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Full Length Research Paper

The Determinants of Profitability among Deposit Money Banks (DMBS) in Nigeria Post Consolidation

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This paper examines factors influencing profitability among Deposits Money Banks (DMBs) in Nigeria. Five internal determinants were identified and deployed, three of these variables were found to contribute to variation of bank profitability: bank size which is measured by log of total assets, is negative and significantly related to profitability of bank; capital adequacy ratio is also negatively related to and statistically significant to variation in bank profitability. The external determinants of financial structure and macroeconomic variables adopted depict no significant influence on profitability. Our findings suggest that some banks in Nigeria may be suffering from diseconomy of scale which is as are result of inefficiencies that may be associated with large complex organizations. This study also shows that management expenses, current and saving deposit accounts variables does not have any effects on bank profitability variation.

Keywords: Profitability, Deposits Money Banks, Post-Consolidation, Nigeria.

INTRODUCTION

The role of Deposits Money Banks (DMBs), otherwise known as commercial banks is central to financing economic activity in any economy, especially, in developing country like Nigeria. Consequently, a sound and profitable banking sector is better able to withstand negative shocks and contribute to stability of financial system, thus assist in rapid economic growth and development of a nation. According to Chirwa and Mlachilla (2004), banks act as financial intermediaries, play a key role in transforming deposits into financial assets, they channel funds from entities with surplus liquidity to those with deficit liquidity thereby facilitating capital formation and trade; banks also play a key role in filtering information by screening borrowers and monitoring their activities in financial system characterized by incomplete and asymmetric information.

Nigeria commercial banking sector has recorded substantial growth and development in recent years following the consolidation regime of the Central Bank of Nigeria (CBN) in 2005 which make it mandatory for any commercial bank in Nigeria have minimum of 25billion naira as equity fund. According to the apex bank, the policy resulted in unprecedented growth in their operations in Nigeria, for example, between 2006 and 2009 total deposit liabilities grow by 65%, total asset by 148%, loan and advances 225% capital and resources 192%. However, by June 2009, a shock wave went through the sector after a special examination (stress-test) by CBN which revealed massive mismanagement of depositors fund through uncollaterised loans, non booking of non-

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performing loans and creative accounting practices among many other very serious infractions by management of some of these banks. To remedy the grievous situation the apex bank has to inject about N620billion to bailout some of distressed banks.

Nigeria banks are perceived by Nigerians to be earning super profit which the findings of Flamini, et. al., (2009) seems to support. They reported that Commercial Banks appear very profitable in Sub-Saharan Africa reporting an average return on asset of about 2 percent over the last 10 years, which is, significantly higher than bank returns in other parts of the world. This picture holds true whether returns on assets are assessed by country, by country income groups or by individual banks. The determinants of banks profitability have attracted the interest of academic researchers, bank management, financial markets as well as bank regulators. There have been several studies on determinants of bank profitability which started with the early work by Short (1979). Studies on individual countries include Smirlock (1985), Berger (1995), Kosmidou, et. al., (2004), Dietrich and Wanzenried (2009). The works of Moulyneux and Thornton (1992), Goddard, et al (2004), Al Hashimi (2007), Demirguc – Kunt and Huizinga (2000) and Heffernan and Fu (2008) focus on panel of countries.

This study follows the foot step of single country studies such as Naceur (2003) and Smirlock (1985). It contributes to knowledge, because to our knowledge, it is the only comprehensive study on determinants of profitability of banks in Nigeria using bank specific, financial structure and macro economic variables. This study is different from the works of Ani, et. al., (2012) which employ only bank specific variables, Aburime (2009) which used bank specific and macro economic variables and Aremu, et. al., (2013) though employed bank specific, financial structure and macroeconomic variables uses only one bank as sample. Our data covered the period between 2006 and 2010 for a sample of 10 post consolidated banks. Data for 2009 financial year was omitted because of controversy regarding the period as a result of the stress-test conducted by Central Bank.

This rest of this paper is structured as follows: section 2 reviews the relevant literature, section 3 describes the methodology and the empirical models employed in this work, section 4 presents the result of data analysis and discusses the main findings while we make our concluding remarks in section 5.

Literature Review

Studies on the determinants of profitability of bank can be classified into two, single country or on a panel of countries (Naceur, 2003). Single country studies on bank operating performance include both for developed and developing economies.

Single Countries- Developed Economies

For studies on developed market Smirlock (1985) using data from 2700 state banks operating in a particular region in US over the period 1973 – 1978, revealed that once market share is controlled for, concentration (market share) does not determine bank profit rate. In his own work, Berger (1995) uses four independent variables concentration, market share, X – efficiency and scale efficiency in a single specification in order to test four hypotheses. He uses 30 separate cross-sectional datasets. The result shows some support for Relative Market Power hypothesis and partial support for X – efficiency approach. Furthermore, Berger (2004) observes that many studies found that US banks in more concentrated local market tend to have pricing structures consistent with the existence of market power under structural conduct power hypothesis, but that when banks' market share were included in the regression equation, there were no longer strong relationship between concentration and profitability. In his study Tregenna (2009) analyses the effects of structure on profitability from 1994 to 2005 using bank level data to test the effect of concentration (market power) bank size and operational efficiency on profitability. Efficiency is not found to be strong determinants of profitability suggesting that banks' high profit during this period were not earned through efficiency performance. Robust evidence is found that concentration increases profitability.

In the UK, Kosmidou, et. al., (2004) employ a statistical cost accounting method on sample of 36 domestic and 44 foreign banks operating in the UK, to examine the relationship between profits and asset – liability composition. The result reveals differences between high profit and low profit banks, as well as between domestic and foreign banks. In another study Kosmidou, et. al., (2007) using a multicriterion decision and methodology discovered that domestic banks exhibit higher overall performance compared to foreign banks over the period 1996 – 2002. In another work, Kosmidou, et. al., (2006) investigates the impact of bank – specific characteristic, macroeconomic conditions and financial market structure in UK owned Commercial Banks' profits during 1995 - 2002. The result shows that the capital strength of these banks has a positive and dominant influence on their profitability, the other significant factors being efficiency in expenses management and bank size.

In their study of what determine the profitability of Commercial Banks in Switzerland, Detrich and Wanzennied (2009) using data of 453 banks from 1997 to 2006 suggest that better capitalized bank seem to be more profitable. Also, where a bank's loan volume is growing faster than the market, the impact on bank profitability is positive. Foreign banks are clearly less profitable than Swiss owned banks. Similarly, privately owned institutions

have a slightly higher profitability compared to state–owned banks. Finally, on macroeconomic factors, GDP growth variable has a positive effect on bank profitability, while the effect of tax rate and market concentration rate has a significant negative effect on bank profitability.

Yu and Neus (2005) use database from 1998 to 2002 for their sample which includes the 288 biggest German banks [by asset], which represent at least 90% of the total loan market in Germany. The result of their study reveals that market structure plays a significant role in determining German banks profitability. In addition to market structure portfolio risks is also a key factor in determining the profit – structure relationship incorporating portfolio risk can significantly increase the adjusted R^2 of our specification model.

Single Country – Emerging Economies

Market power and efficiency theories as determinants of profitability among Turkish banks are investigated using two main regression model relating profitability to market structure and back specific variable. Okunus (2009) concluded that market power theory did not hold in Turkish banking over the period of the study and that there is statistically strong evidence to support the efficiency theory because profit of Turkish banks did not appear to stem from collusive behavior in the setting of prices less favorable to the consumer.

Panel of Countries

The following studies are panel country works that focus on European companies: Moulyneux and Thornton (1992) use a sample of 18 European countries during 1986 – 1989 periods. They find a significant positive association between the return on equity and the level of interest rates in each country, bank concentration and government ownership. In their study of six European countries (Denmark, France Germany, Italy, Spain and the UK) which covers account data of 665 banks from 1992 to 1998, Goddard, et. al., (2004) empirical analysis suggest that, despite the growth in competition in European financial market, there is still significant persistence of profit in the current year, there is some evidence of significant size – profitability relationship in some of the estimation but, the evidence for any systematic relationship between size and performance is unconvincing, and that there is evidence of a positive relationship between capital, asset ratios and profitability and there is little evidence of any systematic relationship between ownership type and profitability.

The panel country studies on African include Al-Hashimi (2007) who uses accounting decompositions to determine bank net interest rate margins in 10 Sub-Saharan Africa (SSA) countries. Empirical findings show that risk and operating inefficiencies (which signal market power) explain most of the variation in net interest margins across the region. Macroeconomic risk has only limited effects on net interest in the study. Using data from 2000 to 2007 for 29 Sub-Saharan African countries to analysis efficiency and profitability of communal banks, Kiyota (2009) suggests that the profit efficiency of Non-SSA foreign bank has a negative and statistically significant relationship with three variables such as the return on the average equity, equity to net loans and net loans to total assets during the pre crisis period (2004–2007). Flamini, et. al., (2009) asserts that bank profitability is high in SSA compared to other regions. The picture holds true whether profitability is measured as returns on assets, returns on equity or net interest margin.

Study on cross –continent was undertaken by Demirguc – Kunt and Huizinga (2000) where the impact of financial development and structure on bank performance was examined, using bank level data of large number (80) of developed and developing countries. There is evidence that macroeconomic and regulatory conditions have pronounced impact on margins and profitability, shallow market consumer larger bank did not appear to exercise market power in order to achieve high profitability performance and both scale and technical efficiency appear to be dominant determinants of profitability.

Ketkar and Kethar (2004) investigate the impact of reforms and liberalization on individual bank efficiency and profitability using data Envelopment Analysis and bank specific data from 1997 to 2004. They report that the relative efficiency of banks by ownership does not critically depend upon whether deposits as treated as input (intermediation approach) or output (production approach). They find that foreign banks are the most efficient followed by new private banks.

In their study that covers 76 banks (95% of assets) of Chinese banks between 1999 and 2006, Heffernan and Fu (2008) document that bank listing exert a significant, positive influence on performance, foreign equity investment did not except in the case of margins where it fell. Efficiency significantly improves performance but off balance sheet activities were insignificant. Real GDP growth rates and unemployment also register significant effect. There is no evidence that bank size influence performance but the type of bank did.

Afanasieff, et. al., (2002) make use of panel data techniques to uncover the main determines of the bank interest spreads in Brazil. Using monthly data for all Commercial Banks operating in Brazil during the period from February 1999 to November 2000, the final sample is unbalanced panel data with 142 Commercial Banks with total of 5,578 observations. The result show the relevance of macroeconomic variables over banks observation characteristic as the main determinants of bank interest spreads in Brazil. However, they also suggest that some

yet unidentified factors still account for large portion of the spread behavior in the country.

Determinants of Profitability

The study of literature revealed that determinants of bank's profitability are usually classified into internal and external factors. While internal factors focus on bank – specific features, external factors consider both industry characteristics and macroeconomic variables.

Internal determinants refers to factors originating from banks' statement of account (balance sheets and/or profit and loss accounts), hence can be termed bank specific or micro determinants of profitability. Variables which are used as proxy to represent these determinants are size, capital risk, credit risk, and liquidity risk and management expenses. Internal determinants are factors that are influenced by banks' management decision (Vong and Chan, 2005).

Size: According to Demirgur – Kunt and Huizinga (1999) larger banks are better placed than smaller banks in harnessing economic of scale in transactions to the main effect that they will tend to enjoy a higher level of profit. They suggest that the extent to which various financial, legal and other factors (e.g. corruption) affect bank profitability is closely linked to firm size. Furthermore, Short (1979) argued that size is closely related to the capital adequacy of a bank since relatively large banks tend to raise less expensive capital and hence, appear more profitable. However, there are other schools of thought that argued that little cost saving can be achieved by increasing the size of a bank. Berger, et. al., (1987) suggests that eventually very large banks could face diseconomy of scale. Akhavein, et. al., (1997) and Smirlock (1985) find a positive and significant relationship between size and bank profitability, likewise, Bikker and Hu (2002) and Goddard, et. al., (2004). There is an inverse relationship between size and profitability as reported by Boyd and Runkel (1993). Similarly, Miller and Noulas (1997) in the USA, Naceur (2003) in Tunisia and Jiang, et. al., (2003) in Hong Kong made similar conclusion from their respective reports.

Capital strength: Is measured by the ratio of equity to total asset (Golin, 2001). It is expected that the higher the ratio, the lower the need for external finance and hence the higher the profit ability of the bank. Furthermore, a well – capitalized bank faces lower cost of going bankrupt which reduces it cost of finance. Kosmidou et al (2004). Demirgur – Kunt and Huizinga (1999) remarked that bank's capital is the ultimate line of defense against the risk of technical insolvency. Berger (1995) study of US banks revealed a positive relationship between bank profitability and capital. Ramlall (2009) reported that profitability of Taiwanese banks capital trails behind a positive impact with a 1% change in capital resulting in about 8% change in profitability. The positive effect of capital on profitability shows that by having more capital, a bank can easily extend more loans thereby earning more income from interest on the loan granted.

The need for risk management in the banking sector is inherent in the nature of banking business. Poor asset quality and low levels of liquidity are the two major causes of bank failures. Risks faced by banks can be divided into liquidity and credit risk Athanasoglou, et. al., (2006).

Liquidity risk: It is very important for a bank to carefully guard against liquidity risk – the risk of not having sufficient liquid asset to meet obligations from depositors especially during time of economic stress counseled (Golin, 2001). However, liquid assets have a very low rate of return. Liquidity is usually represented by ratio of liquid assets to customer deposits. Kosmidou, et. al., (2004) reported positive relationship between liquidity and return on asset (ROA) which is consistent with Bourke (1989). However, Moulyneux and Thorton (1992) and Guru, et. al., (1999) find a negative relationship between liquidity and profitability. Therefore, there is no definite and clear cut conclusion on the effect of liquidity on bank profitability.

Credit risk: This can be described as the risk that an asset or a loan becomes irrevocable in the case of outright default or the risk of delay in paying the loan. In either case the present value of the asset declines, which may led to insolvency of a bank. According to Bessis (2002) credit risk is basic and fundamental to solvency of any bank.

METHODOLOGY

Sources and Description of Data

This study employs a balanced panel annual bank level, financial structure and macro economics data which cover the period from 2006 to 2010. However, data for the year 2009 was deliberately excluded because of the stress-test conducted by the CBN. The number of sampled banks is ten and all of them are quoted on Nigeria stock exchange. The annual reports of these banks were collected from library of Nigeria stock exchange in Lagos. The financial structure and macroeconomics variables were retrieved from the Central Bank of Nigeria database.

Model Specification

Our study employed the following linear equation as used by (Nacuer, 2003).

Profit =f(BL+FS+ME)----------1

Where: profit represents two alternative performance measures for the bank, BL are bank specific variables, FS

are measures of financial structures indicators while, ME are macro economic variables.

This model is analyzed using pooled and the fixed effects. According to Baltagi (2005) the fixed effects model is the appropriate model to apply if the focus is a specific set of N firms and our inference is restricted to the behavior of these sets of firms.

Equation 1 is rewritten as stated below:

$Y_{it} = a_{it} + B_{it} + U_{it}$ ---------- 2

Y_{it} is the dependent variable; a_{it} is the constant term; B is a K x 1 vector of parameters or explanatory variables to be estimated, and U_{it} is a 1 x K vector of observations on the explanatory variables; t = 1,--------T, i =I--------N.

Variable Definition

Dependent Variables

To measure bank performance, two measures of profitability were employed, Net Interest Margin (NIM) and Return On Equity (ROE).

NIM is defined as net interest income divided total asset. NIM focus on the profit earned on interest activities and reflects the management ability to generate positive returns on various deposit types.

ROE is defined as Profit Before Taxation (PBT) divided by shareholders' fund. ROE shows how effectively a bank management is using share holders funds. It measures the rate of return flowing to the bank's shareholders and the net benefit the shareholders receive from investing their capital in the bank i.e. placing their fund at risk in the hope of earning an appropriate profit.

Independent Variables

Regarding the explanatory variables we employed three: bank – specific, financial structure and macroeconomic variables.

a) Bank – Specific Variables

Five bank's indicators are used as internal determinants of profitability. They comprise ratio of overhead to total asset (OH), the ratio of equity capital to total assets (CAPADEQ), the ratio of bank's loans to total asset (LOAN), log of total asset (ASSET) and demand deposit and saving accounts to total deposit (DEPOSIT).

Overhead to total asset (OH) is defined as operating costs or management cost (such as the administrative costs, staff salaries depreciation expense on various assets, as well as the cost of running branch office facilities). A high overhead would have negative effect on the bottom-line because efficient banks are expected to operate at lower cost. In his study Naceur (2003) reported a positive and significant coefficient of the overhead to asset ratio variable in the net interest margin and return on assets equation.

Capital adequacy (CAPADEQ) is defined as ratio of equity (shareholders fund) to total assets. Banks with higher capital rates tend to face lower cost of funding due to lower prospective bankruptcy cost. It is also observed by Sauders and Schumacher (2000) that bank may hold high capital to hedge against both the expected and unexpected credit risk. The capital ratio has long been a valuable tool for assessing safety and soundness of banks. Berger (1985) suggests that in presence of asymmetric information, a well capitalized bank could provide signal to the market that a better than average performance should be expected. Athanasoglou, et. al., (2006) and Berger (2005) find positive and significant relationship between bank capital ratio and profitability.

Loan to Asset (LOAN) is defined as total loan portfolio over total asset. Bank loan are expected to be the main source of income and are expected to have a positive impact on bank performance. Loan interest is a very good source of income to bank hence, the higher the loan portfolio the higher the interest margin and profit. However, it must be recognized that loan is also a source of loss to bank in form of bad or uncollectible loans which would negatively affect the net income of the bank. Controlling for macroeconomic environment and financial market situation and taxation Bashir (2000) observes that higher leverage and loans to assets ratio lead to higher profitability.

Bank size (ASSET) is defined as log of total asset. It used to capture the fact that larger banks are better placed than smaller banks inn harnessing economies of scale in transactions to the plain effect that they will tend to enjoy a higher level of profit. However, it is a settled principle that when business organization becomes extremely large there is higher probability of diseconomy of scale that is a negative relationship between size and profitability due to agency cost, bureaucratic processes and other reasons related to a large size.

Demand deposit and saving accounts (DEPOSITS) is defined as total value of demand deposit saving accounts divided by total asset. Banks pay little or nothing to this account holder hence the cost of this deposit portfolio is very low compared to time deposit. Therefore, banks with high proportion of this type of deposit are expected to make more profit from lending because of cheap sources o their deposits. We expect positive relationship between this variable and profitability.

b) Financial Structure Variables

Banking industry relate bank performance to serve markets, constraints competition from other providers of financial services and from the stock market may influence bank's operations (Fraser, et. al., 2006). These two financial structure variables are:

Bank asset to gross domestic product (BANKASSTGDP) a high bank asset to GDP ratio implies that banking sector

Table 1. Descriptive Statistics

	NIM	ROA	ASSET	DEP	EQTY	INFLATION	INTERESR	LOAN	OH	BANKASSTGDP	GDPGROW	MARKCAPGDP
Mean	4.548000	3.053600	5.915000	66.95060	15.06620	11.60920	17.31800	119.2544	6.028400	43.95000	6.385400	24.42000
Median	4.345000	3.000000	5.650000	67.40500	13.85000	11.60000	17.30000	32.00000	5.000000	38.30000	6.450000	17.00000
Maximum	8.160000	6.560000	8.860000	86.25000	29.00000	17.90000	18.90000	4440.600	41.00000	66.20000	6.590000	52.00000
Minimum	1.790000	0.480000	4.500000	33.71000	6.000000	5.400000	16.00000	13.00000	2.000000	20.60000	6.000000	14.00000
Std. Dev.	1.251608	1.244667	1.095732	10.03744	5.688645	4.546331	1.001364	623.6390	5.424675	13.86801	0.202235	14.25438
Skewness	0.348541	0.832262	1.443671	-0.97834	0.609024	0.019543	0.342614	6.855891	5.531308	0.516288	-1.055195	1.342279
Kurtosis	3.472721	4.478881	4.318127	5.024525	2.611261	1.618262	1.873935	48.00921	36.04526	1.837694	2.548642	3.017634
Jarque-Bera	1.477894	10.32860	20.98793	16.51512	3.405749	3.980683	3.619916	4612.170	2529.939	5.035767	9.703070	15.01492
Probability	0.477617	0.005717	0.000028	0.000259	0.182159	0.136649	0.163661	0.000000	0.000000	0.080630	0.007816	0.000549
Sum	227.4000	152.6800	295.7500	3347.530	753.3100	580.4600	865.9000	5962.720	301.4200	2197.500	319.2700	1221.000
Sum Sq. Dev.	76.75960	75.91055	58.83085	4936.759	1585.673	1012.787	49.13380	19057356	1441.928	9423.765	2.004042	9956.180
Observations	50	50	50	50	50	50	50	50	50	50	50	50

plays an important role in the economy. According to Demirgur – Kunt and Huizinga (2000) higher bank development is related to lower bank profitability and interest margin this is as a result of higher efficiency due to greater competition among banks.

Stock market capitalization (MARKCAPGDP) is defined as stock market capitalization divided by gross domestic product. It is used to measure the size of the equity market and may indicate the complementarities or substitutability between bank and equity market financing

c) Macroeconomic Variables

Macroeconomic conditions such as, level of economic activity, interest rate and inflation may affect the performance of bank.

Gross domestic product growth rate (GDPGROW) captures boom and burst manifesting in business cycles. Therefore, positive relationship between bank profitability and GDP is expected during upswings as demand for lending increases and negative relationship during downswings when demand for credit facilities is expected to slowdown. Consequently positive relationship between GDP growth rate and bank profitability is expected and were reported by Demirguc – Kunt and Huizinga (1999) and Athanasoglou, et. al., (2007).

Interest Rate, according to Ramlall (2009) the impact of interest rate on bank profit operates in two folds. First a rise in interest rate increases the amount of income a bank receive on new asset it assets it acquires. Second, the effect is hinges on the amount of loans and securities hold. However, in case of rising interest rate, rates on loans are higher than marketable securities so that strong incentives prevail for banks to have more loans rather than buying securities. Demirgur – Kunt and Huizinaga (1999) posits that high interest rate is associated with higher interest margins and profitability especially in developing countries. This may mean that in developing countries demand deposit frequently pay zero or below market interest rate.

Inflation rate may have effect on profitability because an increase in inflating rate reduces the met present value of future cash flow and therefore, erodes the real value of money reserves. However, an inflation rate that is fully anticipated raises profits as banks can appropriately adjust interest rate in order to increase revenues, while an unexpected could raise cost due to un-perfect interest rate adjustment Flamini, et. al., (2009). Previous studies in relationship between inflation rate and long term interest rate and bank profitability confirm positive and significant relationship between the three variables see for example Bourke (1989) and Dermiguc – Kunt and Hizinga (1999).

DISCUSSION OF RESULTS

The discussion of result of our study will cover descriptive, correlation and empirical analyses.

Descriptive Analysis

The table 1 shows the mean, median, standard deviation, minimum and maximum value of all variables used in this

Table 2. Correlation Matrix

	NIM	ROA	ASSET	DEP	EQTY	OH	INFLATION	INTERESR	LOAN	BANKASSTGDP	GDPGROW	MARKCAPGDP
NIM	1	0.2756817	-0.2932651	0.2305566	-0.0284962	0.094716	0.305382	0.1621137	-0.0260037	-0.0303348	0.317762103	0.085783194
ROA	0.2756817	1	-0.122688	-0.1165276	0.2454335	-0.0095341	0.2229282	0.1654568	0.0880837	-0.057333281	0.161336592	0.055666981
ASSET	-0.2932651	-0.122688	1	-0.3491325	0.0146416	-0.2395487	-0.2693389	-0.3653085	0.3839143	0.426183891	-0.118367273	0.346196911
DEP	0.2305566	-0.1165276	-0.3491325	1	-0.3821699	0.0928573	-0.1419385	0.0454847	-0.2417798	-0.128559957	-0.087459707	-0.193524747
EQTY	-0.0284962	0.2454335	0.0146416	-0.3821699	1	0.0541971	0.0754009	-0.1635997	0.1905599	0.171783736	-0.017614796	0.25024427
OH	0.094716	-0.0095341	-0.2395487	0.0928573	0.0541971	1	0.0658128	0.2144459	-0.0580258	-0.236873152	-0.143515141	-0.215972194
INFLATION	0.305382	0.2229282	-0.2693389	-0.1419385	0.0754009	0.0658128	1	0.610289	0.0015378	-0.523773341	0.438279887	-0.174152611
INTERESR	0.1621137	0.1654568	-0.3653085	0.0454847	-0.1635997	0.2144459	0.610289	1	-0.1748728	-0.875062861	0.271907317	-0.75874272
LOAN	-0.0260037	0.0880837	0.3839143	-0.2417798	0.1905599	-0.0580258	0.0015378	-0.1748728	1	0.231356209	0.019383826	0.280058139
BANKASSTGDP	-0.0303348	-0.0573333	0.4261839	-0.12856	0.1717837	-0.2368732	-0.5237733	-0.8750629	0.2313562	1	-0.041371668	0.908059452
GDPGROW	0.3177621	0.1613366	-0.1183673	-0.0874597	-0.0176148	-0.1435151	0.4382799	0.2719073	0.0193838	-0.041371668	1	0.038912968
MARKCAPGDP	0.0857832	0.055667	0.3461969	-0.1935247	0.2502443	-0.2159722	-0.1741526	-0.7587427	0.2800581	0.908059452	0.038912968	1

study. The average net interest margin is 4.5% while, the maximum is 8.1%.The mean return on equity is 3.1% with minimum being 0.48% and maximum is 6.6% .For capital adequacy the mean is 15% while the minimum is 6% and maximum is 29%.The average gross domestic product growth rate is 6.4%, while the mean of inflation and interest rates are 11.66% and 17.32% respectively. Bank asset to gross domestic ratio mean value is 43.95% and market capitalization to gross domestic 24.42%.

Correlation Analysis

As shown in table 2, generally, there are low correlations among the variables employed in this study except for the macroeconomic variables of market capitalization to gross domestic product and bank asset to gross domestic product ratio which are high. These low correlation coefficients among the variables suggest that there may not be problem of multicollinearity among the variables.

Empirical Analysis

Tables 3 and 4 report the result of model 2 which provides evidences on determinants of profitability among Nigeria commercial banks .The result from bank level variables show the followings:

Bank size (asset) is negatively related and highly significant to net interest margin (NIM) and return on equity (ROE) as seen in table 3 and 4 respectively. This is consistent with the theory of diseconomy of scale, which suggests that large organization leads to complex processes that may result in increases in cost of running such big organization. This is why Eichengreen and Gibson (2001) opined that the effects of a growing banks size on performance may be positive up to a certain limit; beyond this point the effects of size could be negative due to bureaucratic and other reasons. This result is consistent with the studies of Boyd and Runkle (1993), Micco, et. al., (2007) and Kosimidou (2008) but inconsistent with the works of Bikker and Hu (2002) and Goddard, et. al., (2004) who suggested that as bank size increases, this applies especially for small and medium sized banks profitability increases.

Deposits: This variable is positively related to, but insignificant to net interest margin and return on equity which suggests that having access to cheap deposits from current and savings accounts does not guarantee high profit. This may be due to the nature of this deposit in which customers can withdraw their fund at will this constrained the banks from transforming these deposits to loan which would earn the banks interest and thus increase their profits. Another reason is that maintaining this accounts involve large outlay of fund in form of various

Table 3. Fixed Effects

Dependent Variable: NIM				
Method: Panel Least Squares				
Date: 07/06/13 Time: 11:15				
Sample: 2004 2008				
Periods included: 5				
Cross-sections included: 10				
Total panel (balanced) observations: 50				
White period standard errors & covariance (d.f. corrected)				
WARNING: estimated coefficient covariance matrix is of reduced rank				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.081365	6.107744	0.013322	0.9895
ASSET	-0.688294	0.255299	-2.696029	0.0114
DEPOSITS	-0.025806	0.028179	-0.915775	0.3671
CAPADEQ	-0.079751	0.023871	-3.340976	0.0022
LOAN	0.000491	0.000162	3.030574	0.0050
OH	-0.002065	0.025771	-0.080131	0.9367
BANKASSTGDP	-0.007737	0.057093	-0.135508	0.8931
GDPGROW	1.056977	0.800507	1.320384	0.1967
INFLATION	-0.000841	0.077961	-0.010787	0.9915
INTEREST	0.230011	0.402644	0.571251	0.5721
MARKCAPGDP	0.042519	0.046079	0.922738	0.3635
	Effects Specification			
Cross-section fixed (dummy variables)				
R-squared	0.723979	Mean dependent var		4.548000
Adjusted R-squared	0.549166	S.D. dependent var		1.251608
S.E. of regression	0.840381	Akaike info criterion		2.779252
Sum squared resid	21.18723	Schwarz criterion		3.544062
Log likelihood	-49.48131	Hannan-Quinn criter.		3.070496
F-statistic	4.141451	Durbin-Watson stat		2.302283
Prob(F-statistic)	0.000265			

Table 4. Fixed Effects

Dependent Variable: ROE
Method: Panel Least Squares
Date: 07/06/13 Time: 11:07
Sample: 2004 2008
Periods included: 5
Cross-sections included: 10
Total panel (balanced) observations: 50
White period standard errors & covariance (d.f. corrected)

Table 5. Continue

WARNING: estimated coefficient covariance matrix is of reduced rank

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-106.2961	66.90621	-1.588733	0.1226
ASSET	3.182954	0.986362	3.226962	0.0030
DEPOSITS	0.073836	0.188893	0.390887	0.6986
CAPADEQ	-0.939526	0.168022	-5.591685	0.0000
LOAN	-0.002182	0.000825	-2.643507	0.0129
OH	0.023139	0.149957	0.154301	0.8784
BANKASSTGDP	0.481061	0.786724	0.611473	0.5455
GDPGROW	3.261877	6.923833	0.471109	0.6410
INFLATION	0.574682	0.919600	0.624926	0.5367
INTEREST	4.452077	3.533031	1.260130	0.2173
MARKCAPGDP	-0.317327	0.505597	-0.627629	0.5350
	Effects Specification			
Cross-section fixed (dummy variables)				
R-squared	0.665199	Mean dependent var		21.19320
Adjusted R-squared	0.453159	S.D. dependent var		9.575324
S.E. of regression	7.080828	Akaike info criterion		7.041833
Sum squared resid	1504.144	Schwarz criterion		7.806642
Log likelihood	-156.0458	Hannan-Quinn criter.		7.333077
F-statistic	3.137135	Durbin-Watson stat		1.799385
Prob(F-statistic)	0.002518			

overheads to run the numerous branch networks where these accounts are domiciled.

Capital Adequacy (CAPADEQ) is negative and highly significant both for net interest margins and return on capital. This is in conformity with the study of Athanasoglou, et. al., (2006) who explained that in presence of asymmetric information a well capitalized bank could provide a signal to the market that a better than average performance should be expected. Therefore, highly capitalized banks are less risky and profit should be less because of the perception that they are save consequently we should expect a negative relationship between capital and profit Flamini et al (2009). However, Kosmidou (2008) and Ramadan, et. al., (2011) find positive and significant relationship between capital adequacy and profitability of banks.

Loan to total asset (LOAN): The result of this variable shows that when return on equity is used as dependent variable it effect on profit is negative and significant and when net interest margin is employed as explained variable it has positive and significant relationship with profit. The result is in line with Nacuer, 2003 and Bourke (1989) who discovered that the coefficient of bank loans is positively and significantly related to bank profit. However, Moulyneux and Thornton (1992) find a negative and significant relationship between liquidity and profitability levels.

Overheads (OH): Result for return on equity shows that the impact of management expense is positive and insignificant; however, under net interest margin the relationship is negative but still insignificant.

Financial Structure variables of bank asset to gross domestic product and stock market capitalization to gross domestic product, the former is positive under ROE and negative under NIM but at both levels they are insignificant. While the latter is negative under ROE and positive under NIM, however, they are both insignificant. This finding is inconsistent with the work of Demirguc-Kunt and Huizinaga (2000) and Nacuer (2003) that shows a positive and

significant relationship between stock market development and bank profitability.

Macroeconomic variables of gross domestic product growth rate and interest rate both were positive and insignificant; hence they do not contribute to variation of bank profitability in this study. This is consistent with the findings of Naceur (2003) which discovered that there is no relationship between economic growth and profitability of Tunisian bank. However, our findings are not in line with the works of Demirguc-Kunt and Huizinga (1999) and Dietrich and Wanzennried (2009) whose result show positive and significant relationship between economic growth and profitability of bank. Inflation rate is positively related under ROE and negative related under NIM but statistically insignificant in both cases. This is consistent with Nacuer (2003), and Ramadan et al (2011). However, Vong and Chan (2005) and Athanasoglou (2007) find a positive and significant relationship between inflation and bank profitability.

CONCLUSIONS

In this study we investigate determinants of bank profitability using internal and external variables. Five internal determinants were identified and deployed, three of these variables were found to contribute to variation of bank profitability: bank size which is measured by log of bank is negative and significantly related to profitability of bank, capital adequacy ratio is also negatively related to and statically significant to variation in bank profitability .Our findings suggest that some big bank in Nigeria may be suffering from diseconomy of scale which is as are result of inefficiencies that may be associated with large complex organizations. This study also show that management expenses and current and saving deposit accounts variables does not have any effects on bank profitability variation. Finally, the result of all the variables employed to measure the influence of external environment on bank profitability suggest that they do not have significant effects.

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