectively.

From Table 3, it is evident that only TEC and BRC have a correlation coefficient of 92% which is higher than a threshold of 80% when multi-collinearity sets in (Brooks, 2008; Gujarati & Porter, 2009). This suggests that it is not statistically appropriate to use both variables together in a model. For Table 4, variables with correlation coefficients >0.8 are ACPI and RGDP, EXR and RGDP, ADYR and RIR, GCP and RGDP, GCP and EXR and CRSS and ACPI. The higher correlation coefficient among the macroeconomic variables prompted their separation into two for the purpose of regression analysis. However, the inherent ability of Arellano-Bover GMM estimation technique to drop variables when they are highly collinear with others in regression models is also relied upon. This led to the increase in the number of regression models from 8 (based on the number of dependent variables) to 16.

Table 3 Correlation Matrix of Bank-Specific Variables

	BRC	TEC	IMGL	INR	RGL	NLTA	RWTA	ETI	ECD	DTL	DGL	LNTA	NIGI	CPT
BRC	1.00													
TEC	0.92	1.00												
IMGL	-0.17	0.02	1.00											
INR	-0.23	-0.12	0.53	1.00										
RGL	-0.21	0.08	0.57	0.40	1.00									
NLTA	0.18	0.30	0.00	0.20	0.23	1.00								
RWTA	-0.21	-0.11	0.15	0.43	0.24	0.49	1.00							
ETI	-0.52	-0.48	0.29	0.53	0.17	0.10	0.26	1.00						
ECD	-0.13	-0.06	-0.02	0.10	0.05	-0.02	0.15	0.21	1.00					
DTL	0.24	0.13	-0.18	-0.15	-0.10	0.15	-0.11	-0.08	-0.60	1.00				
DGL	0.16	0.10	-0.15	-0.18	-0.09	-0.04	-0.24	-0.13	-0.13	0.26	1.00			
LgTA	0.26	0.18	0.04	0.03	-0.12	0.34	0.05	-0.21	-0.61	0.25	0.03	1.00		
NIGI	0.32	0.25	-0.11	-0.18	-0.17	-0.37	-0.20	-0.43	-0.14	-0.18	0.06	0.04	1.00	
CPT	0.02	0.06	-0.05	-0.08	0.10	-0.11	-0.13	-0.31	0.00	-0.14	-0.09	0.03	0.20	1.00

Source: Authors' computation, 2019, based on Stata 14 outputs

Table 4 Correlation Matrix of Industry-Specific and Macroeconomic Variables

	LNB	BAGDP	RGDP	RIR	ACPI	EXR	ADYR	CPI	GCP	CRSS
LNB2	1.00									
BAGDP	-0.03	1.00								
RGDP	0.00	-0.29	1.00							
RIR	-0.02	0.05	0.54	1.00						
ACPI	0.01	0.43	-0.91	-0.70	1.00					
EXR2	-0.02	0.25	-0.88	-0.57	0.76	1.00				
ADYR	-0.01	0.23	0.33	0.84	-0.40	-0.59	1.00			
CPI	0.01	0.35	-0.68	-0.63	0.74	0.56	-0.27	1.00		
GCP	0.02	-0.35	0.87	0.13	-0.66	-0.84	0.10	-0.44	1.00	
CRSS	-0.01	0.68	-0.78	-0.52	0.89	0.74	-0.36	0.56	-0.67	1.00

Source: Authors' computation, 2019, based on Stata 14 outputs

4.3. Regression Analysis

The results of Arellano-Bover GMM estimation technique alongside their post-estimation tests are presented in Tables 5 and 6. The post-estimation tests results report Sargan test of over-identifying restrictions (Sargan), Wald statistics (Wald), White/Koenker nR2 heteroscedasticity test (Heter.) using levels of instrumental variables (IVs) with a null hypothesis that error term is homoscedastic and Arellano-Bond test for zero autocorrelation in the first order (AR1) and the second-order (AR2). The Sargan test results in Tables 5 and 6 testify to the fact that the assumption of the validity of over-identifying restrictions in some of the study's models may not be tenable given the p-value of the Sargan tests of a number of regressions being <0.05. Since Sargan test only generates asymptotic chi-squared distribution when the disturbance is homoscedastic and there is a higher probability of over-rejection by one-step Sargan test in the presence of heteroscedasticity (Arellano & Bond, 1991), White/Koenker test of heteroscedasticity using levels of IVs is performed (Heter.) for each model of the study. Based on what is depicted in Tables 5 and 6, when the p-value of Sargan test is <0.05 there is a presence of heteroscedasticity with p-value of White/Koenker test being equally <0.05. This confirms the statistical submission of Arellano and Bond (1991) that one-step Sargan test over-rejects in the absence of homoscedasticity. This is corrected by including robust standard errors in the models where both tests have p-value <0.05. However, the significance of Wald statistics of all the models of the study at p-value <0.05 is an indication that all the study's models are appropriate. Furthermore, the fact that there is no second-order autocorrelation as shown in Tables 5 and 6 with AR (2) having no p-value <0.05 confirms that the study's instruments are valid and estimates provided by Arellano-Bover GMM are reliable.

4.3.1. Regression Analysis with ROA, RAROA, ROE, and RAROE as Measures of Bank Performance

As observable in Table 5, empirical results show that the determinants of bank performance across their classifications: bank-specific, industry-specific and macroeconomic factors behave differently with ROA and ROE and their risk-adjusted counterparts as measures of performance. Except for ratio of operating expenses to operating income (ETI) which has significantly (p-value <0.01) negative impacts on bank performance as expected, coefficients of non-interest income to gross income (NIGI) and loan impairments to net interest income (INR) which are all positive and negative respectively but insignificant for ROE and RAROE, coefficients of the ratio of taxes paid to earnings before tax (CPT) which are all significantly negative except for ROA, and macroeconomic factors as determinants of ROE and RAROE as evident in models 5, 6, 7 and 8 of Table 5, no similar statistical conclusion can be made on other determinants. This is based on

differences in their influence on ROA and ROE and their risk-adjusted equivalents. Specifically, an investor will be faced with a high level of indecision when bent on determining the specific impacts of capital adequacy as measured by TEC and BRC, asset quality indicated by IMGL and RGL, credit risk (NLTA and RWTA), cost of funding and funding management (ECD and DTL), deposit growth, size and bank's branch network on ROA and ROE as well as their risk-adjusted equivalents. The fact that banks' performance is a function of past realizations of their financial returns is confirmed with significant coefficients of lagged measures of bank performance except for ROE in model 5.

Table 5 Regression Estimates with ROA, RAROA, ROE, and RAROE

MODEL	1	2	3	4	5	6	7	8
Variable	Bank Financial Performance (BFP) Measures							
	ROA	RAROA	ROA	RAROA	ROE	RAROE	ROE	RAROE
BFP_{t-1}	-0.09(-2.44)*	0.17(1.88)$^{\lambda}$	-0.12(-2.79)$^{\Psi}$	0.19(2.04)*	-0.01(-0.76)	31.2(2.6)$^{\Psi}$	-0.03(-2.97)$^{\Psi}$	0.3(2.3)*
TEC	0.05(5.5)$^{\Psi}$	-0.93(-0.67)			-0.37(-3.92)$^{\Psi}$	-1.75(-1.16)		
BRC			0.01(2.28)*	-1.54(-1.7)$^{\lambda}$			-0.03(-0.59)	-1.1(-1.63)
IMGL	-0.05(-2.8)$^{\Psi}$	-1.83(-0.45)	-0.03(-1.24)	-2.45(-0.59)	0.49(1.52)	0.14(0.03)	2.11(1.04)	-0.07(-0.02)
INR	-0.01(-2.2)*	-2.47(-2.29)*	-0.01(-1.91)$^{\lambda}$	-2.14(-1.96)*	-0.03(-0.91)	-1.02(-0.9)	-0.07(-1.81)$^{\lambda}$	-1.16(-1.03)
RGL	-0.0001(-0.01)	0.89(0.39)	0.02(1.86)$^{\lambda}$	1.5(0.69)	0.28(3.83)$^{\Psi}$	0.38(0.19)	0.06(0.77)	-0.41(-0.19)
NLTA	-0.02(-1.63)	1.52(0.55)	0.01(1.12)	0.98(0.42)	-0.21(1.24)	-3.42(-1.31)	-0.66(-2.91)$^{\Psi}$	-4.54(-2.33)*
RWTA	0.01(1.03)	-0.08(-0.05)	-0.0012(-0.15)	-0.64(-0.41)	0.01(0.06)	1.21(1.05)	0.2(3.65)$^{\Psi}$	1.32(1.12)
ETI	-0.03(-13.9)$^{\Psi}$	-1.56(-2..89)$^{\Psi}$	-0.04(-12.54)$^{\Psi}$	-1.76(-3.41)$^{\Psi}$	-0.41(-20.11)$^{\Psi}$	-2.5(-3.74)$^{\Psi}$	-0.4(-13.45)$^{\Psi}$	-2.41(-4.38)$^{\Psi}$
ECD	-0.1(-2.88)$^{\Psi}$	19.7(2.38)*	-0.12(-3.12)$^{\Psi}$	22.55(2.86)$^{\Psi}$	1.44(1.37)	32.5(5.1)$^{\Psi}$	2.21(1.55)	35.19(5.17)$^{\Psi}$
DTL	-0.002(-0.18)	4.41(2.09)*	0.005(0.35)	4.74(2.26)*	0.3(1.42)	2.59(1.53)	0.12(0.84)	2.83(1.74)$^{\lambda}$
DGL	0.0002(0.05)	-0.05(-0.05)	-0.01(-1.38)	-0.35(-0.37)	-0.07(-1.13)	0.04(0.06)	0.03(0.74)	0.04(0.07)
LgTA	-0.01(-2.26)*	2.1(3.21)$^{\Psi}$	-0.001(-0.23)	2.26(4.14)$^{\Psi}$	0.08(1.65)$^{\lambda}$	2.59(3.01)$^{\Psi}$	-0.01(-0.2)	2.83(3.22)$^{\Psi}$
NIGI	0.01(1.89)$^{\lambda}$	4.48(2.88)$^{\Psi}$	0.02(2.12)*	4.58(2.98)$^{\Psi}$	0.09(1.09)	2.93(1.41)	0.08(0.9)	2.85(1.39)
CPT	-0.002(-0.36)	-2.94(-2.54)*	-0.001(-0.2)	-3.55(-3.01)$^{\Psi}$	-0.16(-1.86)$^{\lambda}$	-3.88(-3.67)$^{\Psi}$	-0.14(-1.8)$^{\lambda}$	-4.08(-3.39)$^{\Psi}$
LNB	0.004(0.88)	-1.01(-1.99)*	0.002(0.44)	-1.39(-2.51)*	-0.05(-1.38)	-1.12(-1.84)$^{\lambda}$	0.004(0.18)	-1.24(-2.13)*
BGDP	4.9(1.85)$^{\lambda}$	99.34(0.17)			-38.99(-2.35)*	-1260(-2.05)*		
RGDP	-2.49(-1.96)*	-33.4(-0.13)			20.25(2.34)*	615(2.09)*		
RIR	-0.96(-2.08)*	-10.31(-0.1)			7.64(2.19)*	225(2.08)*		
ACPI	-2.36(-1.96)*	-37.97(-0.15)			18.9(2.3)*	575(2.07)*		
CPI	-1.64(-1.86)$^{\lambda}$	-27.87(-0.15)			14.2(2.48)*	442(2.16)*		
EXR			-0.01(-0.85)	-0.89(-0.65)			0.08(1.63)	1.75(1.52)
ADYR			-0.085(-2.28)*	2.26(0.31)			0.96(2.12)*	17.6(2.69)$^{\Psi}$
GCP			-0.0001(-1.35)	0.0004(0.03)			0.001(2.57)*	0.03(2.93)$^{\Psi}$
CRSS			-0.003(-1.58)	0.25(0.76)			0.04(1.76)$^{\lambda}$	0.17(0.51)
cons_	-0.38(-1.1)	-56.6(-0.74)	0.1(0.91)	-44.6(-3.52)$^{\Psi}$	3.55(2.19)*	116(1.43)	-0.08(-0.11)	-64.4(-4.31)$^{\Psi}$
Sargan	35.74(0.01)*	25.94(0.13)	46.4(0.00)$^{\Psi}$	23.26(0.23)	48.3(0.00)$^{\Psi}$	32.3(0.03)*	49.6(0.00)$^{\Psi}$	31.59(0.03)*
Heter	4.99(0.03)*	2.09(0.15)	10.8(0.00)$^{\Psi}$	0.78(0.38)	13.2(0.00)$^{\Psi}$	30.9(0.04)*	11.38(0.00)$^{\Psi}$	30.7(0.04)*
AR(1)	-2.02(0.04)*	-2.71(0.01)*	-1.86(0.06)$^{\lambda}$	-2.51(0.01)*	-2.02(0.04)*	-3.0(0.001)$^{\Psi}$	-1.99(0.05)*	-2.82(0.00)$^{\Psi}$
AR(2)	1.15(0.25)	-0.02(0.99)	0.062(0.95)	-0.18(0.86)	1.16(0.25)	0.01(0.99)	0.059(0.96)	0.01(0.99)
Wald	1389.6(0.00)$^{\Psi}$	164.9(0.00)$^{\Psi}$	1055(0.00)$^{\Psi}$	172(0.00)$^{\Psi}$	24855(0.00)$^{\Psi}$	815(0.00)$^{\Psi}$	357727(0.00)$^{\Psi}$	908(0.00)$^{\Psi}$

Source: Authors' computation, 2019, based on Stata 14 outputs

The regression coefficients of explanatory variables are reported with t-statistics in parentheses. Sargan test of over-identifying restrictions (Sargan), test of heteroscedasticity (Heter.) and Wald statistics (Wald) report chi-square (X^2) with p-value in parentheses. Test of autocorrelation- first order: AR (1) and second order: AR (2) report Z-statistics with p-value in parentheses. $^{\Psi}$, *, and $^{\lambda}$ denote significance at 99%, 95% and 90% confidence levels respectively.

Notwithstanding differences in the explanatory potential of a considerable number of factors examined in this study as revealed in Table 5, the evidence abounds that a number of bank-specific factors explain bank performance as obtainable in models 2, 3 and 4. Also, the significant impact of the combination of all the factors

examined in this study is palpable in models 1, 5, 6, 7 and 8. Thus, regardless of the difference in objectives, results obtained in Table 5 are in agreement with a number of previous empirical findings in the bank performance literature. To a certain extent, findings of this study agree with those of Athanasoglou et al. (2008), Chiorazzo et al. (2008), Tan (2016), Tan and Floros (2012a; 2012b), Dietrich and Wanzenried (2011), Busch and Kick (2015), Ahmad et al. (2016) and Brahmana et al. (2018). However, the findings of this study do not accord with those of Chronopoulou et al. (2015), Garcia and Trindade (2019) other than that of the effective tax rate, Lee et al. (2014b) regarding the influence of diversification, Ahmad et al. (2016) relating to the impact of macroeconomic factors on the performance of East Asian banks, and Obamuyi (2013) with respect to the impact of real GDP growth.

4.3.2. Regression Analysis with NIM, RANIM, EPS, and REPS as Measures of Bank Performance

Similar to what is obtained in Table 5, Table 6 also shows that the financial performance of Nigerian DMBs is subject to past realizations of their financial returns but only with risk-neutral measures of NIM and EPS based on their significant coefficients. Evidence of analysts being indecisive is also apparent in Table 6 based on the coefficients of explanatory variables with distinctive behavior between models with risk-neutral and risk-adjusted returns as dependent variables. While the capital adequacy as indicated by TEC is inversely related to NIM and RANIM in models 9 and 10, the coefficient is significant in model 9 compared to model 10 which is insignificant. For models with EPS and REPs as dependent variables, though not significant, TEC is positively related to EPS but negatively related to REPS. Similar scenarios are also evident for BRC in models 11 and 12 on one hand and models 15 and 16 on the other hand. The significant / insignificant and / or positive / negative coefficients of explanatory variables between models with NIM and RANIM on one hand, and EPS and REPS on the other hand are noticeable with asset quality as measured by IMGL, risk as indicated by NLTA and RWTA, cost of funding and funding management (ECD and DTL), crude oil price (GCP) and economic crisis (CRSS). Conversely, similar explanatory potentials of asset quality (INR), expenses management (ETI), size (LgTA), diversification (NIGI), effective tax rate (CPT), bank branch network (LNB), disposable income (ADYR), and first set of macroeconomic variables are identifiable, though some are equally insignificant or not equally significant, between NIM and RANIM on one hand and EPS and REPS on the other hand.

Overall, a significant number of factors examined in this study explain bank financial performance as measured by NIM while only macroeconomic variables explain RANIM as evident in models 9 and 10. However, with the second set of

macroeconomic factors in a model, the performance of a bank as indicated by interest margin is associated with bank-specific factors while that of risk-adjusted interest margin is more associated with macroeconomic factors. More so, the predictive ability of all the variables of the study is more pronounced with NIM and RANIM than EPS and REPS as indicators of bank performance. With these results, some levels of concurrence can be established between the findings of this study and those of Tan (2016), Garcia and Guerreiro (2016), Menicucci and Paolucci (2016), Al-Homaidi et al. (2018), and Garcia and Trindade (2019). The findings of this study, however, disagree with those of Ferrouhi (2017) regarding the management of bank funding and Batten and Vo (2019) with respect to the impact of capital adequacy and cyclicality of real GDP growth. The results obtained in models 13, 14, 15 and 16 are unique because this study appears first to adopt EPS and its risk-adjusted equivalent and are expected to serve as a precedent for future studies in the bank performance literature.

Table 6 Regression Estimates with NIM, RANIM, EPS, and REPS

MODEL	9	10	11	12	13	14	15	16
Variable	Bank Financial Performance (BFP) Measures							
	NIM	RANIM	NIM	RANIM	EPS	REPS	EPS	REPS
BFP_{t-1}	-0.81(-18.29)$^{\Psi}$	0.174(0.84)	-1.00(-16.77)$^{\Psi}$	0.118(0.61)	0.579(4.92)$^{\Psi}$	0.072(0.57)	0.598(4.81)$^{\Psi}$	0.09(0.67)
TEC	-0.134(-6.77)$^{\Psi}$	-2.09(-1.28)			0.981(0.64)	-0.7(-0.54)		
BRC			-0.109(-6.89)$^{\Psi}$	-1.23(-1.22)			-0.462(0.46)	-1.49(-1.80)$^{\lambda}$
IMGL	-0.11(-2.34)*	5.39(1.41)	-0.111(-2.15)*	5.8(1.53)	-2.745(-0.74)	-0.599(-0.45)	-1.29(-0.35)	-0.78(-0.22)
INR	0.031(2.74)$^{\Psi}$	1.74(1.70)$^{\lambda}$	0.039(2.86)$^{\Psi}$	1.736(1.72)$^{\lambda}$	-1.892(-1.99)$^{\lambda}$	-1.58(-1.70)$^{\lambda}$	-1.752(-1.83)$^{\lambda}$	-1.51(-1.59)
RGL	0.0104(0.49)	-0.5999(-0.25)	-0.079(-3.24)$^{\Psi}$	-2.227(-1.06)	1.331(0.65)	1.367(0.70)	1.603(0.80)	0.745(0.38)
NLTA	-0.066(-2.03)*	2.595(0.88)	-0.098(-3.00)$^{\Psi}$	1.90(0.81)	-5.879(-2.16)*	0.599(0.23)	-4.65(-2.02)*	1.57(0.72)
RWTA	-0.0012(-0.08)	0.9203(0.54)	0.0004(0.02)	1.418(0.88)	0.527(0.35)	-0.749(-0.59)	0.55(0.37)	-1.18(-0.93)
ETI	-0.034(-5.77)$^{\Psi}$	-0.564(-1.05)	-0.038(-5.64)$^{\Psi}$	-0.548(-1.06)	-1.13(-2.32)*	-1.465(-3.23)$^{\Psi}$	-1.33(-2.86)$^{\Psi}$	-1.51(-3.47)$^{\Psi}$
ECD	0.1603(1.28)	-14.34(-1.33)	0.1493(1.01)	-9.29(-0.90)	-7.814(-0.92)	19.68(2.52)*	-7.97(-0.98)	22.55(2.96)$^{\Psi}$
DTL	-0.059(-2.08)*	2.32(0.80)	-0.076(-2.34)*	1.724(0.61)	2.769(1.56)	-0.14(-0.08)	3.18(1.78)$^{\lambda}$	0.34(0.19)
DGL	0.029(2.60)$^{\Psi}$	-0.764(-0.64)	0.0304(2.58)*	-0.468(-0.41)	0.0012(0.00)	1.079(1.39)	-0.309(-0.38)	0.87(1.15)
LgTA	-0.086(-7.96)$^{\Psi}$	-1.22(-1.62)	-0.080(-7.47)$^{\Psi}$	-0.943(-1.22)	1.309(1.47)	2.22(3.16)$^{\Psi}$	1.83(2.11)*	3.02(4.20)$^{\Psi}$
NIGI	-0.039(-2.29)*	-4.49(-3.06)$^{\Psi}$	-0.04(-2.01)*	-4.538(-3.18)$^{\Psi}$	3.504(2.43)*	2.12(1.61)	3.79(2.66)$^{\Psi}$	1.96(1.50)
CPT	-0.0099(-0.77)	-1.518(-1.29)	-0.0141(-0.92)	-1.471(-1.23)	-2.083(-1.97)*	-2.4(-2.37)*	-2.66(-2.12)*	-2.8(-2.72)$^{\Psi}$
LNB	0.0423(6.89)$^{\Psi}$	1.19(1.76)$^{\lambda}$	0.043(6.70)$^{\Psi}$	1.16(1.86)$^{\lambda}$	-0.536(-0.96)	-0.501(-0.94)	-0.772(-1.41)	-0.905(-1.64)
BGDP	16.36(2.47)*	1246.2(2.24)*			810.99(1.60)	3.166(0.01)		
RGDP	-8.25(-2.60)$^{\Psi}$	-592.9(-2.25)*			-375.09(-1.56)	8.28(0.04)		
RIR	-3.05(-2.62)$^{\Psi}$	-216.5(-2.25)*			-137.7(-1.56)	2.481(0.03)		
ACPI	-7.75(-2.57)*	-562.3(-2.24)*			-350.65(-1.53)	0.5575(0.00)		
CPI	-5.19(-2.34)*	-423.9(-2.27)*			-264.62(-1.56)	6.93(0.05)		
EXR			0.0141(0.81)	-2.246(-1.74)$^{\lambda}$			-0.27(-0.21)	-0.83(-0.75)
ADYR			-0.0881(-0.89)	-13.12(-1.83)$^{\lambda}$			-0.605(-0.09)	1.17(0.19)
GCP			-0.0001(-0.81)	-0.023(-1.76)$^{\lambda}$			-0.003(-0.26)	0.004(0.37)
CRSS			-0.0077(-1.71)$^{\lambda}$	0.226(0.69)			0.75(2.26)*	0.144(0.48)
cons_	-0.416(-0.50)	-141.99(-1.91)$^{\lambda}$	1.658(6.96)$^{\Psi}$	33.99(1.92)$^{\lambda}$	-136.2(-1.95)$^{\lambda}$	-44.74(-0.73)	-31.3(-2.04)*	-52.1(-3.70)$^{\Psi}$
Sargan	50.5(0.00)$^{\Psi}$	26.45(0.12)	39.79(0.004)$^{\Psi}$	28.55(0.073)	39.13(0.004)$^{\Psi}$	25.524(0.144)	40.23(0.003)$^{\Psi}$	24.44(0.18)
Heter	100.06(0.00)$^{\Psi}$	0.07(0.796)	109.14(0.00)$^{\Psi}$	0.06(0.81)	60.39(0.00)$^{\Psi}$	0.08(0.773)	66.93(0.00)$^{\Psi}$	0.05(0.82)
AR(1)	0.014(0.99)	-1.463(0.144)	-0.535(0.593)	-1.39(0.164)	-1.98(0.048)*	-1.85(0.064)	-1.932(0.053)	-1.72(0.086)
AR(2)	-0.86(0.39)	0.571(0.568)	-1.189(0.235)	0.249(0.804)	-0.718(0.473)	1.55(0.121)	-0.63(0.529)	1.48(0.14)
Wald	1803.04(0.00)$^{\Psi}$	82.82(0.00)$^{\Psi}$	1260.7(0.00)$^{\Psi}$	81.3(0.00)$^{\Psi}$	723.8(0.00)$^{\Psi}$	172.2(0.00)$^{\Psi}$	732(0.00)$^{\Psi}$	176(0.00)$^{\Psi}$

Source: Authors' computation, 2019, based on Stata 14 outputs

The regression coefficients of explanatory variables are reported with t-statistics in parentheses. Sargan test of over-identifying restrictions (Sargan), test of heteroscedasticity (Heter.) and Wald statistics (Wald) report chi-square (X^2) with p-value in parentheses. Test of autocorrelation- first order: AR (1) and second order: AR (2) report Z-statistics with p-value in parentheses. $^{\Psi}$, *, and λ denote significance at 99%, 95% and 90% confidence levels respectively.

The findings of this study, as depicted in Tables 5 and 6, provide a frontier for examining the dichotomy of the measures of the financial performance of banks as against the duality of the indicators of bank capital peculiar to recent studies in the bank financial condition literature (Chernykh, & Cole, 2015; Hogan, 2015; Salami & Uthman, 2018). The jinx of continuing replication of drivers of risk-neutral returns as evident even with recent cross-country empirical studies (Malim & Masron, 2018; Menicucci & Paolucci, 2016; Ozili, 2017; Sun et al., 2017) has been broken. Hence, there is a tendency for future studies to be tailored towards the present approach. By implication, stakeholders will become better informed and will be able to take favorable economic decisions that will protect their interests.

5. Concluding Remarks

Efforts being made regularly to ensure that banks do not fail as reflected in robust regulation, deposit insurance and the provision of bail-out are a signal of how banking propels an economy. Since the failure of banks is both pervasive and systemic, examining the drivers of bank financial performance from time to time cannot be a futile exercise as it rekindles the financial consciousness of investors, depositors, and others with a keen interest in banks' soundness and stability. The performance of banks can be indicated by risk-neutral and risk-adjusted returns and stakeholders will be in a comfortable position to make better informed economic decisions if they have foreknowledge of the behavior of its drivers. Using post-banking crisis bank-specific data of DMBs and macroeconomic data in Nigeria obtained between 2012 and 2018 and analyzed with the aid of Arellano-Bover system GMM estimation technique, relying on one measure of performance while analyzing the financial performance of banks is established not to facilitate making better economic decisions. This is the sequel to the differences empirically noticeable in the explanatory potential of these determinants between risk-neutral and risk-adjusted measures of bank performance. Thus, this study has been able to establish that investors, depositors and several others with a keen interest in bank performance and stability will be faced with a higher level of indecision when analyzing the performance of a bank. Yet, they can opt for the behavior of determinants of risk-adjusted returns given a golden rule in financial management that level of toleration of risk determines the level of returns or subject to the fact that, banks' operations are highly risk-based. Since risk-adjusted measures of performance are derivatives of their risk-neutral counterparts, the regulators, in this case, CBN and Nigeria Deposit Insurance Corporation should intensify efforts at reconciling the differences noticeable among performance determinants' influence on broad categories of bank financial returns. The contribution of this study to bank performance is diverse. It is exceptional not only for using a long list of bank performance determinants but also measures of bank performance. In particular,

the use of risk-adjusted net interest margin (RANIM), earnings per share (EPS) and risk-adjusted earnings per share (REPS) as measures of bank performance is pioneered by this study given the extent of literature search. However, failure of the findings of this study to be generalized for all categories of banks in Nigeria restricts its applicability. Thus, the replication of this study for microfinance, mortgage and development financial institutions in Nigeria or widening of its scope to include them has the capacity to consolidate its findings.

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