DETERMINANTS OF COST OF FINANCIAL INTERMEDIATION IN NIGERIA'S PRE-CONSOLIDATED BANKING SECTOR

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Abstract:

In this study we investigated the determinants of cost of financial intermediation (CFI) in some selected quoted banks in Nigeria. The study used thirteen (13) banks which were drawn from the quoted banks in Nigeria. In identifying the determinants of the CFI, we estimated the two popular panel data (fixed and random effects) regression models for six (6) different measures of interest rate spread. In all, our results based on Hausman test selection and some statistical criterion shows that IMED, LLP and OE were the three most common factors that determine the commercial bank interest rate spread in all six models of measuring interest rate spread. This study therefore recommends that financial intermediation (IMED), operating expenses (OE) and Loan loss provision (LLP) be given top priority in understanding the variations in commercial banks' cost of financial intermediation weather measured using narrow or broad interest rate spread definitions.

Key Words: Banking efficiency, cost of financial intermediation, interest rate spread

Introduction

The 1990s were a period of financial reforms within the sub-Saharan Africa (SSA) with dearth of studies on banking efficiency and competitiveness to assess the impact of those reforms. Significant reduction in cost of financial intermediation (*CFI*) was a core expectation of impact of financial liberalization among developing nations. Studies have shown that freeing interest rates is central to improved efficiency of their financial systems. Interest rate spread (hereafter the spread; and a good measure of CFI) therefore became increasingly the focus of research and policy attention in developing countries. However, Haruna (2011) argued that studies in Latin America, the Caribbean and Africa show that this expectation is not met. He further argued that the lack of convergence of interest rate spreads in developing countries toward those observed in developed countries after financial liberalization may be connected to the rigidity of banks and banking behaviors especially in terms of market power from unchanged operating structures.

Other sources of rigidity may include increased loan provisioning from increased high risk assets' investment in pursuit of larger market share; high non-financial (operating) expenses; and effects of macroeconomic instability or the policy environment. Nonetheless, financial development remains crucial to economic growth in SSA with banks being the most important element of the financial system. Persistence of high spread as a major constraint to economic development should curtailed. To choose the right policies, the Nigerian policy makers need evidence about the key determinants of the spread. The arguments raised by Haruna (2011) are therefore sustained and deepened in this research through an alternate panel data methodological approach to enhance the information content of the research. The main objective of this study therefore, is to evaluate the determinants of the spread in Nigeria. For analytical purposes, the determinants are classified into three broad groups: bank-specific, market/industry-specific and macroeconomic variables. The major contributions from the work are two. Firstly, the spread is defined with a structural consideration that suits the peculiarities of the Nigerian banking practice where increased intermediation costs are hidden through fees and commissions. This becomes more obvious and impacting with a panel data structure instead of time series data set. Secondly, the empirical specification involved decomposing the selected banks' audited financial statements in generating the ex-post spreads used. Ex-post rate being historical generally offer more information than a theoretical ex-ante. The bank characteristics come clear with panel data set.

The rest of the research is organized as follows: section 2 provides a brief literature review and context analysis of the Nigerian banking industry; a brief overview of the panel data methodology choice and the method of analysis are considered in section 3; section 4 presents and discusses the results, and section 5 contains conclusion and recommendations.

Literature review

This section briefly discussed theoretical and empirical propositions regarding interest rate and intermediation costs and concepts of interest rate spreads. Finally it presents the post-liberalization developments in the Nigerian banking system.

Intermediation costs

Banks role as financial intermediaries are very significant in providing the link between the deficit and surplus sectors of the economy. However this is achieved at some cost to both the depositors and borrowers. As such banks' operating efficiency is quite crucial in ensuring the success of financial liberalization as proposed by financial repression hypothesis proposed by McKinnon-Shaw paradigm.

However, there is no complete agreement on the McKinnon-Shaw paradigm that the removal of financial repression through freeing interest rates and removal of credit ceilings/rationing increase the prospects of economic growth and development. Examples of the proponents of the hypothesis (as cited by Chirwa and Mlachila, 2004) are Khan and Senhadji, 2000; Levine, 1997; King and Levine, 1993; Agarwala, 1983; and Khatkhate, 1988. Whereas Taylor, 1983 and van Wijnbergen, 1983 have argued that high interest rates could be inimical to economic growth by reducing demand for bank credit.

Haruna (2011) among others argued that in spite of this divergence in the literature, the conventional view remains that absence of financial repression can lead to higher growth by enhancing financial intermediation. One measure of banking efficiency is typified by the level of interest rate spreads, the difference between lending and deposit rates. Financial systems in developing countries typically show significantly high and persistent spreads (Barajas and others, 1999; Chirwa and Mlachila, 2004; and Hess, 2007). The expectation is that freeing interest rates and the barriers to entry into the financial system would lead to greater competition and lower profit margins of financial institutions, captured through low interest spreads.

Another point of divergence central to the issue of what constitutes the spread generated varied conceptual definitions. Conceptually, interest margin is different from spread in bank performance analysis. Net interest margin (NIM) is the strict difference between the lending and deposit rates:

$$NIM = L_r - D_r \quad \ldots\ldots\ldots\ldots\ldots\ldots (1)$$

Where L_r = lending rate; D_r = deposit rate.

However, Haruna (2011) argued that payments for services in the intermediation process like loan screening and monitoring, savings processing and management, payment services; and information asymmetry are other relevant costs between the interest rate paid to savers and the interest rate charged to borrowers. Adding these costs as a wedge expressed as $\sum^{n}_{i=1}(C_i)$ to the interest margin, we arrive at the interest rate spread:

$$IS = L_r - D_r + \sum^{n}_{i=1}(C_i) \quad \ldots\ldots\ldots\ldots (2)$$

Where IS = the spread, $C_i = i^{th}$ cost of services in the intermediation process, n = total number of relevant costs. As such the larger the banking inefficiencies as measured by $\sum^{n}_{i=1}(C_i)$, the higher the spread will be; and the higher will both be the fall in demand for and the benefits of financial intermediation.

From the perspective of dealership model risk consideration, equation 2 is expressed differently as banks are viewed as risk-averse in both loan and deposit markets. The spread is captured as fees charged for intermediation service on both deposit mobilization and lending:

$$P_L = P + \alpha \quad \ldots\ldots\ldots\ldots\ldots\ldots (3A)$$

$$P_D = P - \beta \quad \ldots\ldots\ldots\ldots\ldots\ldots (3B)$$

Where P is the bank's opinion of the price of loan or deposit, and (α) and (β) are respective charges for provision of intermediation services. From (3A and 3B) the spread is defined as:

$$IS = (\alpha + \beta) \quad \ldots\ldots\ldots\ldots (4)$$

This means $\sum^{n}_{i=1}(C_i) = (\alpha + \beta)$; and $\sum^{n}_{i=1}(C_i)$ can therefore be decompose into α and β.

To further measure the true spread as cost of intermediation, one-off and/or revolving fees and commissions are included in some models. Adding these fees and commissions (denoted as f_j) to equation 4, we have:

$$IS = (\alpha + \beta) + \sum^{m}_{j=1}(f_j) \text{ ……..(5)}$$

Inclusion of fees and commissions gives the actual full cost to customers in a lending situation, especially in inefficient markets like Nigeria where banks establish processes to circumvent interest rates control. In this regard, Brock and Rojas-Suarez's (2000) narrow and wide definitions of the spread are represented by equations 4 and 5 respectively.

The practice in Nigeria is characterize by equation 5 where the real costs of intermediation are embedded in revolving fees and commissions to achieve two things. Firstly, pay less to depositors by showing commensurate low lending rate. Secondly, due to information asymmetry, the full cost of lending is screened from the regulatory authorities; hence low cost of borrowing statistics will continue to be reported.

Studies on determinants of interest rate spread

The theories of the determinants of commercial banks' interest rate spreads in the literature are classified into three broad categories: bank-specific, industry (market) specific or macroeconomic in nature. Bank-specific characteristics usually include the size of the bank, ownership pattern, loan portfolio quality, capital adequacy, overhead costs, operating expenses, and shares of liquid and fixed assets (Ngugi, 2001; Demirguc-Kunt and Huizinga, 1999; Moore and Graigwell, 2000; Brock and Rojas-Suarez, 2000; Robinson, 2002; Gelos, 2006; Sologoub, 2006; Crowley, 2007; and Folawewo and Tennant, 2008).

The market-specific determinants include level of competition/market power, degree of development of the banking sector, taxes and reserve requirements (Fry, 1995 and Elkayam, 1996). Cho (1988) observed that liberalization theory overlooks endogenous constraints like absence of functioning equity market which are critical to efficient allocation of resources by the banking sector. This impact is very obvious in Nigeria where Banks exhibit market power in both deposit and lending markets. Fry (1995) explained that absence of direct financial markets like the equity and bonds market leads to over reliance on debt finance; this over exposes the financial institutions thereby forcing them to absorb too much risk.

Macroeconomic variables include inflation, growth of output, exchange rates and money market real interest rates. The macroeconomic environment affects the performance of the banking sector to the extent of its influence on the ability of borrowers to timely honor the debt repayment obligation. An unstable macroeconomic environment exhibits a positive correlation between the lending rate and the nonperforming loan portfolio. Cukierman and Hercowitz (1990) attempt to explain the relationship between anticipated inflation and the degree of market power measured as the spread between the deposit and lending rates. They find that when the number of banking firms is oligopolistic, an increase in anticipated inflation leads to an increase in interest rate spread.

The 3 broad classifications are employed in this work. The a priori expectations of both signs and magnitudes are detailed on table 2.

Methodology and data

Average deposit and lending rates published by the CBN are on ex-ante basis. However for meaningful post liberalization analysis, the spread was generated ex-post from the financial statements of the sampled banks. As a variant of Chirwa and Mlachila (2004), we used panel data analysis. This is considered adequate because of the level of heterogeneity of the Nigerian banking firms. Panel data suggests that individuals, firms, states or countries are heterogeneous. This means that panel regression assumed cross section heterogeneity (Cross section fixed effect) and period heterogeneity (Time fixed effect) across the sampled banks. Time-series and cross-section studies not controlling this heterogeneity run the risk of obtaining biased results.

The use of panel data regression methodology in this study is based on three fundamental justifications (1) The data collected had time and cross sectional attributes and this will enable us to study executive compensation over time (time series) as well as across the sampled banks (cross-section) (2) Panel data regression provide better results since it increases sample size and reduces the problem of degree of freedom, more informative data, and more efficiency. (3) The use of panel regression would more variability and avoid the problem of multicolinearity, aggregation bias and

endogeneity problems. (4) Panel data are better able to identify and measure effects that are simply not detectable in pure cross-section or pure time-series data. For instance, individual banking characteristics changes (especially the OGBs) could be missed with non-panel data analysis.

The Panel regression results will be evaluated using individual statistical significance test (t-test) and overall statistical significance test (F-test). The goodness of fit of the model would be tested using the coefficient of determination (R-squared). While the choice between fixed effect and random effect panel estimation method will be based on the Hausman test. In conducting all our data analysis, we will use EViews 7.0 software. To capture different traits of the market, the study further employ a variant of definitions from Chirwa and Mlachila (2004) and composition of the spreads as highlighted below.

Narrow definitions

1. SN1 = NIM = (Interest received – Interest paid)/Loans
2. SN2 = (Interest received/loans) − (Interest paid/deposits); unlike Chirwa and Mlachila (2004) that defined ISn_2 = (interest received on loans only/loans) − (interest paid on deposits only/deposits). In Nigeria the core of interest paid and received are loan related. As such it is more specific as a measure of loan cost since there may be no significant difference in the two approaches in Nigeria.
3. SN3= (interest plus commission received/loans) − (interest plus commission paid/deposits);

Broad definitions

With these definitions we are considering loan specific basis using earning assets and interest bearing liabilities in place of total assets and total liabilities, respectively.

4. SWI = (interest received − interest paid)/total earning assets;
5. SW2 = (interest received/total earning assets) − (interest paid/ interest bearing liabilities);
6. SW3 = (interest plus commission received/total earning assets) − (interest plus commission paid/ interest bearing liabilities); this variable is aimed to account for service charge remissions.
7. SBW = average prime lending rate - average deposit rate. The seventh is a bench-mark spread that is directly calculated from the published average deposits and savings rates against both prime and maximum lending rates.

Population and sampling

At the time bank consolidation commenced in 2005, there were 24 banks in Nigeria classified as either "New Generation" (NGB) or "Old Generation" (OGB) based on their age and level of efficiency. Perception of efficiency levels between the OGB and the NGB are different. As such in order to avoid sample concentration or bias, 13 sample points taken were stratified into 6 NGB[96] and 6 OGB[97] with FSB International (the thirteenth) as their hybrid[98].

Model specification

Most models of the determinants of bank interest rate spreads are often based on the framework of a bank as a profit- or wealth-maximizing firm; that is seeking to maximize profits defined by a feasible set of assets and liabilities whose per unit prices and costs are set by the bank. This approach views banks as risk-adverse dealers in both the loan and deposit markets where loan requests and deposit generation are at random and unsynchronized. Thus by incorporating various aspects of the competitive process and scale economies, these models provide the basis for the empirical testing of the spread in a manner consistent with the Structure Conduct Performance (S-C-P) and efficient market hypotheses.

The panel regression with an error term (ε_t) and cross-section effect (wt) for the six categories of interest spread measurement are expressed in equation (1) to (2);

Model 1: NIM = (Interest received – Interest paid)/Loans

$$NIM_{it} = \alpha_0 + \beta_1 LLP_{it} + \beta_2 OE_{it} + \beta_3 IMED_{it} + \beta_4 LR_{it} + \beta_5 SHN_{it} + \beta_6 ERD_{it} + \beta_7 TBR_{it} + \beta_8 IFL_{it} + w_i + \varepsilon_{it}$$

Model 2: (Interest received/loans) − (Interest paid/deposits);

[96] Access Bank, Diamond Bank, GTBank, Zenith Bank, Intercontinental and Oceanic Bank

[97] First Bank, Union Bank, UBA, Afribank , WEMA, and Inland Bank (now First Inland).

[98] Federal Savings Bank was an old establishment and a fringe player that assumed a full modern commercial bank role after liberalization.

$$SN2_{it} = \alpha_1 + \partial_1 LLP_{it} + \partial_2 OE_{it} + \partial_3 IMED_{it} + \partial_4 LR_{it} + \partial_5 SHN_{it} + \partial_6 ERD_{it} + \partial_7 TBR_{it} + \partial_8 IFL_{it} + w_i + \varepsilon_{it}$$

Model 3: (interest plus commission received/loans) − (interest plus commission paid/deposits

$$SN3_{it} = \alpha_3 + \eta_1 LLP_{it} + \eta_2 OE_{it} + \eta_3 IMED_{it} + \eta_4 LR_{it} + \eta_5 SHN_{it} + \eta_6 ERD_{it} + \eta_7 TBR_{it} + \eta_8 IFL_{it} + w_i + \varepsilon_{it}$$

Model4: (interest received − interest paid)/total earning assets;

$$SW1_{it} = \alpha_4 + \varphi_1 LLP_{it} + \varphi_2 OE_{it} + \varphi_3 IMED_{it} + \varphi_4 LR_{it} + \varphi_5 SHN_{it} + \varphi_6 ERD_{it} + \varphi_7 TBR_{it} + \varphi_8 IFL_{it} + w_i + \varepsilon_{it}$$

Model 5: (interest received/total earning assets) − (interest paid/ interest bearing liabilities);

$$SW2_{it} = \alpha_5 + \pi_1 LLP_{it} + \pi_2 OE_{it} + \pi_3 IMED_{it} + \pi_4 LR_{it} + \pi_5 SHN_{it} + \pi_6 ERD_{it} + \pi_7 TBR_{it} + \pi_8 IFL_{it} + w_i + \varepsilon_{it}$$

Model 6: (interest plus commission received/total earning assets) − (interest plus commission paid/ interest bearing liabilities);

$$SW3_{it} = \alpha_6 + \theta_1 LLP_{it} + \theta_2 OE_{it} + \theta_3 IMED_{it} + \theta_4 LR_{it} + \theta_5 SHN_{it} + \theta_2 ERD_{it} + \theta_3 TBR_{it} + \theta_4 IFL_{it} + w_i + \varepsilon_{it}$$

Where

α_i = intercept

ω_i = Variables that vary across banks but do not vary over time

ε_{it} = error terms over cross section and time

Unlike Enendu (2003) who analyzed ex-ante commercial bank spreads in Nigeria, this study looked at ex-post spread which is likely to be more relevant given the incongruity between the state of the Nigerian real sectors and the independent growth of the banking sector. Following Beck and Fuchs (2004) and Hesse (2007), an accounting decomposition of the spread was conducted first to generate the ex-post spreads before the econometric analysis. In the model, it is hypothesized that the spread is a function of the three (3) broad classifications of the determinants tabulated in table 2 below.

Table 2: Definition of Determinants

Classifications	Variables	Definitions	Significance/A Priori Expectations
Firm-Specific	Operating Expenses (OE)	Non-interest Exp/ Total Earning Assets	Requires more spread to cover. It is expected to have direct effect on Spread.
	Loan Loss Provisions (LLP)	Provision for bad debt/Total loans & Advances	Banks would tend to push this cost to customers. In ex-post analysis, LLP on the income statement decreases spread. Hence inverse relationship is anticipated.
Market-Specific	Financial Intermediation (IMED)	Total Loans/Total Deposit Liabilities	Active intermediation indicates high IMED. Competitive environment decreases spread; hence an inverse relationship.
	Shareholders' Networth (SHN)	Shareholders' Funds/ Total Assets	Requires more spread to accumulate. It is expected to have a positive relationship with Spread.
Macroeconomic	Exchange Rate Depreciation (ERD)	$[(fxr)_t - (fxr)_{t-1}]/(fxr)_{t-1}$ where (fxr) = periodic exchange rate and $_{t-1}$= annual time-lag.	Proxied by its annual average rate of growth/depreciation. It is expected to have direct effect on Spread.
	Treasury Bill (TRB)	Average Annual Treasury Bill rates	Proxy for marginal cost of funds; a bench mark for interest rate decisions by banks. As a cost

			indicator, it should generate a positive relationship with spread.
	Annual Inflation Rate (IFL)	$[(CPI)_t - (CPI)_{t-1}]/(CPI)_{t-1}$ where $_{t-1}$= annual time-lag.	This is to capture business cycle effects. Inflation can also affect spread if monetary shocks are not passed wholly to deposits and lending rates, or adjustment occurs at different speed and time.

Regression results

This study adopted the two widely panel data regression models (fixed effect and random effect panel data estimation techniques). The difference in these models is based on the assumptions made about the explanatory variables and cross sectional error term.

	LLP	**OE**	**IMED**	**LR**	**SHN**	**ERD**	**TBR**	**IFL**	**Adj-R2**	**F-stat**	**Hausman test**
NIM **FIXED EFFECT MODEL**	0.05	0.45	-0.04	-0.01	0.02	-0.05	(0.11)	-0.03	0.54	7.07	19.67
	(-2.4)	(6.8)	(-3.2)	(-0.3)	(1.1)	(-0.8)	(2.1)	(-1.2)			
	[0.01]	[0.0]	[0.0]	[0.76]	[0.29]	[0.41]	[0.04]	[0.24]			[0.01]
SN2 **RANDOM EFFECT MODEL**	0.20	0.32	-0.33	0.14	0.01	0.89	-0.18	0.19	0.50	16.71	13.09
	(3.2)	(1.5)	(-6.6)	(0.8)	(0.1)	(2.6)	(-0.5)	(1.4)			
	[0.0]	[0.1]	[0.0]	[0.45]	[0.92]	[0.01]	[0.61]	[0.16]			[0.11]
SN3 **FIXED EFFECT MODEL**	0.34	1.73	-0.33	0.21	-0.11	0.45	-0.12	0.25	0.29	7.38	5.35
	(2.6)	(4.1)	(-3.7)	(1.0)	(-1.1)	(1.1)	(-0.31)	(1.36)			
	[0.01]	[0.0]	[0.0]	[0.34]	[0.28]	[0.3]	[0.75]	[0.18]			[0.72]
SW1 **RANDOM EFFECT MODEL**	0.00	0.13	-0.04	-0.01	-0.03	0.02	0.09	-0.03	0.29	7.38	5.35
	(0.3)	(2.8)	(-4.2)	(-0.4)	(-2.8)	(0.4)	(1.3)	(-1.1)			
	[0.76]	[0.01]	[0.0]	[0.7]	[0.0]	[0.71]	[0.21]	[0.26]			[0.7]
SW2 **FIXED EFFECT MODEL**	0.09	-0.48	0.18	-0.01	-0.04	0.14	-0.13	0.34	0.68	12.37	30.07
	(3.2)	(-5.4)	(9.4)	(-0.2)	(-1.8)	(1.6)	(-1.7)	(3.6)			
	[0.0]	[0.0]	[0.0]	[0.8]	[0.08]	[0.11]	[0.09]	[0.0]			[0.0]
SW3 **RANDOM EFFECT MODEL**	0.04	0.93	-0.12	0.04	0.01	-0.02	0.03	-0.03	0.57	22.16	8.53
	(-1.8)	(10.5)	(-5.9)	(0.6)	(0.5)	(-0.2)	(0.2)	(-0.7)			
	[0.08]	[0.0]	[0.0]	[0.56]	[0.62]	[0.84]	[0.8]	[0.48]			[0.4]

Note: (1)Parentheses ( ) are t-statistic while brackets [ ] are p-values

In table 3, we presented the two panel data estimation techniques (fixed effect and random effect) for the six model based on Hausman test selection. The six results are briefly discussed as follows:

(1) NIM model, shows that about 53% of the systematic variations in interest rate spread in the selected Nigerian banks was explained jointly by firm, market and macroeconomic specific factors**.** Specifically, we observed that **LLP**, **OE, IMED** and **TBR** were the key determinants of NIM

measure of interest rate spread in the selected banks in Nigeria. The F-statistic of the NIM model shows that the model was statistically significant at 1% levels and the Hausman test selected fixed effect panel data estimation as more appropriate when compared to the random effect approach.

(2) SN2 model shows that about 50% of the systematic variations in interest rate spread in the selected Nigerian banks was explained jointly by firm, market and macroeconomic specific factors**.** On the basis of coefficients and p-values, we observed that **LLP**, **IMED** and **ERD** were the key determinants of SN2 measure of interest rate spread in the selected banks in Nigeria. The F-statistic of the SN2 model shows that the model was statistically significant at 1% levels and the Hausman test selected random effect panel data estimation as more appropriate for estimating SN2 interest rate spread.

(3) SN3 model, shows that about 61% of the systematic variations in interest rate spread in the selected Nigerian banks was explained jointly by firm, market and macroeconomic specific factors**.** The Hausman test shows that SN3 model of interest rate spread is best estimated using a fixed effect panel technique and on the basis of coefficients and p-values, we observed that **LLP**, **OE** and **IMED** were the key determinants of SN3 measure of interest rate spread in the selected banks in Nigeria. The F-statistic of the SN3 model shows that the model was statistically significant at 1% levels

(4) SW1 model, shows that about 28% of the systematic variations in interest rate spread in the selected Nigerian banks was explained jointly by firm, market and macroeconomic specific factors**.** Specifically, we observed that **OE, IMED** and **SHN** were the key determinants of SW1 Measure of interest rate spread in the selected banks in Nigeria. The F-statistic of the SW1 model shows that the model was statistically significant at 1% levels and the Hausman test selected random effect panel data estimation as more appropriate when compared to the fixed effect approach.

(5) SW2 model, shows that about 69% of the systematic variations in interest rate spread in the selected Nigerian banks was explained jointly by firm, market and macroeconomic specific factors**.** On the basis of coefficients and p-values, we observed that **LLP, OE, IMED, SHN** and **TBR** were the key determinants of SW2 measure of interest rate spread in the selected banks in Nigeria. The F-statistic of the SW2 model shows that the model was statistically significant at 1% levels and the Hausman test selected fixed effect panel data estimation as more appropriate for estimating SW2 measure of interest rate spread.

(6) SW3 Model, shows that about 57% of the systematic variations in interest rate spread in the selected Nigerian banks was explained jointly by firm, market and macroeconomic specific factors**.** The Hausman test shows that SW3 model of interest rate spread is best estimated using a random effect panel technique and on the basis of coefficients and p-values, we observed that **LLP**, **OE** and **IMED** were the key determinants of SW3 measure of interest rate spread in the selected banks in Nigeria. The F-statistic of the SN3 model shows that the model was statistically significant at 1% levels.

Following the above, in identifying the determinants of interest rate spread in Nigeria commercial banks from the six models of interest rate spread measurement we observed that IMED, LLP and OE were the three most common factors that determine the commercial bank interest rate spread in all six models of measuring interest rate spread. This therefore means that market specific factor (financial intermediation (IMED)) and firm specific factors (operating expenses (OE) and Loan loss provision (LLP)) are most relevant in understanding the variations in commercial banks interest rate spread in Nigeria weather measured using narrow or broad approach.

Conclusion and recommendations

Studies of bank interest rate spreads have generally relied on the net interest margin as the measure of the cost of intermediation. However the availability of more disaggregated data through the banks' income statements has recently allowed researchers to explore other forms of spreads. In the same manner, in this study the net interest margins (*NIM*s) and other spreads are calculated from the selected banks' balance sheet and income statements.

Thus in investigating the determinants of interest rate spread in commercial banks in Nigeria, the study used thirteen (13) banks drawn from the quoted banks on the Nigerian Stock Exchange. In identifying the determinants of the interest rate spreads, we estimated the two popular panel data regression models (fixed and random effects) for six (6) different measures of interest rate spread. In all, our results based on Hausman test selection and some statistical criterion shows that IMED, LLP

and OE were the three most common factors that determine the commercial bank interest rate spread in all the six models. This study therefore recommends that financial intermediation (IMED), operating expenses (OE) and Loan loss provision (LLP) be given top priority in understanding the variations in commercial banks interest rate spread.

References:

Abayomi T. O. and Adebayo M. S. (2010) Determinants of interest rates in Nigeria: An error correction model *Journal of Economics and International Finance* Vol. 2(12), pp. 261-271, November 2010 Available online at http://www.academicjournals.org/JEIF ISSN 2006-9812

Afolabi, J.A., R.W. Ogunleye and S.M.Bwala 2003. Determinants of Interest Rate Spread in Nigeria: An Empirical Investigation *NDIC Quarterly, Vol.13, No. 1* (March), pp.31-54

Barajas, A., Steiner, R., & Salazar, N. (1999, June). Interest Spreads in Banking in Columbia, 1974-96. *IMF Staff Papers , 46 (2)* . International Monetary Fund.

Beck, T. A., & Fuchs, M. (2004). *Structural Issues in the Kenyan Financial System: Improving Competition and Access.* World Bank Policy Research Working Paper 33-63.

Brock, P. L., & Rojas-Suarez. (2000). Understanding the Behaviour of Bank Spreads in Latin America. *Development Economics , 63* (1), 113-34.

Caprio, G., & Klingebiel, D. (2003). *Episodes of Systemic and Borderline Financial Crises.* World Bank.

Cetorelli, N., and M. Gambera (2001). Banking Market Structure, Financial Dependence and Growth: International Evidence from Industry Data. *Journal of Finance, 16 (2), 617-48.*

Chirwa, E. W., & Mlachila, M. (2004). *Financial Reforms and Interest Rate Spreads in the Commercial Banking System in Malawi.* IMF Staff Papers.

Cho, Y. J. (1988). The Effect of Financial Liberalization on the Efficiency of Credit Allocation: Some Evidence from South Korea. *Journal of Development Economics , 29*, 101-110.

Corvoisier, S., and R. Gropp (2001). Bank Concentration and Retail Interest Rates. *Working Paper Series European Central Bank, 72.*

Crowley, J. (2007). Interest Rate Spread in English-Speaking African Countries. *IMF WP/07/101* . Internal Monetary Fund.

Cukierman, A., & Hercowitz, Z. (1990). Oligopolistic Financial Intermediation, Inflation and Interest Rate Spread. *(2)* . The David Horowitz Institute for the Research of Developing Countries, Tel Aviv University.

Demirguc-Kunt, A., & Huizinga, H. (1999). Determinants of Commercial Bank Interest Margins and Profitability: Some Internationa Evidence. *World Bank Economic Review , 13* (2), pp. 379-408.

Demsetz, H. (1968). The Cost of Transacting. *Quarterly Journal of Economics, 82, 33-53.*

Elkayem, D. (1996). The Effect of Monetary Policy on Local Currency Segment in Israel 1986-1900. *Bank of Israel Economic Review , 68*, pp. 1-22.

Enendu, C. I. (2003). Determinants of Commercial Bank Interest Rate Spread in a Liberalized Financial System: Empirical Evidence from Nigeria (1989-2000). *Economic and Financial Review , 41* (1).

Folawewo, A. O., & Tennant, D. (2008, July 9-11). Determinants of Interest Rate Spreads in Sub-Saharan African Countries: A Dynamic Panel Analysis. *13th Annual African Econometrics Society Conference* . Pretoria, Republic of South Africa.

Fry, M. J. (1995). *Money, Interest and Banking in Economic Development* (2nd Edition ed.). Baltimo and London: John Hopkins University Press.

Gelos, G. (2006). Banking Spreads in Latin America. *IMF Working Paper WP/06/44* . Washington: Internal Monetary Fund.

Haruna, M. A. (2011), Empirical Analysis of Interest Rate Spread in Nigeria: Post Liberalization Period, *International Journal of Social Sciences and Humanities Review Vol.2 No.2*

Hesse, H. (2007, June). Financial Intermediation in the Pre-Consolidated Banking Sector in Nigeria. *PolicyResearch Working Paper Series , 4267* . World Bank.

Ho, T., & Saunders, A. (1981). The Determinants of Bank Interest Margins: Theory and Evidence. (581-600, Ed.) *Journal of Financial and Quantitative Analysis , 4*.

Lewis, P., & Stein, H. (1997). Shifting Fortunes: The Political Economy of Financial Liberalization in Nigeria. *Journal of World Development , 25*, 5-22.

Moore, W., & Graigwell, R. (2000, November 2). Market Power and Interest Rate Spreads in the Caribbean. Kingston, Jamaica: XXXII Annual Monetary Studies Conference.
Ngugi, R. W. (2001, May). An Empirical Analysis of Interest Rate Spread in Kenya. *AERD Research Paper (106)* . African Economic Research Consortium Paper Series.
Njorege, L.K. 2002. The Interest Rate Premium in a Liberalised Financial System: The Case of the Banking Sector in Kenya, *A Research Proposal submitted to the AERC, Kenya, Nairobi*
Nnanna, O. J. (2004). Financial Sector Development and Economic Growth in Nigeria: An Empirical Investigation. *CBN Economic and Fianacial Review , 42 (3)* . Central Bank of Nigeria.
Obamuyi T. M. (2009), An investigation of the relationship between interest rates and economic growth in Nigeria, 1970 – 2006 *Journal of Economics and International Finance Vol. 1(4), pp. 093-098, September, 2009* Available online at http://www.academicjournals.org/JEIF© 2009 Academic Journals
Olusoji, M.O. 2003. Determinants of Private Savings in Nigeria: An Error Correction Approach, *NDIC Quarterly Vol.13* (September 2003) pp85-96
Randall, R. (1998). Interest rate Spreads in the Eastern Caribbean. *IMF Working Paper Series* . Washington: International Monetary Fund.
Robinson, J. W. (2002). *Commercial Bank Interest Rate Spreads in Jamaica: Measurement, Trend and Prospects.* Retrieved April 2010, from www.boj.org.jm/uploads/pdf/papers_pamphlets.pdf
Sandrine K. 2010 Banking Efficiency and Financial Development in Sub-Saharan Africa *International Monetary Fund WP/10/136 IMF Working Paper*
Sologoub, D. (2006). *The Determinants of bank Interest Margins and Profitability: Case of Ukraine.* Retrieved April 2010, from www.bof.fi/bofit/seminar/bofcef06/sologub.pdf
Soyibo, A. (1997). Financial Liberalisation and Bank Restructuring in Sub-Saharan Africa: Some Lessons for Sequencing and Policy Design. *AERC Paper* . Nairobi, Kenya.
Umoh,O.J. 2003. An Empirical Investigation of the Determinants of Aggregate National Savings in Nigeria, *Journal of Monetary and Economic Integration, Vol. 3, No. 2 (December 2003) pp.113-132*