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Original Research Article

Importance-Performance Matrix Analysis of the Effect of Bank Recapitalization's Proxies on the Performance of Nigerian Banking Sector: The Empirical Evidence from Developing Economy

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Abstract

The financial crisis in 2007–2008 shake the fiscal world with a wave of massive economic losses, which caused the biggest economic and financial disruption in the world's financial system and lead to the banking sector recapitalization in many countries. Perennial banks failures attributed in severe losses, capital erosion and triggered a series of mergers and acquisitions, equity issues and government intervention in the Nigerian banking sector. This study is to evaluate the matrix analysis for the effect of merger and acquisition, equity issues and intervention on the performance of Nigerian banking sector. However, the nature and existence of this potential relationship were found to be mixed, which prompted this study to re-examine the relationship. This study employed the quantitative survey research design, stratified sampling method and Partial Least Squares (PLS) algorithm (bootstrap techniques) were used to test the hypotheses. Results obtained supported the hypothesis on the influence of mergers and acquisitions, equity issues, intervention on the banks' performance. The importance-performance map analysis was applied in this study to allow enriching the PLS-SEM analysis and thereby gain additional results and findings, although its application to banking is still at its embryonic state. In addition, the results from importance-performance map analysis indicate that the first priority by managers is to improve the performance aspects captured by equity issues, as this construct have the highest importance in the model, but relatively low performance. Finally, this study has succeeded in validating the aforementioned conceptualization as well as advancing significant theoretical and practical contributions to both researchers, regulatory authorities and managers for further understanding on the influence of recapitalization and banks performance. Further suggestions for future research directions are also offered.

Keywords: Recapitalization, Importance-performance map analysis, banks performance, Merger & acquisitions, Equity Issues, Intervention.

1. INTRODUCTION

The financial crisis after the Lehman shock in 2007-2008 and the global recession that followed forced many countries, including England, France, Germany, Ireland, and Switzerland, to implement programs such as bank recapitalizations. There is no empirical consensus on whether it had produced the desired results or not, but the policy has been extended to the emerging economies (Nakashima, 2016; Tailab 2020). Moreover, African countries are not excluded from the issue of undercapitalization or liquidity problems in the banking industry. Gathaiya (2017) reported the collapsed of the three commercial banks in Kenya, whereby all the depositors, stakeholders and creditors incurred substantial financial losses. Furthermore, several cases of decline in performance, inefficiencies or total liquidation of banks in Nigeria have been identified as the primary culprits in virtually all known cases of banking distress in Nigeria which led to the recapitalization reform in 2004 (Soludo, 2006). This led to another intervention in 2009 that necessitated the bailout of 10 banks which nearly collapsed due to unworthy liquidity (CBN, 2010; Chiakelu, 2010; Sanusi, 2010). Subsequently, they were rescued, and the bailout of ₦620 billion was injected to the affected banks while some of the chief executive officers were prosecuted and immediately replaced (CBN, 2010; Chiakelu, 2010; NDIC, 2011; Sanusi, 2010). Furthermore, these trend of banking failure continues where 154 microfinance banks, and six primary mortgage banks were collapsed Popoola (2018).

The CBN revealed that the Skey Bank requires urgent recapitalization as it can no longer live on borrowed funds in which the shareholders of the bank are unable to recapitalize it, and by this, the license of the defunct Skey Bank at this moment was revoked (Odunsi, 2018; Rilwan, 2018). The repercussion of the banking sector recapitalization reform in Nigeria resulted to the implementation of several strategies, many banks engaged in mergers and acquisitions, capital market (equity issues) (Izuchukwu *et al.,* 2014). Moreover, other banks resorted to intervention (bail-out) to be able to meet up with new capital base (Shehu *et al.,* 2014; Rapiah *et al.,* 2016). According to Soludo (2004) 89 banks were categorized by low capital base, poor asset quality, over-dependence on public sector deposits.

Regrettably, the empirical evidence on the effects of recapitalization on bank's performance is very limited, as such, the result of the effect of banks recapitalizations remains ambiguous (Beccalli, Frantz and Lenoci, 2018). Undoubtedly, the above-highlighted situation has stressed the need and significance of the present study, of investigating the effect of bank recapitalization and its approaches as crucial to the banks' performance in the Nigerian banking sector. However, Coates and Scharfstein (2009) reported that the bank's recapitalization has three basic approaches, i.e. equity issues, intervention (bailout) and sales and merge of banks (mergers and acquisitions). Therefore, this study adopted the three dimensions in measuring bank recapitalization. Hence, hypotheses were developed, which represented the relationship between merger and acquisition, equity issues, intervention, recapitalization, and bank performance, respectively.

Despite the importance of the banking sector in regulating and stabilizing the economy, many empirical studies concerning the relationship between recapitalization and the performance of banks in both developed and developing economies appeared to be mixed, inconsistent, contradicting and coupled with weak findings. For instance, studies (Beccalli and Frantz, 2016; Bhagat, Malhotra and Zhu, 2011; Bhaumik and Selarka, 2012; Daboer *et al*., 2025; Ding, Wu and Chang, 2013; Donou-Adonsou and Sylwester, 2017; Ernovianti and Ahmad, 2017; Etri *et al*., 2016; Nicholson and Salaber, 2013; Yusupov, 2012) found a significant positive relationship between recapitalization or its proxies on performance. (Austin, 2025; Aybar and Ficici, 2009; Beccalli, Frantz and Lenoci, 2016; Bednarczyk, Schiereck and Walter, 2010; Bertrand and Betschinger, 2012; Forssbaeck and Nielsen, 2016; Tomec and Jagrič, 2017) found a significant negative relationship between recapitalization and performance while Liao and Williams (2008), Adedeji *et al.* (2015) found no significant relationship. The conflicting/mixed findings from previous literature are usually caused by factors like inconsistent operationalization of recapitalization variable and its proxies, limited scope, convenience samples, and usually focus mainly on direct relationships between a single strategy or approach of recapitalization and performance while ignoring the non-financial aspect of bank performance.

Additionally, few studies were conducted in Nigeria and only concentrated on a single unit of banks, therefore, neglecting other units of banks that were involved in recapitalization (Joshua, 2011; Njiddah, Bello and Hassan, 2007; Okwoli, Jim-suleiman and Daboer, 2018). Also, all the recapitalization's approaches were purely selected from the prior literature (Aduloju, Awoponle, and Oncl, 2008; Coates and Scharfstein, 2009; Izuchukwu *et al*., 2014).Therefore, this study represents all the three approaches of recapitalization to fill the gap by using a developed questionnaire and ask the knowledgeable observers in the banking sector to rate the bank on the effect of three dimensions of recapitalization on two dimensions of bank performance. The majority of researches were usually done with a focus on financial performance and ignoring the other indicators of non financial performance (Adedeji *et al*., 2015; Ernovianti *et al*., 2016; Gliem and Gliem, 2003; Tomec and Jagrič, 2017). Moreover, this study is designed to fill the literature gap by measuring the performance of Nigerian banking sector using the financial and non-financial performance as suggested by (Kaplan and Norton, 1992; Lau and Sholihin, 2005; Murphy, Trailer and Hill, 1996; Namada, Aosa, Awino and Wainaina, 2014; Kaplan and Norton, 1993).Therefore, this study will also, fill the gap and add to the scanty literature to cover both financial and non-financial performance.

Although the regulatory authorities or managers in the sector recognized the need to formulate better strategies to drive performance but may struggle to determine a better priority to succeed. To explore this phenomenon, several studies investigated the effect of recapitalization, and its approaches on banks' performance from various viewpoints (Akomea and Adusei, 2013; Beccalli and Frantz, 2016; Beccalli *et al*., 2018; Chiarella, Cubillas and Suárez, 2019; Etri *et al*., 2016; Gamble, 2015; Homar and Wijnbergen, 2017; Jou, Chen and Tsai, 2017; Karafolas and Kleanthous, 2019; Mohapatra and Jha, 2018; Montgomery and Takahashi, 2014; Poczter, 2015; Renneboog and Vansteenkiste, 2019; Richers, 2017; Rowoldt and Starke, 2016; Souza and Gartner, 2019; Tomec and Jagrič, 2017). However, the insufficient attention has been paid by these studies to the role of prioritization of managerial decisions making, policy activities, strategic and operational level, in precipitating the recapitalization to maintain success and prevent the future bank's failure which necessitated this study to apply the used of importance-performance map analysis (IPMA) to identify the areas of priorities to maintain successful and sustainable banking sector and avoid future bank failure. Moreover, this study will help to address this gap by applying IPMA technique to help the regulatory authorities and bankers to determine better

priority factors that should receive much attention to prevent a repeat of banks failure in the future.

Undoubtedly, the above-highlighted situation has stressed the need and significance of the present study, of investigating the effect of bank recapitalization and its approaches as crucial to the banks' performance in the Nigerian banking sector. This aim at coming up with a recapitalization model needed within the context of banks performance, particularly from prospective of developing economies to examine the observed gap. This is particularly significant because till date only limited studies have been carried out to examine this in relation to the aforementioned issues and bank performance, to advance an appropriate framework that can be applied to emerging economies settings. Therefore, for this and many reasons, the researcher argued and emphasized the need to fill these research gaps.

2. LITERATURE REVIEW

Recapitalization has been described as a rescue plan by the central bank or government of a country through capital injections and acquisitions of weaker banks by stronger banks (Etri, Nor and Mazlan 2016). Similarly Coates and Scharfstein (2009) reported that there are three basic approaches to recapitalize a bank: equity issues, intervention and sales and merge of banks. Banks used equity issues not only to meet the capital requirements but also to expand their assets and change the structure of their asset portfolios which may lead to unintended effects on profitability due to the regulatory pressure to strengthen their capital (Beccalli *et al*., 2018). Furthermore, massive recapitalization help banks to write-off its bad loans, increase its lending capacity and subsequently strengthen the capital base of the banks (Patel, João, Soares and Gonçalves, 2017). Homar and Wijnbergen (2017) found that a suitable bank recapitalization can significantly reduce the underscoring of distortions caused by zombie banks and the duration of economic recessions.

However, there is a strong believed that each specific strategy responds to bank performance can be in a different way. Even though, Izuchukwu *et al*., (2014) observed the repercussion of the Nigerian banking sector recapitalization resulted in the implementation of several strategies, many banks engaged in merger and acquisitions, while some ventured into capital market to acquire additional capital via public offering and other banks resorted to intervention to be able to meet up with a new capital base set by the Central Bank of Nigeria. This study fills the gap and incorporated all the three variables.

2.1 Hypothesis Development

Merger and Acquisition and Bank's Performance

The extant empirical research may have addressed the relationship between merger and acquisition and bank performance, yet remains unclear, because of mixed results from empirical studies (Lebedev *et al.,* 2015). Souza and Gartner (2019) reported that in the most recent times, the global economy, particularly in the banking sector, has realized an increase in the incidence of mergers and acquisitions. Some researchers argued that cross-border investment could lead to the inflows of capital and do not only bring in the needed capital but have positive implications on productivity and investment that can improve the host country firm's performance (Miozzo *et al.,* 2016). This is specifically important for developing economy firms, which usually face financial constraints that shorten their ability for project enhancements to upgrade the existing facilities which consequently improve the performance.

For instance, Christine and Jagongo (2018) investigate and theorized the performance of merger and acquisition in some selected banks in Kenya and revealed that risk diversification, differential efficiency, operational synergy, market share development of merger and acquisition have significantly improved performance. This result is in agreement with the finding of Hassen *et al.* (2018) who also revealed that the operations of merger and acquisition are needed for the necessary growth of banks to increase the scale of returns. These study findings are also similar to Abdulazeez *et al.* (2016) revealed that merger and acquisition led to improved and robust performance and efficiency in the Nigerian banking sector. There are some other similar studies that revealed cultural affinity, local experience and geographical proximity of a bidding firm of merger and acquisition have significantly increased the probability of completing the deal which significant increases the operating performance (Arena & Dewally, 2017). Souza and Gartner (2019) reported that there is a significant positive relationship between merger and acquisition and bank performance because banks involved in merger and acquisition leading to market gains and greater market power for acquiring banks and increases abnormal returns for newly merged acquiring bank. Furthermore, many previous researchers have conducted the empirical analysis on the relationship of merger and acquisition and bank's performance, and they found merger and acquisition have significantly and positively improved bank performance (Shanmugam & Nair, 2004; Kiliç, 2011; Meghouar & Sbai, 2013; Joash & Njangiru, 2015; Patel, 2018).

On the other hand, Patel (2018) studied the impact of merger and acquisition on banks' performance and found that ROA, ROE, net profit ratio, the yield on investment and yield on advance has negatively affect bank performance. In another similar study of the impact of merger and acquisition on performance found merger and acquisition negatively affect performance were merger deals have fails to improved performance and the result shows a decrease in the profitability level (Kemal, 2011; Lakstutiene *et al.,* 2015; Vulanovic, 2017). Based on the detailed information in this study. The following hypothesis is proposed:

H_1: Merger and Acquisitions has a positive effect on bank performance.

Equity Issues and the Bank's Performance

The recent 2007-2008 GFC has triggered the extensive debate on how banks can source capital to prevent banking failure. Much research on bank capital adequacy revealed that capital has a significant impact on banks' performance (Acharya *et al.,* 2012; Black & Hazelwood, 2013; Bessler & Kurmann, 2014; Haggège *et al.,* 2017). Bessler and Thies (2007) also argued that firms with abnormal returns or performances are those with an opportunity to raise additional funds in the equity market through a subsequent seasoned equity offering in the subsequent years. Equity issues in banks are generally encouraged by bank regulators because they believe a higher level of capital for individual banks can help to achieve a sustainable banking sector while equity issuance demonstrates a bank's commitment to achieving a certain level of sustainable bank performance (Keeley, 1989).

Moreover, Beccalli *et al.* (2018) studied bank's behaviour on equity issues with respect to bank recapitalization and found that equity issues lead to asset expansion, reduce systemic risk, increase profitability, increase loan reserves and positively affect bank performance. However, Aman and Miyazaki (2009) evaluate the effects of equity issues of some banks in Japan and found contradictory results that equity issues have a significant negative effect on bank performance more especially banks with sufficient capital. Furthermore, Adepoju (2013) reported that the equity issues (stock market) performance of all the sampled banks in his study declined, more especially those financially weak or troubled banks showed greater weakness in stock market performance than the healthy ones. The second hypothesis is as follows:

H_2: Equity issues have a positive effect on bank performance.

Intervention and Bank's Performance

Governments worldwide have launched an extraordinary assisted measures were made available to banks in developed economy Rose and Wieladek (2012), De-Caux *et al.* (2017), and emerging economy (Shehu *et al.,* 2014). In recent time, the authorities all over the world designated for supervision and regulating the banking sector have resolved to a different rescue measures such as extended liquidity support, nationalization of banks, capital injection and blanket guarantees (Bayazitova & Shivdasani, 2012; Duchin & Sosyura, 2014; Berger *et al.,* 2016) . Moreover, the effect of the bank's interventions on the bank's performance depends on the type of mechanisms applied by the authorities to assist the banks in preventing failure (Dam & Koetter, 2012). Theoretical and empirical findings on government interventions from various researchers present mixed results. The major argument advanced by the supporters of intervention is that the regulatory arrangements are necessary to restore the confidence in the banking sector and thereby preventing the sector from falling into prolonged economic recession and they are with the opinion that intervention has positively affected the banking sector performance (Cordella & Yeyati, 2003; Philippon & Schnabl, 2010; Mehran & Thakor, 2011; Hryckiewicz, 2014; Berger *et al.,* 2016). Furthermore, Mehran and Thakor (2011) argue that bank intervention is likely to strengthen the monitoring incentives of banks, which consequently improves performance.

However, other studies on intervention come up with the opposite results. They argue that bank intervention causes the banking sector more harm than good. Flannery (1998) reported that bank interventions increase moral hazard due to the anticipations of bail-outs and a decline in a market discipline, which negatively affects the bank's performance. Other researchers also argue that such action of bank intervention increases the risk faced by non-assisted banks and also undermines the competition in the banking sector (Gropp, *et al.,* 2011). Duchin and Sosyura (2012) documented that government interventions only favored those banks that are politically connected because they are more likely to receive financial support than the others which will undermine the performance of the banking sector. Hence, this study hypothesizes that:

H_3: Intervention has a negative effect on bank performance.

Recapitalization and Bank's Performance

Although over the years, the arguments surrounding the paradigms of bank recapitalization and bank performance relationships suggest many controversies that are yet to be systematically addressed, it yet remains unclear because of mixed results from empirical studies. Several empirical studies found a non-significant or negative effect on the relationships between bank recapitalization (or its dimensions) and bank performance. For instance, several studies found significant and positive effects of recapitalization and performance (Bhagat *et al.,* 2011; Bhaumik & Selarka, 2012; Yusupov, 2012; Ding *et al.,* 2013; Nicholson & Salaber, 2013; Etri *et al.,* 2016; Beccalli & Frantz, 2016; Donou-Adonsou & Sylwester, 2017; Ernovianti & Ahmad, 2017). Conversely, several studies also found a negative relationship between recapitalization (or its dimensions) and bank performance (Aybar & Ficici, 2009; Bertrand & Betschinger, 2012; Beccalli *et al.,* 2016; Tomec & Jagrič, 2017; Bibi *et al.,* 2018). This shows that the conceptual underpinnings surrounding bank recapitalization and bank performance relationships are yet a growing paradox that requires considerable attention. Hence, the final hypothesis is as follows:

H_4: There is a positive relationship between recapitalization and bank performance

3. Bank performance

Bank performance simply refers to the ability of banks to attain its goal through the application of available resources in an effective and efficient manner (Asat, Maruhun, Haron, and Jaafar, 2015). Different types of performance indicators have been used by the previous scholars to measure performance. For instance, Murphy, Trailer, and Hill (1996) identified 71 performance parameters that have been used by researchers to measure both financial and non-financial performance. In most situations, researchers use financial measures to explain firm performance. For instance, measures such as return on investment, return on sale and return on equity are some of the commonly used indicators to measure performance (Saeidi, Sofian, and Abdul-Rasid, 2014). Henri (2004) and Hoque (2004) measured performance from objective measures (financial performance) to determine whether the company is profitable, while other researchers look at performance from subjective measures (non-financial performance (Hočevar and Jaklič, 2010; Lee and Yang, 2011; Owusu, 2017; Rasid, Golshan, Mokhber, Tan, and Mohd-Zamil, 2017).

However, financial measures such as ROA, ROE, ROI, profit growth, and volume of deposits are the most frequently used. They are no longer seen as adequate means of exercising management control Neely (2007). Their weaknesses are well documented in the previous literature that includes failing to convey priorities and strategies effectively within an organization (Najmi, Rigas, and Fan, 2005). Thus, for a more broad assessment, organizations have resorted to the utilization of non- financial and financial performance measures. Kaplan and Norton (2001) suggest that performance ought to be measured in the multidimensional form to cover both non-financial and financial measures. For instance, Judge, Naoumova, and Koutzevol (2003) used product service quality, capacity utilization, customer satisfaction, and process improvements to measure firm performance. Non-financial measures provide prompt information relating to the causes and drivers of success to executives, which may be used for the policymaking and designation of integrated systems of evaluation (Kaplan and Norton, 2006). The number of indicators (financial and non-financial) that are used to measure the banks' performance implies that bank performance is fundamentally a multi-dimensional rather than unidimensional phenomenon (Arshadi and Lawrence, 1987).

Alternatively, the emergence of non-financial measurements are due to the pressure from the competition, changes in the roles of the organization, information technology power, external demand variations and due to the limitations of traditional financial performance measure (Neely, 1999). Moreover, non-financial measures provide timely information pertaining to the causes and drivers of success to managers, which may be employed for the designation of integrated systems of evaluation (Kaplan and Norton, 1992). Furthermore, banks need to completely reassess their performance measurement in order to adapt to constantly changing customer needs and requirements. Moreover, in the field of performance measurements, the Kaplan and Nolan frameworks were used but a recently updated and proposed for further research by using a Fuzzy Multiple Criteria Decision Making (FMCDM) approach and selected the measures fit for banking performance evaluation (Wu *et al*., 2009). On the basis of the above-mentioned factors, this study adapted the FMCDM approach and selected the measures fit for banking performance evaluation (Wu *et al*., 2009). Therefore, this study filled up the gap and added up to the scanty managerial literature in banking and used a primary source of data to covered both financial and non-financial performance.

4. Bank Size as Control Variable

Sometimes it is somehow challenging to conclude the results without using a control variable. The association between banks recapitalization and performance of banks may be affected by some other factors to provide clear evidence in achieving a conclusive result. This study used the bank's size as a control variable. The control variable with empirical support will assist the author in having clear results of the study. Considering the fact that bank-specific characteristics could affect the outcomes of performance. To enhance the robustness of the result, this study introduced the bank's size as a control variable. This is in line with other studies (Hussaini, 2018; Ng, Ye, Ong and Teh, 2017; Ofoeda, 2017) who consider the size of the bank as a control variable. Meanwhile, Halbouni and Garbou (2016) also consider company size as a control variable and measures it by the number of employees. Conclusively, this means that the bank's size is an indicator of the performance of the banks, the greater the size, the higher the profitability of the bank.

Research model

The above literature demonstrates the existence of a strong relationship between recapitalization, bank performance. After an extensive review of previous literature, the conceptual research framework the independent variable recapitalization has three proxies i.e. merger and acquisition, equity issues and intervention while the dependent variable bank performance has two proxies financial and non-financial performance. Moreover, due to the nature of the size of Nigerian banking sector, this study introduced the bank size as a control variable. Finally, after an extensive review of the related literature on previous recapitalization approaches, this conceptual research framework is realistically fine-tuned to fill the research gap.

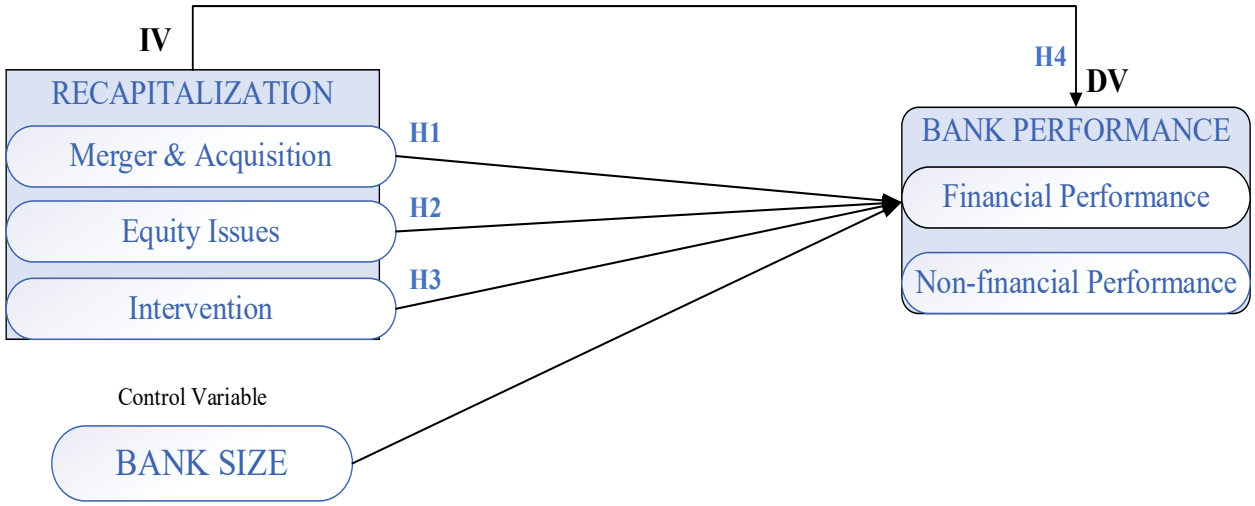

Figure 1: Research Framework

5. METHODOLOGY

The self-administered questionnaire prepared in English with a 5-point Likert scale ranging from strongly disagree to strongly agree for exogenous and endogenous variables was employed to rate the top manager's perception of bank recapitalization on the performance of the banking sector. The respondent manager were selected from one of the three top management groups that include regional manager, branch manager or the most senior officer holding a strategic position in the selected sampled bank. The study utilized measures developed by previous studies to measure the study variables. The recapitalization scale developed by (Aduloju *et al.* 2008) was adapted to measure bank recapitalization framework application in the context of the Nigerian banking sector. The items used to measures financial and non-financial performance were adapted from Wu *et al.* (2009) which are fit for the banking performance's evaluation.

Data Collection

The stratified sampling method was applied. Stratified sampling has the merit of ensuring equality and fairness in the selection process, especially if the target population are heterogeneous and fall into different segments or groups (Salkind, 2007). Creswell (2014) supported the idea of this stratification as an efficient technique that ensures the sample is distributed in the same manner as the population of the study based on the same stratifying criteria. Hence the Nigerian banking sector is classified based on two strata; commercial banks (universal banks) and specialize banks which include primary mortgage banks and microfinance banks. In order to obtain a stratified sampling of managers from different banks in each group, this study employed the Krejcie and Morgan's (1970) of sample size determination. This study adopted the cross-sectional method of data collection to answer the study's research questions in which data were collected at once (Salleh & Nor-Azila, 2018).

The population of this study is 1,079 banks, which comprise of all the universal banks and specialized banks that were affected by recapitalization from 2006-2018. Of the 329 questionnaires sent out, 317 were completed and returned, and 305 were found suitable for analysis. This reflects a 92% response rate. More importantly, the tool of analysis for the current study, PLS-SEM requires a minimum of only 30 responses (Chin, 1998); thus a total of 305 responses for this study is adequate for analysis. The 92.7% response rate is above the minimal range of prevailing response rate. However, some researchers had proposed other minimal level of response rate, causing an inconsistency across the literature concerning acceptable response rate. Babbie (2008) suggested 50 per cent as the minimal level. Groves *et al*. (2004) and Porter (2004) suggested 60 per cent, while De-Vaus (2002) argued for 80 per cent. Hence, the response rate of this study is adequate for further analysis.

Statistical Approach

The choice of this study is driven by the purpose to explore the relationship between the study variables, which concerned exploratory analysis in nature. Smart PLS 3.2.8 was utilized in this exploratory study, and SPSS version 25 was also employed to analyze the descriptive statistics and multicollinearity. The goodness of the model was measured, otherwise known as the measurement model to determine the goodness of the indicators. Assessment of structural model from which our basis of conclusion is done. This model is a reflective-reflective model, and the quality criteria for assessing measurement model are Cronbach alpha and composite reliability which confirms the internal consistency, Average Variance Extracted (AVE) which confirms the convergence validity, and discriminant validity which also consists of Fornell and Larcker (1981).

6. RESULTS AND DISCUSSION

Measurement Model

The two main criteria in PLS-SEM evaluation, to assess reliability and validity, were used to evaluate the outer model (Hair *et al.,* 2014). The structural results of the relationship among constructs (inner model) depend on the validity and reliability of the measures. In addition, the measurement model can be evaluated by examining: (i) internal consistency reliability, indicator reliability and individual item reliability using Cronbach's alpha and composite reliability, (ii) convergent validity of the measures assessed by calculating the average variance extracted of the indicators associated with individual constructs Mackenzie *et al.* (2011), and (iii) discriminant validity using Fornell-Larcker criterion and the indicator's outer loadings. Figure 2 shows the measurement model of this study.

Table 4.1: Outer Loadings, CA, CR, AVE,

Construct	Loading	Cronbach's Alpha (CA)	Composite reliability (CR)	Average Variance Extracted (AVE)
Merger and Acquisitions				
MAC1	0.860	0.865	0.901	0.518
MAC2	0.493			
MAC3	0.870			
MAC4	0.862			
MAC5	0.540			
MAC6	0.478			
MAC7	0.846			
MAC8	0.509			
MAC9	0.827			
Equity Issues				
EI1	0.763	0.898	0.918	0.562
EI2	0.838			
EI3	0.898			
EI4	0.505			
EI5	0. 762			
EI6	0.605			
EI10	0.784			
EI8	0.874			
EI9	0.624			
Intervention				
INV1	0.739	0.865	0.891	0.512
INV2	0.874			
INV3	0.584			
INV4	0.667			
INV5	0.864			
INV6	0.523			
INV7	0.749			
INV8	0.646			
Financial Performance				
FP1	0.728	0.859	0.895	0.587
FP2	0.836			
FP3	0.797			
FP4	0.799			
FP5	0.737			
FP6	0.689			
Non-Financial Performance				
NFP1	0.745	0.791	0.857	0.546
NFP2	0.728			
NFP3	0.665			
NFP4	0.762			
NFP6	0.787			

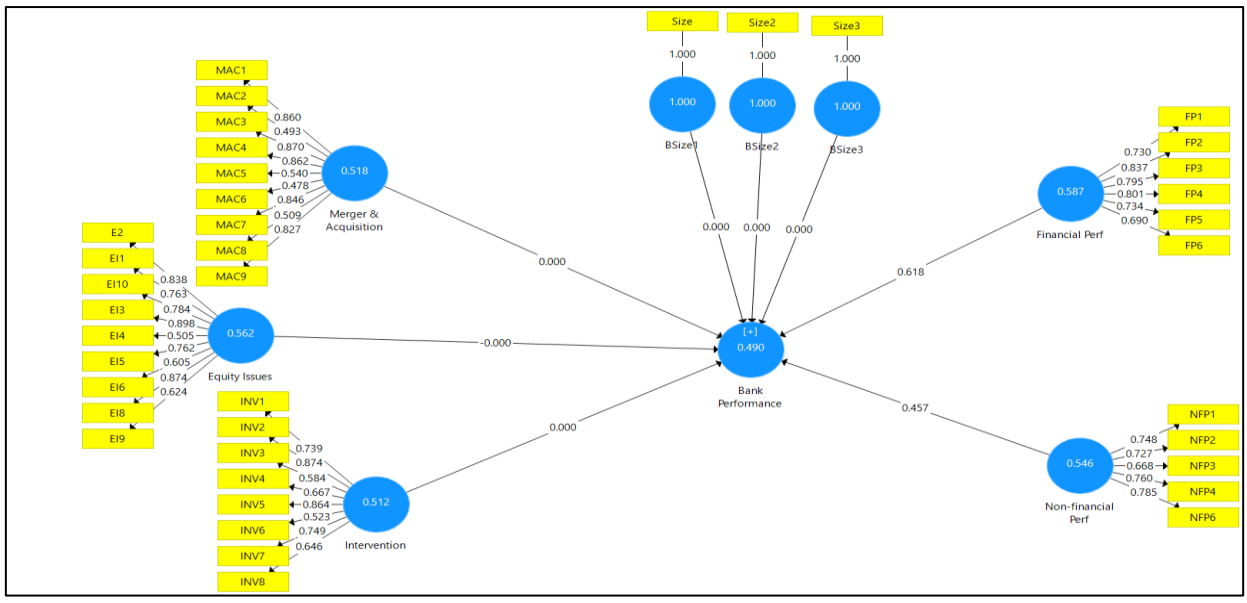

Figure 2: Measurement Model

This study evaluates individual items' reliability based on their respective outer loadings and a threshold value ≥ 0.40 (see table 4.1) (Hulland, 1999; Hair *et al.,* 2014). Moreover, in some cases, indicators with loadings of between 0.4 - 0.69 were carefully retained base on their contribution to the construct's validity (Avkiran, 2018).

As shown in Table 4.1, Cronbach's-alpha ranged from 0.791 to 0.898, and composite reliability ranged from 0.857 to 0.918 for all five constructs respectively. The results exceed the minimum requirement of 0.7, thus confirming the internal consistency and reliability of all constructs. The AVE for all constructs also exceeded 0.51, which is larger than the minimum threshold of 0.50, thus demonstrating convergent validity for all the constructs (Hair *et al.,* 2012). An AVE of 0.50 means that the constructs account for 50% of the variance in its indicators, which is considered adequate (Hair *et al.,* 2014). In other words, the latent construct explains half of the variance of its indicators and indicates adequate convergent validity (Hair *et al.*, 2014). Discriminant validity is established when the value of the square root of AVE of each construct is higher than the construct's highest correlation with any other latent construct (Henseler *et al.,* 2009; Hair *et al.,* 2014). Hence, discriminant validity was evaluated in this study by comparing the square root of the AVE for each construct with the highest correlation of the latent construct in the matrix. Therefore, these results showed that the required level of the discriminant validity of the variables of this study had been achieved (Henseler *et al.,* 2009; Hair *et al.,* 2013).

Table 4.2: Results of Discriminant Validity Based on Fornell-Larcker Criterion

Variables	1	2	3	4	5
Equity Issues	**0.750**				
Financial Performance	0.320	**0.766**			
Intervention	0.223	0.223	**0.716**		
Merger and Acquisitions	0.249	0.302	0.188	**0.720**	
Non-Financial Performance	0.224	0.727	0.205	0.279	**0.739**

Note: Entries shown in boldface represent the square root of the AVE (Measurement Model).

The structural Model

After establishing the measurement model, the reliability and validity of the model are ascertained, the next step was to assess the structural model. This involved evaluating the relationships between the constructs. The fundamental criteria for evaluating a structural model in PLS-SEM are the significance of the path coefficients (Hair *et al.,* 2014). A systematic model analysis of the structural model was carried out to provide a detailed understanding of the results and test the Hypotheses H_1 to H_4. In addition, a standard bootstrapping procedure with–5,000 bootstrap samples was used to assess the significance of the path coefficients (Henseler *et al.,* 2009; Hair *et al.,* 2017). This study used a repeated indicator approach as this approach is the most frequently used method for estimating higher-order constructs in PLS (Wilson & Henseler, 2007). The results of the tested Hypotheses H_1 to H_4, shows that, recapitalization and its proxies have a significant positive relationship with bank performance as shown Table 4.3.

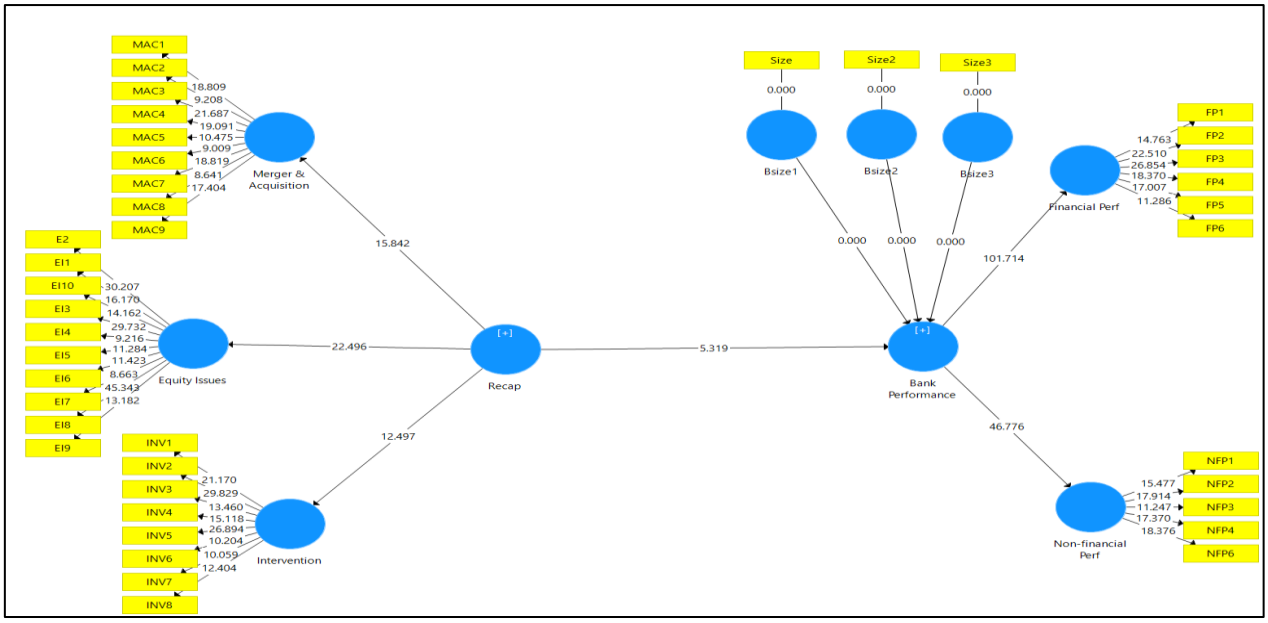

Figure 3: The structural Model

Table 4.3: Results of Hypotheses Testing (Direct Relationships)

Hypothesis	Relationship	β	Stand Dev	T Stat	P Values	Decision
H_1	Merger & Acquisition -> Perf.	0.213	0.054	3.931	0.000	Supported
H_2	Equity Issues -> Perf.	0.180	0.052	3.443	0.001	Supported
H_3	Intervention-> Perf.	0.120	0.045	2.684	0.008	Supported
H_4	Recapitalization -> Perf.	0.322	0.048	6.869	0.000	Supported

*Note: In two-tailed test of significance p < 0.01***, p <0.05**, p <0.1*.*

Control Variable

In addition to the test conducted on the proposed links firm size and bank performance, as shown in the structural model, the control variable was also examined as shown in Figure 4 below. The control variable was treated as exogenous latent variables similar to other exogenous variables in the model (Kock, 2011; Kock, Chatelain-Jardón and Carmona, 2008). Bootstrapping was applied to examine the relationship between the control variable and bank performance. Results from the bootstrap method, as shown in Table 4.4 below indicates that bank size has no significant relationship with bank performance.

Table 4.4: Control variable

Number of employees	β	Standard error	*T*-values	*P*-values
Bank Size1 -> Perf. 1-500	-0.010	0.071	0.138	0.890
Bank Size2 -> Perf. 501-1000	NIL	NIL	NIL	NIL
Bank Size3 -> Perf. 1001 & Above	-0.039	0.075	0.544	0.587

Note: bank size was measured by number of employees

Important–Performance Map Analysis (IPMA)

This study considered the used of importance-performance map analysis technique to identify the areas that actually need the priority and relevance for managerial actions for recapitalization exercise on the performance of the Nigerian baking sector. The importance-performance map analysis (IPMA), also called importance-performance matrix analysis or priority map analysis (Ringle and Sarstedt, 2016). IPMA analysis explained that the size of the standardized path coefficient allowed to determine the relative importance of one variable to explain another. IPMA extends the standard of PLS-SEM results reporting of path coefficient estimates by adding a dimension to the analysis that considers the average values of the latent variable scores (Fornell, Johnson, Anderson, Cha and Bryant, 1996; Hair *et al*., 2017; Höck *et al*., 2010; Slack, 1994).

Table 4.5: IPMA analysis

Predecessor Constructs	Importance (Total Effects)	Performance (Index value)
Merger and Acquisition	0.139	66.456
Equity Issues	0.176	61.077

Intervention (Bailout)	0.092	66.945
Mean values	**0.135**	**64.626**

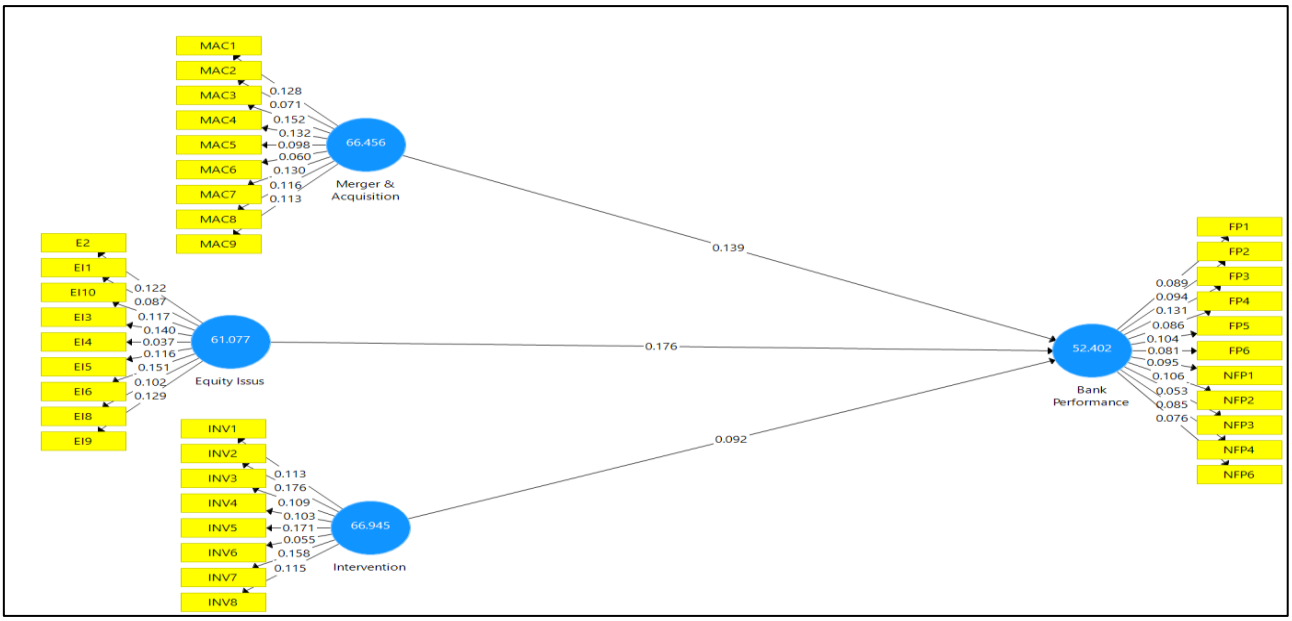

Figure 4: Importance-Performance Matrix and Path Model with Results

The IPMA results revealed that, in terms of assigning priority to management-oriented measures relative to the results to improve the performance of the banking sector through the proxies' of recapitalization. The first priority is to improve the performance aspects captured by equity issues, as this construct has the highest importance value in the model of 0.176 per above the mean value of 0.135 but relatively has the lowest performance of 61.077 which is by far below the mean of performance of 64.626 in the IPMA analysis as shown in Table 4.5. This methodology better defines the importance and priority by managements and solves the practically complicated problems (Lee *et al*., 2008). This study enlisted the IPMA procedure in other to extract differentiated information in addition to the results obtained through the standard PLS analysis. This study also has been able to empirically confirmed the hypothesized structural model. The Linkage of the PLS path analysis method with the importance-performance mapping technique clearly points to significant areas for improvement of management activities. Finally, an action should be considered along the lines to review the equity issues areas that are relatively high importance but relatively low performance in other to succeed and avoid future banks failures.

7. CONCLUSION

The aim of the study was to evaluate the effects of bank recapitalization and its dimensions on bank performance. The model was developed and test to verify the hypotheses with respect to dimensions of recapitalization (i.e., merger and acquisition, equity issues and intervention) on banking sector performance. This study is amongst the first to empirically investigate the effect of bank recapitalization and its dimensions on the performance of the Nigerian banking sector. This study has demonstrated that bank recapitalization mirrors positive and significant effects on bank performance. Several extant studies have examined the bank recapitalization from a unidimensional perspective Adedeji *et al.* (2015), Beccalli *et al.* (2016), Etri *et al.* (2016) and Tomec and Jagrič, (2017) these could both be limiting or misleading. This is because they failed to include the insights of all dimensions of bank recapitalization and how these various dimensions relate to bank performance proxies (i.e., financial and non-financial performance). It is deemed misleading as it may guide the readers to develop a perception that bank recapitalization mainly demonstrates a particular kind of effect on bank performance.

Similarly, this study has empirically investigated the effect of merger and acquisition on bank performance and found that mergers and acquisitions have a significant positive effect on bank performance. These results are in agreement with the discourse of several studies that have also explored the effect of merger and acquisition on the bank performance (Abdulazeez *et al.,* 2016; Arena & Dewally, 2017; Christine & Jagongo, 2018; Souza & Gartner, 2019). This also confirms that, the study's position and prior argument raised by Hassen *et al.* (2018) that in the long run merger and acquisition achieve all their aims. Similarly, this study also demonstrated that equity issues have a significant positive relationship with bank performance. This is consistent with the study findings of Keeley (1989) and Beccalli *et al.* (2018) which indicates that equity issue has a positive and significant impact on bank performance, thus, complementing the

position of Bessler and Thies (2007) who emphasized that, the abnormal returns and performances was due to opportunity to raise additional funds in the equity market for subsequent years. Likewise, our study also demonstrated that intervention displays a significant positive effect on bank performance. The research findings of this study support the previous research findings of Cordella and Yeyati (2003), Hryckiewicz (2014b) and Berger *et al.* (2016), which indicated the importance of regulatory arrangements to restore the confidence to achieve the sustainable banking sector performance. Additionally, our result showed that bank recapitalization has a stronger influence on financial than non-financial performance.

The main priority is to improve the performance aspects captured by equity issues, as this construct has the highest importance value in the recapitalization exercise of 0.176 per above the mean value of 0.135 but relatively has the lowest performance of 61.077 which is by far below the mean of performance of 64.626 in the IPMA analysis. Action should be considered along the lines to review the areas that are relatively high importance but relatively low performance in other to succeed and avoid future failures. This study enlisted the IPMA procedure in other to extract differentiated information in addition to the results obtained through the standard PLS analysis. This study also has been able to empirically confirm the hypothesized structural model. This result indicated that even with the improvement of recapitalization proxies in the banking industry, still there is an indication that the regulatory authorities, as well as the management of the banks, needs to strengthen their equity issues in the banking sector. This study is pioneering research in the field of empirical analyses regarding the effect of bank recapitalization on the performance of the banking sector. Future research should study other factors that may influence the variables in the proposed model; for instance, future researchers should consider blanket guarantee and debt restructuring as part of bank recapitalization in their study. It would also be useful to analyze other potential moderators due to contradictory results in the previous findings.

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