

RESEARCH ARTICLE

## Evaluation of Effects of Banking Consolidation on Small Business Finance in Nigeria

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### Abstract

Prior to the 2004 reform in the Nigerian banking sector, banks neglected the small and medium class saver and concentrated more on big corporate savers. Many banks abandoned their essential intermediation role of mobilizing savings and inculcating banking habit at the household and micro enterprise levels. This paper presents empirical findings on the effects of the 2005 bank consolidation on small business finance in Nigeria. The main objective of this paper is to assess the response of flow of credit from the banking sector to small and medium enterprises in Nigeria. Data for the study were sourced from the list of the 25 post consolidation banks in Nigeria. Panel data covering a period from 2004 to 2011 were analysed using the Levin, Lin and Chu panel unit root test analysis to ascertain the authenticity and accuracy of the data series as well as its reliability on policy issues. The study adopts panel regression approach comprising of fixed and random effect models and used Hausman Taylor option in selection of a more efficient estimator for the model equation. The study shows a percentage increase in post consolidation asset base by over 9 percent for the banks and profit maximization increases by 72 percent which could translate to increased bank propensity and readiness to lend. There is also a significant increase in SME credit supply accessible by firms resulting to increase investment and consolidated effort to encourage the development of more SME driving enterprise. The study therefore recommends that credit policy effect should ensure that banks reorganize their asset portfolios so as to create more provision for lending to small firms rather than implementing policies that allow for more stringent conditions and requirements that discourage future development of SME investments in the economy.

**Keywords:** *Bank Consolidation, Intermediation, SMEs Financing.*

### Introduction

The banking sector plays the important role of promoting economic growth and development through the process of financial intermediation by channeling funds from the surplus unit to the deficit unit of the economy. It is well acknowledged in literature that the financial system with the banks as its major component provides linkages for the different sectors of the economy and encourage high level of specialization, expertise, economies of scale and a conducive environment for the implementation of various government economic policies such as non-inflationary growth, exchange rate, stability, balance of payments equilibrium and high levels of employment. Schumpeter [1] put the role of financial intermediation at the center of economic development. In his argument he inferred that financial intermediation through the banking system played a pivotal role in economic development by affecting the allocation of savings, thereby improving productivity, enhance technical

change and accelerate the rate of economic growth. He believed that efficient allocation of savings through identification and funding of entrepreneurial activities with the best chances of successful implementation of innovative products with cost efficient production processes are tools to achieve accelerated economic growth. A well functioning financial system is able to mobilize household savings, allocate resources efficiently, diversify risk, and enhance the flow of liquidity, reduce information asymmetry and transaction cost and provide an alternative to raising funds through individual savings and retained earnings. This is a pointer to the fact that financial development has a positive impact on economic growth.

About a decade ago, the Nigerian government embarked on an unusual bank consolidation exercise that resulted in reducing the number of commercial banks in the Nigerian economy from

89 to 25, then to 24. The 2004 consolidation exercise was predicated on convincing evidences that suggested that the Nigerian financial sector, particularly the banks were not performing the intermediation role as expected in the economy. In his June 6, 2004, address to the Bankers' Committee, the erstwhile CBN governor Professor Charles Soludo [2] characterized the weaknesses of the pre-consolidation Nigerian banks to include low capital base; insolvency and illiquidity and smallness of size that leads to high overhead costs. Consequently, banks could not effectively support the real sector of the economy with credit to the domestic economy at 24% of GDP, compared to African average of 87% and 272% for the developed countries.

One of the major flaws of the Nigerian banks prior to the 2004 reform was the neglect of the small and medium class saver. Many banks abandoned their essential intermediation role of mobilizing savings and inculcating banking habit at the household and micro enterprise levels. The apathy of banks towards small savers, particularly at the grass-root level, has not only compounded the problems of low domestic savings and high bank lending rates in the country, it has also reduced access to relatively cheap and stable funds that could provide a reliable source of credit to the productive sectors at affordable rates of interest. The structure of the banking system as at that time promoted tendencies towards a sticky behaviour of deposit rates, particularly at the retail level, such that, while banks' lending rates remain high and positive in real terms, most deposit rates, especially those on savings, are low and negative. In addition, savings mobilization at the grass-root level was discouraged by the unrealistic requirements, by many banks, for opening accounts with them [2].

The purpose of the 2004 reforms is to make the Nigerian bank to become stronger players, in a manner that will ensure longevity and hence higher returns to shareholders and engender greater impacts on the Nigerian economy. The ultimate beneficiaries of the policy shift are the Nigerian economy as well as the entrepreneurial Nigerians who can now have a stronger financial system to finance their businesses; and Nigerian economy which will benefit from internationally connected and competitive banks that would also mobilize international capital for Nigerian development. The policy measure is about positioning Nigeria and Nigerians to become competitive players in the 21<sup>st</sup> century.

There is no doubt that the reforms have yielded some positive outcomes of the reforms. First, banks by their larger size were enabled to undertake funding of large ticket projects, especially in infrastructure, and oil and gas sectors, through the new window in the enlarged single obligor limits. The larger size of banks also engendered improved customer confidence. The number of bank branches has increased from 3,247 in 2003 to over 5,837 in 2010 and employment in the sector rose from 50, 586 in 2005 to 71,876 in 2010. Also, the capital market received a boost as several banks recorded successes in their initial public offers (IPOs). The consolidation exercise also impacted on the payment system positively as the fewer number of banks made it easier to deploy the new automated clearing systems and also reduced the length of time spent on the clearing floor. Concerning supervision, the relative ease of having to oversee 24 banks as against 89 deserves mention [3].

Consolidation in the banking industry has however raised concerns among policymakers that this may lead to a reduced availability of credit for small business owners, as a result of decrease in the number of small banks specializing in extending loans to small and medium scale entrepreneurs. Micro and small enterprises (MSEs) are the backbone of many economies in Sub-Saharan Africa (SSA) and hold the key to possible revival of economic growth and the elimination of poverty on a sustainable basis [4]. Since the bulk of small business credit is primarily from banks, institutional changes through consolidation will likely have an adverse effect on small business credits. This is a major issue for any country particularly a developing country like Nigeria. Experts argue that consolidation of the banking industry in Nigeria will have negative impact on the amount of credit available to small and medium scale enterprises. Small banks are major source of credits for small and medium enterprises. Unlike large firms which have access to the capital market, small and medium scale enterprises rely heavily on self financing supported by bank credit. If small banks are increasingly acquired by large banks in the form of consolidation, it is argued that it will have a negative effect on the availability of credit to small and medium scale enterprises.

The main thrust of this paper is to evaluate the effect of the bank consolidation exercise on small business financing. While there exists a growing body of theoretical and empirical studies that

attempts to appraise the effects of bank reforms and consolidation program on various measures of organizational performance in the banking sector [5]. In Nigeria there also exist some studies on effects of bank consolidation on lending activities in Nigerian banks, but the effect of bank consolidation on small and medium enterprises financing is yet to receive much academic enquiry among Nigerian researchers, it is in this note that this paper stands to fill the gap in literature. The general objective of this research effort is to assess the response of flow of credit from the banking sector to small and medium enterprises in Nigeria. Other objectives are; (1) to analyse the size of bank credit to SMEs if the bank is involved in merger or acquisition, (2) to examine the effect of bank size on financing conditions of the SMEs, (3) to measure the effect of bank concentration on the financing structure of SMEs. The research questions are ; does the total amount of bank credit of a SME firm change after one of their lending banks has merged with or is acquired by another bank; does the size of the lending banks still matter for the financing structure of a SME firm that is, share of bank debt; does concentration in the lending market influence the financing structure of SMEs. The rest of the paper is organized into five sections. Section two is devoted to the review of the related literature. Section three presents the methodological framework while the discussion of results is in section four. The conclusion and recommendations are presented in section five.

### Theoretical Framework/Literature Review

Concentration refers to the degree of economic activity by large firms [6]. Increase in concentration level in an industry could be due to considerable size enlargement of the dominant firm(s) and or considerable reduction of the non-dominant firm(s). Conversely, reduced concentration implies considerable size reduction of dominant firm(s) and /or considerable size enlargement of the non-dominant firm(s) in relation to a particular industry [7]. Every industry has its concentration attrition, Thorsten Beck, Asli Demirguc-Kunt and Ross Eric Levine [8] calculated the degree of concentration in the banking industry to be the fraction of assets held by the three largest commercial banks in a country consistently over a period of five years.

The proponents of banking sector concentration argued that economies of scale drive bank mergers and acquisitions (increasing concentration), so that increased concentration leads to efficiency improvements [9]. Allen and

Gale [10] carried out a study using country comparisons argue that a less concentrated banking sector with many small banks is more prone to financial crises than a concentrated banking sector with a few large banks. This is partly because reduced concentration in a banking market results in increased competition among banks and vice-versa. Proponents of “concentration-stability” view argue that larger banks can diversify better so that banking systems characterized by a few large banks will tend to be less fragile than banking systems with many small banks.

Concentrated banking systems may also enhance profits and therefore lower bank fragility. High profits provide a buffer against adverse shocks and increase the franchise value of the bank, reducing incentives for bankers to take excessive risk. Furthermore, a few large banks are easier to monitor than many small banks, so that corporate control of banks will be more effective and the risks of contagion less pronounced in a concentrated banking system [11]. However, there is evidence linking increase in banking concentration to reductions in credit supply. In the United States, Berger et al [12] find evidence that the increase in the proportion of banking industry assets controlled by the largest banking organizations in the 1990s, due to the liberalization of geographic restrictions on banking in the United States, may have been responsible for part of the credit crunch observed in 1989-92.

It has also been argued that the higher the concentration in the local bank market; the higher the prices are for financial services, and consequently the higher the banks’ profits. This is because banks in less competitive environments charge higher interest rates to firms. If concentration is positively associated with banks having market power, then concentration will increase both the expected rate of return on bank assets and the standard deviation of those returns [13]. The policy implication is that higher market concentration is associated with lower socio-economic welfare and, therefore, higher concentration is undesirable. Another adverse effect of concentration position is that a more concentrated banking structure enhances bank fragility. Advocates of “concentration-fragility” are of the view that larger banks frequently receive subsidies through implicit “too big to fail” government policies like was recently witnessed in Nigeria that the government had to inject N620 billion into eight banks as a direct rescue

package, a gesture that small banks do not enjoy [14].

Proponents of the concentration-fragility view disagree with the proposition that a few large banks are easier to monitor than many small banks. If size is positively correlated with complexity, then large banks may be more opaque than small banks, and therefore more difficult to monitor. This would tend to produce a positive relationship between concentration and fragility. Theoretical results demonstrate that monopolistic market power of banks raises the opportunity costs of capital and thus, tends to make financing more expensive [15]. Lack of adequate competition in banking could thus, adversely affect economic development.

While it has been shown that banking consolidation has many benefits, including increased efficiency and better diversification that also supports macroeconomic stability, concern had been raised that it may adversely affect the availability of credit to small firms. Consolidation in most countries has involved a large number of small banks that traditionally specialized in providing credit to small businesses fizzle out of existence and large and more complex banks emerging from consolidation with less likelihood to lend to these small companies. The line of argument here arises from the observation over time that larger banks characteristically have fewer propensities to lend to small firms. Small business lending generally makes up a smaller share of larger banks' total loans. It is from this stand point, one might expect that smaller banks although initially constrained in lending to small firms may, once reorganized into larger banks, shift their portfolios of loans in favor of larger borrowers or even shift their asset composition away from traditional lending activities. Furthermore, as smaller firms are more opaque in terms of information than larger ones and as small banks enjoy comparative advantages in overcoming information asymmetries as they are closer to the borrower, a decrease in small business credit may also be observed because the expected value of loans to small businesses may fall due to higher perceived risks by larger banks.

Baumol [16], seeing consolidation from a different perspective argued that potential new entries will restrain the competitors from exploiting their market power. These new competitors may enter the market and pick up any small business loan dropped by merged institutions and so in equilibrium there would be no changes in small

business lending. Another argument in this direction is put forward by Demsetz [17]. Taking concentration as endogenous, argues that more efficient banks will charge lower prices and gain higher market shares, leading to higher prices in markets with big differences in efficiencies than in markets with similar efficiencies. By contrast, loan conditions may deteriorate if banks are able to exploit their market power. However, competition might also increase small business lending because it forces banks to search for additional profit opportunities as the market get saturated in an undynamic economy.

Beck, Demirguc-Kunt and Maksimovic [11] using a unique database for 74 countries of financing obstacles and financing pattern for firms of small and medium and large size, assessing the effects of banking market structure on financing obstacles and the access of firms to bank finance. The authors find that bank concentration increases financing obstacle and decreases the likelihood of receiving finance, with the impact decreasing in size. The relation of bank concentration and financing obstacles is dampened in countries with well developed institutions, higher levels of economic and financial development, and a larger share of foreign owned banks. The effect is exacerbated by more restriction on bank's activities, more government interference in the banking sector, and a larger share of government –owned banks. Also, it is possible to alleviate the negative impact of bank concentration on access to finance by reducing activity restrictions.

### **Bank Consolidation and Access to Finance in Nigeria**

Aburime [18] following Rose [19] and Demirguc – Kunt and Levine [9], measured bank concentration in Nigeria from 1995-2003 using three indices – the fractions of system assets, system deposit and banking system credit controlled by the three largest banks in Nigeria namely, First bank Plc., Union Bank of Nigeria Plc., and United Bank for Africa Plc. He finds evidence of Bank concentration base on the indices used but was quick to alert the CBN to make known to the emerged mega banks that they are “too big to fail”.

Barros and Caporale [20], examines the Nigerian banking consolidation process using a dynamic panel for the period 2000-2010 and the Arellano and Bond [21] dynamic GMM approach is to estimate a cost function taking into account the possible endogeneity of the covariates. They find

that the Nigerian banking sector has benefited from the consolidation process, and specifically that foreign ownership, mergers and acquisitions and bank size decrease costs. The response of flows of credit from the banking sector to reforms and consolidation program in the Nigerian banking sector utilizing cross sectional data sourced from the 89 pre-consolidation banks and the 25 post consolidation banks using Engel-Granger approach to error correction estimating techniques on the empirical model of banks credit performance. The result obtained from the panel data analysis generally confirmed that consolidation induced changes in banks structure in terms of size and capitalization positively influence bank lending performance in the Nigerian banking industry. However, they mentioned that there is a need to strengthen the overall financial system within which the banking sector operates in order to fully realize the potentials of the bank consolidation exercise.

It has been argued in literature that access to fund and cost of finance are among the major factors militating against the growth of SMEs. Although access to finance does not automatically guarantee growth and sustenance of small business, at the same time absence of adequate level of finance can frustrate the formation or growth of SMEs. Abu & Ezike [22] comment that if the people of Nigeria have a limited capacity to invest in capital, productivity is restricted, incomes are inhibited, and domestic savings remain low. A lack of access to financial institutions also hinders the ability for entrepreneurs in Nigeria to engage in new business ventures, inhibiting economic growth and often the sources and consequences of entrepreneurial activities are neither financially nor environmentally sustained.

Ilo, Okolo and Ani [23], in their assessment of the implications of bank consolidation on lending (financing), which largely determine the survival and performance of small and medium scale enterprises and in turn the development of the Nigerian economy. Using ordinary least square technique, correlation matrix test and Granger-causality test to measure the extent to which lending to small and medium scale enterprises were influenced by bank consolidation. The result obtained showed that bank deposit (BD) impacted on lending to small and medium scale enterprises. However, Commercial and merchant bank lending rate had statistically insignificant effect on the loan to SMEs which implies that there is a shift of focus by commercial banks from small and

medium scale enterprises (small customers) to major investors (big customers). At the same time micro finance banks were able to fill the gap created by the big commercial bank in SME financing but their capacity to meet the needs of these entrepreneurs is constrained. They recommended that the capital and deposits of micro finance bank should be boosted in order to effectively support small and medium scale enterprises through loans.

## Research Methodology

**Data and Data Sources:** Data for the study were sourced from the list of the 25 post consolidation banks in Nigeria. The study takes complete census of post consolidated commercial banks in Nigeria. This is considered sufficient to produce robust generalisable result. Yearly data were extracted from the financial statements of the consolidated banks from 2004 when the consolidation exercise was announced to 2012. Bank observations that are missing or misreported or that constitute outliers were excluded from the sample. Thus, the final sample was an unbalanced panel data. In all, the sample period and the sample size selected seem adequate and comprehensive enough for the kind of study intended in this study.

## Modeling and Data Analysis

The study aims at evaluating the extent to which small businesses were able to access finance from the commercial banks since after the 2004 consolidation exercise. To achieve this, quantitative analysis involving the use of panel data in a pooled regression, where time series and cross-sectional observations were combined and estimated to generate the coefficient of each relevant explanatory variable was performed, considering the objective of the study which is to give an estimation of the impact of consolidation in terms of bank size and deposit strength on small firms' access to commercial bank loan. A bank's loan reaction function is assumed to depend linearly on the banks characteristic variables, which could be size, deposit, return on asset, branch network, the extent of non-performing loan and lending rate of the bank. In the literature, bank size is the most commonly used indicator of a bank's ability to generate outside financing. The idea is that big banks do not have difficulties in raising funds because they do not have to pay premium for lack of information. Another factor of great importance is the deposit they are able to attract. Loans are given out from customers' deposits; it is assumed that big banks will be able to use their resources

to mobilize cheap sources of funds from the grassroots which they can give out as loan. Another factor which we consider important is the branch network of the big bank, it is expected that big banks will be able to cover many locations thereby giving small business owners access to the bank. Another factor is the return on asset, the extent to which the banks are able to make use of their asset to generate profit will affect the extent to which they are able to give out loan. We also considered the level of non-performing loan in the bank, which places a restriction on the banks ability to give out more loans and lastly, the prevailing lending rate in the bank which denotes the profitability of bank's lending activities, the lending rate is expected to attract/debar loan seeker to the bank.

Estimating the impact of consolidation induced changes in banks structure in terms of size and capitalization on loan supply by banks. Specified

$$L_{it} = \alpha + \beta_1 \text{Size}_{it} + \beta_2 \text{Cap}_{it} + \beta_3 \text{LDR}_{it} + \beta_4 \text{GDP}_{it} + \beta_5 \text{INF}_{it} + \eta_i + \lambda_i + \varepsilon_{it} \dots \dots \dots (1)$$

Where L denotes bank credit supply, measured as the growth rate of gross loans and advances of bank in year t; size measured bank size, cap measure bank capitalization, measured as shareholders fund of bank in year t, LDR is the rate of bank loan, measured by prime lending rate on loans, GDP which is the growth rate of the economy and INF for inflation.  $\eta_i$  is the (unobservable heterogeneity) which measures the particular characteristics of each bank.

The parameter  $\lambda_i$  are time dummy variables that change over time but are equal for the entire bank in each of the periods considered.  $\beta_1, \dots, \beta_5$  are parameter estimate of the coefficient to be estimated while  $\varepsilon_{it}$  is the error term. The same model was adopted for this study but with a little modification because this study is looking at small business financing. Therefore the model for this paper is specified as;

$$L_{it} = \alpha + \beta_1 \text{Size}_{it} + \beta_2 \text{ROA}_{it} + \beta_3 \text{BB}_{it} + \beta_4 \text{DEP}_{it} + \beta_5 \text{NPL}_{it} + \beta_6 \text{PLR}_{it} + \eta_i + \lambda_i + \varepsilon_{it} \dots \dots \dots (2)$$

Where L is commercial banks total credit to SMEs, Size is measure as log of bank total asset, the bank total asset is log because according to literature it takes bank asset at least a year to see the impact. ROA is measured as return on asset, return on asset measures the extent a firm uses its asset to generate profit. BB measures bank branch network, this is to help measure the extent to which small scale entrepreneurs are

able to access bank for loan, according to literature it is believed that the extent to which a bank network is spread out is the extent to which the bank will be able to reach out to as many people as possible. DEP measures the deposit from bank customers, it is believed that the deposit base of the bank determines the extent the bank will be able to extend loan to loan seeker. NPL measures non performing loan of the bank, the non performing loan measures the extent to which the banks will be willing to extend loan to loan seekers, banks that are high in nonperforming loan will have restriction on loanable fund and as such will not be willing to extent loan to loan seekers. PLR is a measure for the lending rate.

The commercial banks lending rate in Nigeria is high and also because of asymmetric issues surrounding small firm, this may serve as a disincentive for many small firms who may want to approach banks for loan. On apriori, it is expected that the entire variable will carry a positive sign except for non performing loan and prime lending rate which may carry negative sign.

## Data Analysis and Presentation of Result

### Time Series Properties of the Variables

Prior to estimation of the panel data model, it is recommendable that the characteristic behavior of the time series and cross sectional observations be determined. This becomes very essential as it could be used to ascertain the authenticity and accuracy of the data series as well as its reliability as it relates to policy issues. Most important it is needed to avoid obtaining inconsistent and biased estimates of the intended result. Hence, the development of the panel unit root test is meant to achieve this result in panel unit root analysis. Essentially, panel unit root test allows for a comprehensive detection and avoidance of these effects in regard to the heterogeneity tendencies associated with both the individual-level and panel group-level random effects. In this study, the Levin, Lin and Chu panel unit root test have been employed to this effect assuming a common unit root process. Consequently, Im, Pesaran and Shin W-stat, Fisher ADF and Fisher-PP Chi-square assuming an individual unit root process which permits for heterogeneity across cross-sectional units are to supplement these tests. These variety of tests are meant to test the null hypothesis as all the panels contain a unit root process. As indicated in table 1, the result of these tests showed that the variables consist of level and first difference stationary process. Hence, the

study adopts panel regression approach comprising of fixed and random effect models and

used Hausman Taylor [24] option in selection of a more efficient estimator for the model equation.

**Table 1: Unit root test results**

Variables	D	LLC	P-value	IPS	P-value	ADF	P-value	PP	P-value
SMEC	0	1.339	0.909	-2.790	0.998	7.569	0.999	7.369	0.999
	1	-5.938	0.000	0.775	0.063	53.296	0.000	53.296	0.000
BNKZ	0	14.782	0.076	-2.790	1.000	36.316	0.086	36.705	0.088
	1	0.558	0.711	0.775	1.000	12.000	0.979	15.599	0.902
ROA	0	-0.753	0.470	-2.790	0.579	33.007	0.161	31.310	0.216
	1	-12.366	0.000	0.775	0.00	94.594	0.000	98.372	0.000
NOB	0	-5.783	0.000	-2.790	1.000	55.923	0.000	55.923	0.000
	1	0.524	0.700	0.775	0.387	9.475	0.996	9.475	0.996
DEP	0	-3.749	0.000	-2.790	1.000	47.327	0.006	65.025	0.000
	1	-0.780	0.127	0.775	0.997	24.366	0.440	23.420	0.495
NPL	0	-1.711	0.043	0.044	0.739	22.651	0.540	25.037	0.403
	1	-6.676	0.000	-21.395	0.000	51.507	0.000	51.833	0.000
LDR	0	0.736	-2.790	-2.790	0.004	9.265	0.999	5.990	1.000
	1	-11.202	0.775	0.775	0.001	100.625	0.000	150.261	0.000

**Table 2: Estimated SME credit result, Fe**

Variable	Coefficient	Std. Error	T-statistic	P-value
C	18.03121	1.211404	14.88456	0.0000
BNKZ	0.095976	0.027846	3.446606	0.0012
ROA	0.720741	0.185248	3.890686	0.0003
NOB	-5.381063	0.349504	-15.39628	0.0000
DEP	-0.110349	0.094358	-1.169472	0.2480
NPL	0.058172	0.044724	1.300703	0.1996
LLDR	1.669500	0.460274	3.627187	0.0007
Summary of statistics				
R-squared	0.873052			
Adjusted R-squared	0.825446			
S.E of regression	0.129825			
F-statistic	18.33929			
Prob(F-statistic)	0.000000			
Durbin Watson stat.	1.75412			
Cross section included	13			
Observations	67			

## Result and Discussion

This study uses a panel data estimation approach in order to determine the effect of post consolidation exercise of banks on SME credit financing in Nigeria. To effectively achieve this objective it is important we verify if there is a correlation between the unobserved individual panel specific random terms and the exogenous variables in the model. In the existence of a correlation an efficient estimation is achieved by employing the fixed effect (within) estimator

which assumes a common heterogeneity and thus introduces an intercept for each of the panel specific effects  $u_i$  on the regressors thus allowing the panel specific errors to be treated as fixed parameters and the conditional mean of the endogenous variables vary with respect to the panels. Otherwise, a random effect estimator could produce a more consistent estimate of the model assuming an uncorrelated consistent zero mean random variables from the population. The

existence of no correlation between the random variable effect and pre determined variables induce consistent estimates using the Generalized Least Squares (GLS). The litmus test to determine a better option is to employ the Hausman Taylor [24] test. This fits the panel data random-effects models in which the exogenous variables are correlated with the unobserved panel specific random effect under the null hypothesis that  $B=b$ ; where  $B$  represents the random effect estimates and  $b$  is fixed effect estimate, which implies un-correlation of the individual level random effects with the covariates. On rejection of the null hypothesis, the panel specific errors are considered as fixed parameters using the fixed effect panel regression. The acceptance of the null hypothesis of the individual level random effect is estimated as uncorrelated random variables using the generalized Least Square estimation (GLS). Hence, in Hausman test a significant P-value suggests a more efficient estimate using fixed effect models. The Hausman Taylor test conducted for this study indicates a significant value at one percent level thus indicates a fixed effect estimated model. Therefore, the panel data analysis of this paper was carried out with fixed effect estimators. The variance co-variance matrix of the model estimator in this study utilized the panel corrected standard errors robust estimator which accounts for heteroskedasticity, autocorrelation or individual level heterogeneity effect.

Table 2, presents the estimated results of the SME credit supply from the panel fixed effect regression model. The result captures the post consolidation motivated changes on the small and medium firms' total credit mobilization with reference to bank sizes, asset base composition, and number of banks branches, bank deposit mobilization, non performing loans and lending rate as determinants of bank performance. The relational behaviors of the performance indicators as deduced from their estimated coefficients are analyzed and discussed.

The result of the estimated model as shown above depicts the relationship between small and medium enterprise credit supply and the post consolidated bank indicators. In general, the model revealed a good statistical goodness of fit with the included exogenous variables explaining over 87 percent of the variations in SME credit supply. The F-statistic result confirms the statistical significance of the model estimation and the Durbin Watson result revealed no

occurrence of auto-correlation in the model equation estimated.

Empirical evidence from the coefficient of bank size shows a significant and positive relationship with bank readiness to issue out credit to the small firms. It further revealed that bank total asset base plays a significant role in determining the amount of credit they lend to their customers. This is in consonance with the general expectation that high asset based banks will have a higher tendency to issue more credit to investors. A percent increase in bank asset composition significantly increases its credit supply by 9 percent at 1 percent level.

Following the result of table 2, there is a clear evidence for support of the fact that bank with high profit maximization will be more accessible for SME loan compared to lower profit maximizing banks as could be observed from the estimate result of the banks return on asset above. Therefore banks profitability could be regarded as one of the significant factors for small firms credit supply by banks. It portrays the idea that prospective banks return from their asset investment exhibits a significant positive effect on the propensity of banks in giving out loan-able funds, more especially to SME operators. A closer observation from the result also indicates that a percent increase in banks return on asset brings about a corresponding 72 percent in banks SME loan supply.

The result emanating from the SME credit model also shows that banks waxing strong with more complexities resulting in expansion and growth of more branches tend to allocate fewer loans to SME credit financing. Instead, they would prefer to lend to higher income yielding investments that will attract more profit to the bank. This is supported by the evidence from the number of banks branches which revealed an inverse disproportionate relation with reference to the SME credit allocation by banks. This is contrary to expectation, the assumption is that as bank branch increases, the bank will be able to reach more SMEs particularly those of them in the rural areas to extend loan to them. The result is not surprising; the branch increase that has been taking place in the country has concentrated in the urban cities thereby causing the banks to shift their focus from SMEs to higher income yielding investments.

In the same vein, the estimated coefficient of the bank deposits shows that large banks with more

cash deposits have higher propensity to divert more funds away from small firms and business enterprises, although, this empirical result has a limited strength in explaining this phenomenon. This is however in accordance with earlier studies by Craig and Hardee [25] whose study suggested that in a market with higher market shares of large banks, small firms will receive relatively less credit allocation. Thus the fact here is the tendency and fear that larger and more complex banks emerging after consolidation will be unwilling to lend to small business enterprises, especially for developing countries which include countries such as Nigeria. In line with this argument Schmieder and Marsch [1] assert that one might expect that smaller banks initially constrained in lending to small firms may, once reorganized into larger banks, shift their portfolios of loans in favor of larger borrowers or even shift their asset composition away from traditional lending activities. They equally noted that a decrease in small business credit may also be observed because the expected value of loans to small business may fall due to higher perceived risk by larger banks.

The empirical evidence from the non performing loan estimate indicates a positive relationship with SME credit but not significant enough. It also suggests the idea of effective and improved control management of non-performing loans since consolidation although requiring more effort on the side of the management of financial institutions for a more significant outcome. It also implies that banks with better managed non-performing loans would be more willing to lend more funds in financing small business units.

One of the most significant and relevant determinants of SME credit supply by banks is the rate on credit as could be seen from the of bank lending rate result in this study. This result corresponds to expectation as the lending rate is supposed to positively influence the tendency of banks to issue credit to customers. The bank rate shows a positive on banks' ability to supply bank loans to small firms. It provides empirical support that increases in lending rate could lead to higher intensity in banks willingness for SME credit supply and vice versa

## Summary and Policy Implication

The result of the estimated panel result from the small and medium scale enterprise model provides evidences that the post consolidation engineered changes arising from bank performance indicator in regards to bank asset, return on asset and bank lending rate are important factors in the consideration of SME credit finance by banks in the Nigerian real sector economy. A percentage increase in post consolidation asset base for the banks and profit maximization increases bank propensity and readiness to lend by over 9 percent and 72 percent respectively. The evidence from the estimated coefficient for bank branches revealed the tendency for strong and emerging and complex banks to shift their asset portfolio away from small firm lending towards higher risks that would attract more profit for the banks. Also increases in bank deposit mobilization portray a similar outcome although not too significant. The non-performing loan co efficient estimate shows a direct positive disproportionate effect on bank SME credit supply but lack sufficient evidence in the explaining this effect. The resultant effect of bank lending rate support the general expectation that increases in bank lending rate enhances effective bank lending to borrowers. In conclusion, the study provides empirical support that consolidation engineered bank indicators has played a prominent role in enhancing small business finance by banks in Nigeria. There is a significant increase in SME credit supply accessible by firms resulting to increase investment and consolidated effort to encourage the development of more SME driving enterprise. This is necessary to create more productive business units that constitute a major sub segment of the real sector economy.

The policy stream could be deduced from the need for a more proactive policy measures to ensure more credit supply by the large complex financial organizations in Nigeria. This will also ensure more flexibility in the accessibility of SME credit for small growing firms in Nigeria. The credit policy effect should ensure that banks reorganize its asset portfolios so as to create more provision for lending to small firms rather than implementing policies that allow for more stringent conditions and requirements that discourages future development of SME investments in the economy.

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**Appendix 1**

Dependent Variable: SMEC

Method: Panel EGLS (Cross-section weights)

Date: 09/19/13 Time: 16:05

Sample: 2006 2011

Periods included: 6

Cross-sections included: 13

Total panel (unbalanced) observations: 67

Linear estimation after one-step weighting matrix

Cross-section weights (PCSE) standard errors &amp; covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LBNKZ	0.095976	0.027846	3.446606	0.0012
ROA	0.720741	0.185248	3.890686	0.0003
LNOB	-5.381063	0.349504	-15.39628	0.0000
LDEP	-0.110349	0.094358	-1.169472	0.2480
LNPL	0.058172	0.044724	1.300703	0.1996
LLDR	1.669500	0.460274	3.627187	0.0007
C	18.03121	1.211404	14.88456	0.0000

## Effects Specification

Cross-section fixed (dummy variables)

## Weighted Statistics

R-squared	0.873052	Mean dependent var	0.384349
Adjusted R-squared	0.825446	S.D. dependent var	0.320615
S.E. of regression	0.129825	Sum squared resid	0.809016
F-statistic	18.33929	Durbin-Watson stat	1.754125
Prob(F-statistic)	0.000000		

## Unweighted Statistics

R-squared	0.852903	Mean dependent var	0.369254
Sum squared resid	0.833518	Durbin-Watson stat	1.739398