INTERBANK TRANSACTIONS, FINANCIAL PERFORMANCE AND SUSTAINABILITY IN DEPOSIT MONEY BANKS

Adeshola Olunuga
Department of Finance, Faculty of Management Sciences
University of Lagos, Lagos, Nigeria
E-mail: oluadeshola2001@yahoo.com

Olusegun Agbesuyi
Department of Finance,
University of Lagos, Lagos, Nigeria
okagbesuyi@yahoo.com

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Abstract. *This paper discusses current studies on interbank transactions and the financial performance and sustainability of Nigeria's deposit money banks (DMBs). Banks' capacity to absorb liquidity shocks and lend to one another is critical for financial stability and economic development, since strains in interbank transactions may put pressure on non-financial companies and consumers' financing circumstances, resulting in increased credit risk. The sub-market analysis may be used to determine the performance of other financial markets. The data for DMBs were examined using appropriate statistical methods. In light of the study performed, it can be concluded that interbank transactions have an effect on the financial performance and sustainability of deposit money banks in Nigeria. The research found that, while adhering to regulatory requirements for credit policy, deposit money banks should perceive interbank loans and deposits as less hazardous investment alternatives and thus be prepared to trust one another in order to improve their financial performance.*

Introduction

Interbank transactions include any loan, deposit transaction, or other connection between two banks and contribute significantly to the market's liquidity (Bucher, Hauck, & Neyer, 2019). At any point in time, some banks may find themselves with more deposits than they can use, while others may be unable to take advantage of lending opportunities due to a funding shortage; thus, non-bank depositors and end-users can be brought together more efficiently if banks transfer funds between themselves (Bluhm, Georg, & Krahnen, 2016). The term "interbank fund" derives from the fact that the funds banks exchange are their central bank deposit balances (Bräuning, & Fecht, 2017). The primary function of financial intermediation is to move money from savers to investors (Diemo & Achim, 2019). Banks' ability to withstand liquidity shocks and lend to one another is critical for financial stability and the real economy, as strains in the interbank money market can exert pressure on non-financial corporations and households' financing conditions, resulting in increased credit

risk (Temizsoy, Iori, & Montes-Rojas, 2015).

The Nigerian interbank funds market like all other interbank funds market worldwide, functions primarily to facilitate liquidity adjustment, with the primary concerns of funds' safety, liquidity, and rate of return (Bakare & Awotundun, 2014). A fundamental quality of the interbank funds market is that it must be sufficiently deep and broad to absorb a substantial volume of financial transactions without materially altering financial assets prices and interest rates (Zainal, Nassir & Yahya, 2014). This attribute necessitates a large number of active market participants, so that the actions of any single bank have little impact on asset prices and interest rates (Langfield, Liu, Ota, 2014). The importance of this feature is to ensure that funds are constantly accessible to market participants with a range of return-risk choices (Sujewaa, 2015). An interbank funds market with the necessary depth and breadth will be both informative and efficient, contributing considerably not only to financial performance and sustainability of banks but also to financial stability and economic development of the country (Ismail, 2016).

In terms of security breadth and transaction volume, the Nigerian interbank funds market has grown significantly since the country's financial system was liberalized, but it still requires further growth. A significant portion of the economy's transactions are negotiated and paid in over-the-counter (OTC) marketplaces in Nigeria. The overnight interbank loan market is a unique OTC market among Nigeria's deposit money institutions (Daramola & Olateju, 2013). The Nigeria's exceptional financial sector growth was due to a liberalization strategy mixed with a poor regulatory structure that resulted in interbank funds market with low capital and operational inefficiency (Ochei & Osabuohiehe, 2012). It was more active in providing short-term loans/overdrafts and foreign currency trading, but had little effect on the real economy (Takon et al, 2021).

The Nigerian interbank funds market lacks the required credit instruments to generate liquidity for corporations, governments, and individuals, unlike in industrialized nations where the interbank funds market acts as the principal institution (Philip, 2018). The Nigerian government continues to control the money market to which interbank funds market belongs. On the other hand, this is not to say that the financial sector in Nigeria is inefficient (Mwarumba,, 2013). The purpose of the study is to determine, among other things, the extent to which interbank transactions have impacted the financial performance of deposit money banks in Nigeria.

Literature Reiew

The interbank funds market is a subset of the money market's bank-to-bank transactions in which banks grant loans to one another for a defined period (Martin, Puri, & Ufier, 2018). The majority of interbank loans have a one-week or shorter maturity, with the majority being overnight. Loans of this kind are made at the interbank rate (Allen, Carletti, & Marquez, 2015). The interbank lending market assists in delivering financing liquidity to banks in need of funding that day or week and enables banks with a temporary surplus of cash to invest it safely. The market is sizable and vibrant (Odunga, 2016). The Nigeria Inter-Bank Settlement System (NIBSS) is the regulatory body in charge of interbank payments in Nigeria. Apart from the market's interest rate (cost of transaction) other determining factors include banks' liquidity positions and changes in foreign exchange demand, both of which affect how frequently banks access the market for funds to cover their bids at the Autonomous Foreign Exchange Market (Craig, Fecht, & Tumer-Alkan, 2015).

Interbank payments in Nigeria are handled by the Nigeria Inter-Bank Settlement System. It is not only the interest rate that determines the frequency with which banks access the market for funds but also their liquidity position and changes in the demand for foreign exchange, which affects the frequency with which banks access the market for funds to cover their bids (Ibe, 2013). For a few days to a few months, banks lend to each other in massive quantities and at low interest rates. Many banks rely solely on

interbank loans for funding (Martín-Oliver, Ruano, & Salas-Fumás, 2017). For even the most heavily-deposit-based banks, interbank credit can be a vital source of additional cash flow (Nather, 2018). The interbank funds market is frequently the most liquid, aside from the short-term government debt market. Another important determinant of long-term asset prices and other types of loans is the interest rate on interbank loans (Ayadi et al, 2016). Transactions in the interbank funds market serve as a proxy for open credit market activity (Alshatti, 2014). The overnight rate, which is the market's short-term interest rate, is the average interest rate on overnight loans and therefore plays a critical role in term of structure models. In addition, monetary policy is influenced by it (Brauning & Fecht, 2017)..

Interbank transactions include overnight lending, foreign currency buying and selling, and interbank deposits and loans (Iyer et al, 2014). The interbank market for unsecured overnight loans is critical for transmitting monetary policy and redistributing liquid assets throughout the banking sector (Hale, Kapan, & Minoiu, 2019). Interbank interest rates are often used as a proxy for other interest rates (Bargigli et al, 2015). Policymakers want a strong and well-functioning interbank market, one that enables the central bank to attain its target rate of interest while allowing institutions to trade liquidity effectively European Central Bank, (2018). In normal times, central banks direct their policy interest rates via such networks in order to influence inflation and the real economy (Afonso, & Lagos, 2015. At the microeconomic level, banks redistribute liquidity through the interbank funds market, with those with surplus liquidity transferring money to those with shortfalls (Roengpitya et al, 2017). The interbank network strengthens financial integration by boosting bank linkages and systemic risk exposure (Behn, Haselmann, & Wachtel, 2016).

Theoretical Issues

The relative market model may be used to explain the path of interbank transactions advancement in order to accomplish firm performance. Battacharya & Gale (1987) created the model. The model assumed that banks experience different degrees of liquidity demand. Some banks may need rapid cash realisation in order to meet the expectations of customers who draw on committed lines of credit or demandable deposits. Due to the non-contractibility of idiosyncratic liquidity shocks, this provides an opportunity for an interbank market in which banks with surplus liquidity trade with banks in need of liquidity. Banks may invest in a variety of asset classes, including liquid assets (cash), illiquid assets (loans), and bonds. They must choose between liquidity and profitability or return while constructing their portfolios (Berger & Humphrey, 1997). Banks may get financing in the unsecured interbank market by making claims on an illiquid investment with low market liquidity. Banks could become bankrupt as a result of illiquid investments and therefore be unable to repay their interbank loan. This increases the risk associated with unsecured interbank financing. Borrowers must pay a premium for money acquired via the unsecured interbank market in order to reimburse lenders. This provides the benefit of improving banks' performance in the face of bank concentration (Brauning & Fecht, 2017).

Epirical Issues

Theoretical debates on the impact of interbank transactions on financial performance of deposit money banks have resulted in empirical expositions aiming at establishing an economic relationship between interbank transactions and bank financial performance and identifying the causative factors influencing both. Previous researchers have examined interbank funds market's activities on bank performance, in both developed and emerging nations, in one way or another throughout the years. Dieno & Achim (2019), for example, examined interbank borrowing and lending between constrained banks. The study's findings indicate that although lending to another bank involves some risk on the part of the interbank lender, a more diverse loan portfolio may

assist such a bank reduce its costs and provide funding for a financially restricted bank. Interbank borrowing and lending affect the aggregate credit supply, the banking sector's stability, and price stability.

Ireta (2014) examined the factors of bank efficiency in the Czech Republic from 2001 to 2012. The research used panel data analysis to determine the drivers of banking efficiency. The findings indicated that although liquidity risk and portfolio riskiness have a favourable impact on banking efficiency, GDP has a negative effect on the efficiency of Czech commercial banks.

Takon et al. (2021) evaluated the effect of capital adequacy structure on the efficiency of Nigerian deposit money banks. The study set out to do two things: look at how equity capital influences bank performance, and analyse how total bank assets affect the success of Nigeria's deposit money institutions. This study used a desk survey approach, using data collected from bank annual reports, the Central Bank of Nigeria's Statistical Bulletin, and scholarly literature, and analysed with the least squares multiple regression method. The empirical analysis showed that the ratio of total assets to equity yielded a positive result, and that the ratio of equity capital to equity yielded a positive result as well.

Lina & Indre (2014) investigated the asset and liability management (ALM) practises of Lithuanian banks. The findings indicated that the assets and liabilities of commercial banks in Lithuania are inextricably linked. Additionally, the research showed that banks had a tendency to take on greater risk over time. Bank asset and liability cycles are not similar to those of commercial operations. They determined that banks' assets and liabilities should be managed more efficiently and effectively.

Kolapo, Ayeni, & Oke (2012) evaluated credit risk and the performance of deposit money banks in Nigeria. Secondary data were analysed using a panel data regression model. The study discovered that the Loan and Advances ratio has the most beneficial impact on the profitability of banking companies. They suggest that banks in Nigeria strengthen their credit analysis and loan administration capabilities.

Despite the many beneficial effects of the interbank market on bank performance, further in-depth research in this area is still possible, since interbank transactions are the primary source of financing liquidity in the interbank market.

Methodology

This study made use of panel data from DMBs listed on the Nigerian Stock Exchange. The study made use of secondary data. The data was derived from the DMBs' audited financial statements from 2001-2020. Secondary sources were chosen due to their consistent track record of delivering sufficient, accurate, and reliable information. Moreover, descriptive analysis and econometric approaches were utilised to assess the relationship between independent and dependent variables. To undertake a descriptive analysis of the study's numerous variables, the summary of statistics was used in conjunction with the e-views programme and OLS-based multiple regression analysis. The following three models (regression equations) were employed to test the relationships between independent and dependent variables in their linear form.

$$ROA = f(IBL + IBD + IBR + CAQ + LQR + BKZ + FEXT) \quad (1)$$

$$ROE = f(IBL + IBD = IBR + CAQ + LQR + BKZ + FEXT) \quad (2)$$

$$Performance\ variables = \beta o + \beta_1\ (Interbank\ transaction\ variables) \quad (3)$$

Where:

ROA = Return on asset, ROE = Return on equity, IBL = Interbank Loans, IBD = Interbank deposits, IBR = Interbank rate, CAQ = Capital adequacy ratio, LQR = Liquid assets to deposit ratio, BKZ = Bank's size, FEXT= Foreign Exchange Transactions

Expressing the functional relationship between independent variables and dependent variables in linear equation model, the resulting regression

equations are as follows:

$ROA_{it} = \beta_O + \beta_1 IBL_{it} + \beta_2 IBD_{it} + \beta_3 IBR_{it} + \beta_4 CAQ_{it} + \beta_5 LQR_{it} + \beta_6 BKZ_{it} + \beta_7 FEXT_{it} + \mu_{it}$------- (4)

$ROE_{it} = \beta_O + \beta_1 IBL_{it} + \beta_2 IBD_{it} + \beta_3 IBR_{it} + \beta_4 CAQ_{it} + \beta_5 LQR_{it} + \beta_6 BKZ_{it} + \beta_7 EXT_{it} + \mu_{it}$ -------- (5)

Data Analysis and Discussion of Results

Model: 1

Table: 1. Lagrange Multiplier Tests for Random Effects

Null hypotheses: No effects

Alternative hypotheses: Two-sided (Breusch-Pagan) and one-sided (all others) alternatives

	Test Hypothesis		
	Cross-section	Time	Both
Breusch-Pagan	1.862612	0.189601	2.052213
	(0.1723)	(0.6632)	(0.1520)

Source: Author Computation Using Eview

As shown in Table 1, the p-value of 0.1723 is greater than the 0.05 level of significance for the Breusch-Pagan test. Thus, the null hypothesis that pooled ordinary least squares (POLS) is a good fit for this model has been ruled out. This indicates that POLS should be used to estimate the model, so Table 2 shows the POLS estimate of the model.

Table: 2. POLS for Model 1

Dependent Variable: ROA

Method: Panel Least Squares

Vari-able	Coeffi-cient	Std. Error	t-Statistic	Prob.
IBL	0.004401	0.001973	2.230768	0.0386
IBD	0.029171	0.010525	2.771573	0.0047
IBR	-0.024572	0.017130	-1.434438	0.1589
CAQ	0.007923	0.003048	2.599802	0.0128
LQR	0.048143	0.059909	0.803607	0.4261
BKZ	0.075228	0.002958	2.543029	0.0203
FEXT	0.032089	0.035734	0.898010	0.3743
C	0.042424	0.152727	0.277779	0.7825
R-squared	0.636848	Mean dependent var		0.023065
Adju-sted R-squared	0.599656	S.D. dependent var		0.028091
F-statistic	8.862128	Durbin-Watson stat		2.044114
Prob (F-statistic)	0.000505			

Source: Author Computation Using Eview

The value for the coefficient for interbank loan (IBL) is 0.004, which indicates that, keeping all other factors constant, a unit increase in interbank loan (IBL) will result in a 0.004 increase in return on asset (ROA). Similarly, the value for the coefficient for interbank deposit (IBD) is 0.029, which indicates that, holding all other factors constant, a unit increase in interbank deposit will result in 0.029 rise in ROA.

The value for the coefficient for interbank rate (IBR) is -0.024, indicating that a unit increase in interbank rate (IBR) will result in a decrease of 0.024 in return on asset (ROA), while the value for the coefficient for capital adequacy ratio (CAQ) is 0.007, indicating that a unit increase in capital adequacy ratio (CAQ) will result in a 0.007 rise in ROA. The value of the coefficient for liquidity ratio (LQR) is 0.048, indicating that, leaving all other factors constant, a unit increase in liquidity ratio (LQR) will result in a 0.048 rise in return on asset (ROA)

The coefficient for bank size (BKZ) is 0.075, indicating that a one-unit increase in bank size (BKZ)

will result in a 0.075 rise in return on assets (ROA). The coefficient for foreign exchange transaction (FEXT) is 0.032, which indicates that a unit increase in foreign exchange transaction (FEXT) will result in a 0.032 increase in return on asset (ROA), while the constant intercept, 0 is 0.042, represents return on asset (ROA) without the explanatory variables.

R-squared (R^2) 0.636 reflects the proportion of variance in return on asset (ROA) that can be attributed to the variables used for explanation (IBL, IBD, IBR, CAQ, LQR, BKZ and FEXT). The R-squared value of 0.636 implies that approximately 63.6% of the total variance in return o n asset (ROA) can be attributed to changes in the explanatory variables, while 36.4% can be attributed to factors outside the model.

The F-value (8.862) is significant at the 1% level (since p = 0), indicating that interbank loan, interbank deposit, interbank rate, capital adequacy ratio, liquidity ratio, bank size, and foreign exchange transaction all influence return on asset (ROA). It may be inferred that interbank loan, interbank deposit, capital adequacy ratio, and bank size greatly influence return on assets (ROA).

Model: 2.

Table: 3. Lagrange Multiplier Tests for Random Effects

Null hypotheses: No effects			
Alternative hypotheses: Two-sided (Breusch-Pagan) and one-sided (all others) alternatives			
	Test Hypothesis		
	Cross-section	Time	Both
Breusch-Pagan	0.404766	2.526896	2.931662
	(0.5246)	**(0.1119)**	**(0.0869)**

Source: Author Computation Using Eview

The Breusch-Pagan test result in Table.3 has a p-value of 0.5246, which is greater than the acceptable level of significance of 0.05. Thus, the null hypothesis is accepted that pooled ordinary least squares (POLS) is appropriate for this model. Indicating the model should be estimated using POLS, therefore Table 4 shows the result of the POLS estimate

Table: 4. POLS for Model 2

Dependent Variable: ROE

Method: Panel Least Squares

Variable	Coefficient	Std. Error	t-Statistic	Prob.
IBL	0.015121	0.007158	2.112459	0.0410
IBD	0.281653	0.123330	2.283727	0.0363
IBR	-0.150645	0.200719	-0.750527	0.4571
CAQ	0.081190	0.035710	2.273606	0.0280
LQR	-0.196149	0.701981	-0.279421	0.7813
BKZ	0.054421	0.022140	2.458056	0.0293
FEXT	0.585095	0.418710	1.397375	0.1696
C	1.670408	1.789569	0.933414	0.3559
R-squared	0.667206	Mean dependent var		0.126165
Adjusted R-squared	0.628407	S.D. dependent var		0.315088
F-statistic	9.204662	Durbin-Watson stat		1.899119
Prob (F-statistic)	0.001492			

Source: Author Computation Using Eview

The value for the coefficient for interbank loan (IBL) is 0.015, which indicates that, holding all other factors constant, a unit increase in interbank loan (IBL) will result in a 0.015 increase in return on equity (ROE). Similarly, the value for the coefficient for interbank deposit (IBD) is 0.281, which indicates that, holding all other factors constant, a unit increase in interbank deposit will increase ROE by 0.281.

The value of the coefficient for interbank rate (IBR) is -0.150, which indicates that, holding all other

factors constant, a unit increase in interbank rate (IBR) will result in a decrease of 0.150 in return on equity (ROE). The value of the coefficient for capital adequacy ratio (CAQ) is 0.081, which indicates that, holding all other factors constant, a unit increase in (CAQ will cause a rise of 0,081 in ROE. The value of the liquidity ratio (LQR) coefficient is -0.196, which indicates that, leaving all other factors equal, a one-unit increase in liquidity ratio (LQR) will result in a 0.196 decrease in return on equity (ROE)

The coefficient for bank size (BKZ) is 0.054, which indicates that, leaving all other parameters constant, a one-unit increase in bank size (BKZ) will result in a return on equity rise of 0.054. The coefficient for foreign exchange transactions (FEXT) is 0.585, which indicates that a unit increase in foreign exchange transactions (FEXT) will result in a 0.585 increase in return on equity (ROE), while the constant intercept is 1.670, which is c and represents return on equity (ROE) without the explanatory variables.

R-squared (R^2) represents the proportion of variance in return on equity (ROE) that can be attributed to the explanatory factors (IBL, IBD, IBR, CAQ, LQR, BKZ and FEXT). The R-squared value of 0.667 implies that about 66.7% of the total variance in return on equity (ROE) is due to changes in the explanatory variables, while 33.3% is due to factors outside the model

.The F-value (9,204) is statistically significant at the 1% level (because the p-value is zero, indicating that interbank loan, interbank deposit, interbank rate, capital adequacy ratio, liquidity ratio, bank size, and foreign currency transactions all influence return on asset (ROA). Conclusion: interbank loan, interbank deposit, capital adequacy ratio, and bank size have a substantial impact on return on equity (ROE)

Conclusion and Recommendations

The research results reveal that interbank transactions influence financial performance and sustainability of deposit money banks in Nigeria. It was also found that the market is active and vibrant. Interbank borrowing and lending helps banks re-allocate liquidity through the interbank funds market. The interbank network reinforces financial integration, while increasing banks association is crucial for financial stability. Deposit money banks in Nigeria should learn to trust in one another by providing sufficient loan. Such loan should target high interest yielding options so as to guarantee returns and better financial performance. The Central Bank of Nigeria (CBN) needs to pursue a stable exchange rate as an essential element of its monetary policy. The CBN should also institute measure of enforcing compliance of its policies and regulations in this directive to understand exactly the transactions that are accounting for bank performance. There should be policy directive to encourage interbank deposit and lending but not to the detriment of the receiving bank. The CBN should be watchful to ensure that interbank lenders and borrowers in the interbank funds market are operating within the authorized limit and ensuring that the main purpose of money creation in the economy is achieved.

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