

Cash Flows, Firm Characteristics and Net Interest Margin of Listed Deposit Money Banks in Nigeria

Atoyebi, Taibat Adebukola*

Department of Accounting, Faculty of Management Sciences, University of Abuja
P.M.B 117, Gwagwalada, Abuja, Nigeria

Zik-Rullahi, Haleemah Yetunde

Department of Accounting, Faculty of Management Sciences, University of Abuja
P.M.B 117, Gwagwalada, Abuja, Nigeria

Abstract

This study examined the effect of cash flow which include operating, investing and financing on Net Interest Margin, seen as performance of listed deposit money banks in Nigeria. Data for the study were collected from the annual reports of the banks used as an adjusted population due to criteria set for the study for the period 2008 to 2018. The study utilised panel regression analysis where panel corrected standard error model was employed due to the presence of heteroscedasticity in the model in relation to Net Interest Margin NIM seen as performance model. The study found that both operating and financing cash flows have positive and significant effect on Net Interest Margin NIM among the banks in Nigeria. However, the study could not establish any relationship between investing cash flow and Net Interest Margin NIM of banks in Nigeria. Therefore, it is recommended that more attention be paid to both operating and financing cash flows as it influences the Net Interest Margin NIM which could lead to more Net Interest Margin of listed deposit money banks in Nigeria positively.

Keywords: Cash Flow, Financing, Investing, Operating, Net Interest Margin

DOI: 10.7176/RJFA/12-10-06

Publication date: May 31st 2021

1. Introduction

Despite some measures put in place by Central Bank of Nigeria (CBN), many banks have collapsed in Nigeria since the advent of banking and financial institutions, and the instability and systemic failures that we have seen in the Nigerian banking sector over the last 15 years can be directly related to poor Net Interest Margin of banks, and while regulatory measures have been in place to partially resolve the poor performance which could be seen as Net Interest Margin issues in the banking sector, the inadequate funds which could result to cash flows could be responsible to this ugly incidence. For instance, the CBN reported the increase on performance including Net Interest Margin of the banks by almost 40%-50% as compared to last two decades which an indication of improvement despite many economic challenges which include and not limited to economic recession and the fall of oil prices that is one of the major sources of income in Nigeria.

One of the triggers of Net Interest Margin is cash flow which reflects the actual liquid position of any organization and explains the ability of a firm to meet its maturing short term obligations as they fall due. Thus, a healthy cash flow position results in liquidity of a bank which helps it sustain and boost its operations thereby increasing the Net Interest Margin and enhancing prudent re-investment of the profits which results in the growth of the bank (Onyekwelu, Chukwuani, & Onyeka, 2018). A consistent positive cash flow position in banks will generally facilitate higher profit levels and hence excess cash for lending which forms the cardinal thrust of banking activities (Liman & Mohammed (2018). Therefore, cash flow statements are one of the most important elements of the financial statement because of their seemingly peculiar nature.

Generally speaking, Net Interest Margin is a subjective measure of how well a firm can use assets from its primary mode of business and generate revenues and that is why Mohammed & Yusheng (2019a) argued that Net Interest Margin is considered a rallying point for all stakeholders of a firm, be it management, shareholders, government, regulators and potential investors. They in addition, argued that, it serves as a basis for measuring the results of a firm's policies and operations in monetary terms. These results are reflected in the firm's return on investment, return on assets and value added.

Thus, cash flows have a strong influence on liquidity. A strong cash flow position of a bank may lead to better liquidity of such bank. The major activities of banks revolve around the movement of cash; hence it is important that these banks have a very good and strong liquidity. The performance of banks may possibly be affected by their liquidity position, through their cash flows due to its importance to their activities (Onyekwelu, Chukwuani, & Onyeka, 2018).

To this end quite numbers of studies investigate this phenomenon, where a positive and significant relationship between cash flow and Net Interest Margin was established however, the studies consider two variables of cash flow which call for more studies that could establish the relationship with three or more

explanatory variables in Nigeria. These studies include Sundas, (2019); Azhar & Ahmed (2019); Ali, Yassin & Aburaya (2020).

Putting the above into consideration, it is imperative to carry on this study that seeks to examine the effect cash flow has on the Net Interest Margin of banks in Nigeria with the following hypothesis. Thus;

- i- Ho₁: Operating cash flows have no significant effect on the Net Interest Margin of listed deposit money banks in Nigeria.
- ii- Ho₂: Investing cash flows have no significant effect on the Net Interest Margin of listed deposit money banks in Nigeria.
- iii- Ho₃: Financing cash flows have no significant effect on the Net Interest Margin of listed deposit money banks in Nigeria.

2. Review of Related Literature

In order to establish the said relationship between cash flow and Net Interest Margin of banks in Nigeria therefore, literature is reviewed in respect of what constitute the cash flow which include, operating cash flow, investing cash flow and financing cash flow as seen below even though the literature is reviewed collectively.

2.1 Cash Flow and Net Interest Margin

The concept of cash flow as presented by Alnori (2020) refers to the difference in the amount of cash available at the end of a period as compared to the beginning of a period, referred in accounting terms as opening balance and closing balance respectively. Cash flow is of vital importance to the health of a business as it is needed to fulfil daily financial obligations that arise as a result of the daily operations. Many banks may continue to trade in the short to medium term even if they are making a loss. This is possible if they can manage their liquidity and costs. Cash coming into the bank is referred to as cash inflows. This happens mostly through deposits and other charges. Cash going out of the bank is referred to as cash outflows. This results from the need to honour withdrawals and pay for expenses. The difference between the two is called the net cash flow, which is either positive or negative (Nangih, Ofor, & Ven 2020).

Cash flow is a working source of liquidity in a firm. As cash flow provides an equally liquid form of financing as existent cash, cash flow can be used as a substitute for holding cash (Chris, 2019 & Alnori, 2020). Large cash flows demonstrate effective operating activities, which in turn implies that the firm can invest more to promote growth, hereby prompting the company to hold more cash (Günay & Fatih, 2020). Moreover, organizations with high cash flows are expected to hold more cash because most firms prefer internal financing to external financing, according to the pecking-order of financing (Buvanendra, Sridharan, & Thiyagarajan (2017)).

For the empirical relationships, Brush, Bromiley & Hendrickx (2017) examined the free cash flow hypothesis for sales growth and firm Net Interest Margin. They used the Durbin-Watson tests on the data that covers the years 1988 to 1995. The result revealed that the firm performance and cash flow have a significant positive relationship. In addition, Adelegan (2003) analyse the relationship between cash flow and dividend changes in Nigeria. The research used the ordinary least square (OLS) method to analyse the data where results revealed that the relationship between cash flow and firm performance is positive and significant. Moreover, Watson and Wells (2005) examined the association of various earnings and cash flow measures of firm performance and stock returns. The study used multiple regression analysis which revealed that cash flow and firm performance have a significant relationship. Adelegan in another study conducted in 2009 investigated how the incidence and severity of information and agency problems vary across firms and over time in Nigeria, by assessing the differential effects on corporate investment. The study adopted a reduced form q-cash flow model and interaction approach to examine the effects of firm size, age and industry specific characteristics on cash flow using panel data for Nigerian manufacturing firms from, it was concluded that the effect of size is neutral. Amuzu (2010) did a work on Cash flow and performance of listed companies in emerging Economies where study establish a positive relationship and this is supported by the study of Konak (2018). In line with the previous studies, Nangih, Ofor, & Ven (2020) analyzed the impact of cash flow on profitability among commercial banks in Kenya multiple regression models were used to analyze the data and the findings of the study indicate that Cash flow from the financing and the investing activities have a great positive influence on the banks' profit while operating cash flow has a negative effect and Liman & Mohammed (2018) arrived at similar findings.

With the above literature therefore, this study argued that, there is a relationship between cash flows which include operating, investing and financing cash flows and Net Interest Margin of Banks in Nigeria.

3. Methodology

This study examines the relationship between cash flows and Net Interest Margin of deposit money banks in Nigeria for the period from 2008 to 2018 inclusive. The study utilized data from documentary sources obtained from the annual reports and accounts of the banks. A total of thirteen banks were studied.

Multiple regression technique using panel data was found suitable and thus employed in the analysis of data.

The general panel regression model can be presented in compact form as follows;

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_k X_{kit} + e_{it} \dots \dots \dots \text{equation. 1}$$

Where;

Y_i is the dependent variable for individual bank i at time t ; β_0 is constant and specific to the individual cross sectional unit i and time t ; X_{1it} , X_{2it} and X_{kit} are explanatory variables for the individual company i at time t in the estimation; and e_{it} is the error term.

The study consists of the dependent and explanatory variables. The dependent variable Net Interest Margin NIM in line with Onyekwelu, Chukwuani, & Onyeka (2018) and Jawed & Kotha (2020) which is also seen as Total Loans as a percentage of book value of total assets. While the explanatory variables include three independent variables. The independent variables are: Operating Cash Flow (OCF) measured as Operating cash flow divided by total cash flow, Financing Cash Flow (FCF) measured as Financing cash flow divided by total cash flow and Investing Cash Flow (ICF) measured as Investing cash flow divided by total cash flow.

Based on these variables, the empirical results are thus based on the following regression model;

$$NIM_{it} = \beta_0 + \beta_1 OPCF_{it} + \beta_2 INCF_{it} + \beta_3 FICF_{it} + e_{it} \dots \dots \dots \text{equation 2. Where:}$$

- NIM = Net Interest Margin
- OPCF = Operating Cash Flow
- INCF = Investing Cash Flow
- FICF = Financing Cash Flow

it = Panel Indicator β_0 = Constant

β_{1-3} = Slopes of the Explanatory Variables.

Data collected was first analyzed by means of descriptive statistics to particularly show correlation of both the dependent and explanatory variables. This is because, correlation analysis using Pearson correlation technique is employed to establish the nature of relationship between the variables. The regression model is estimated using panel regression technique which according to Aziz and Abbas (2019) provides a consistent estimate of β_0 (intercept) and β_{1-3} (slopes).

4. Results and Discussion

One of the important descriptive analysis is the correlation analysis which could give an insight on the collinearity of the explanatory variables. Thus, Table 1 shows the summary of the correlations between the dependent and independent variables.

Table 1: Correlation Matrix of the Variables

Variables	NIM	OPCF	INCF	FICF	VIF
NIM	1.0000				
OPCF	0.1470	1.0000			1.54
INCF	0.2080	0.0090	1.0000		1.50
FICF	0.2430	0.0670	0.0500	1.0000	1.04

In the case of the Net Interest Margin NIM, all the explanatory variables which include OPCF, INCF and FICF have positive correlation. Even though they have weak correlation is proving to be collinearity free. This is done using Variance Inflation Factor (VIF) test, the results of which provide evidence of the absence of collinearity. This is because the results of the VIF test ranges from a minimum of 1.04 to a maximum of 1.54. VIF of 5.00 can still be a proof of absence of collinearity. Meanwhile, the panel regression results of estimation techniques are presented in Table 2

4.1 Regression Result.

Panel Corrected Standard Error regression result is hereby reported as the final result of the analysis. This is because, the Hausman Test is significant which called for Fixed Effect as against Random Effect model and heteroscedasticity exist in the model which render Fixed Effect not appropriate for the analysis. Thus, the Hausman test happen to be significant thus, making Fixed Effect model to be appropriate for the analysis but due to the presence of heteroscedasticity in the model therefore, the final result is stated in Table 2 using Panel Corrected Standard Error.

Table 2: Panel Corrected Standard Error Regression Result

Dependent Variable	PERF			
	β	Std error	T	Sig
Constant	-3.18060	2.90993	-1.09	0.274
OPCF	1.92e-07**	6.13e-08	3.14	0.002
INCF	1.38e-07	1.05e-07	1.32	0.187
FICF	40.3352***	5.444156	7.41	0.000
R- Squared	0.588			
Wald-value	27630.01***		P-value	0.000

*** significant at 1% level. ** significant at 5% level. * significant at 10% level.

From the p-values, which are statistically significant, the validity of the model under each of the estimations is evident with exception of investing cash flow INCF. In the Panel Corrected Standard Error model estimation, the R-squared of 51.6% for NIM model depict that jointly operating cash flow OPCF, investing cash flow INCF and financing cash flow FICF accounted for 58.8% changes in NIM variables living 41.2% unaccounted for by the model. This is accepted as the value of R-square is greater than 20%.

In the Panel Corrected Standard Error estimations, operating cash flow OPCF has positive relationship with NIM and is significant at 1%. That means an increase in OPCF will bring about an increase in NIM by the parameter of 1.92e-07 other thing remain constant. This agreed with the hypothesis formulated and is in line with the Alslehat & Al-Nimer (2017), Konak (2018), as well as Ogbeide & Akanji (2018). Therefore, the hypothesis that said the more the operating cash flow OPCF by banks in Nigeria, the more NIM is supported.

In the same vein, financing cash flow FICF has positive relationship with NIM. Moreover, is significant at 1%. That means an increase in financing cash flow will bring about an increase in NIM by the parameter of 40.3352 with economic assumption of other thing remain constant. This agreed with the hypothesis formulated and is in line with (Alslehat & Al-Nimer, 2017 and Nangih, Ofor, & Ven. Onuorah, 2020.). Therefore, the hypothesis that said the more the financing cash flow, the more NIM is retained.

However, the study could not establish any relationship between investing cash flow INCF and NIM. For that reason, the study has no evidence beyond reasonable doubt to reject the null hypothesis in respect of investing cash flow and NIM. In addition, the probabilities of F-statistics of 0.000 shows that, jointly operating cash flow OPCF, investing cash flow INCF and financing cash flow FICF are significant in explain changes in NIM.

5. Conclusion

The expectation from this study in favour of the title is proved beyond reasonable doubt base on the evidence from Nigerian deposit money banks from 2008 to 2018. Therefore, cash flows compose of operating cash flow OPCF and financing cash flow FICF improve Net Interest Margin with the exception of investing cash flow INCF among deposit money banks in Nigeria. This is in line with pecking order theory which prevails the more the cash flows the better the performance seen as Net Interest Margin in general and the more the performance (Net Interest Margin) the more the stakeholders' satisfaction on the operation of the banks. This could be seen as the independent variables, operating cash flow INCF and financing cash flow INCF are individually and collectively significant in explaining changes in Net Interest Margin of deposit money banks in Nigeria. Moreover, the positive signs against all the independent variables show an increase in Net Interest Margin of the said banks as seen against the

parameters $\beta_{1 \& 3}$ which are all positive in Table 2. Therefore, the study concluded that cash flows which include operating and financing cash flows in Nigerian banks improve Net Interest Margin of the said banks.

References

- Adelegan, O. J. (2003). An Empirical Analysis of the relationship between cash flow and divided charges in Nigeria. *Journal of Research in Development and Management* 15, 35-49.
- Adelegan, O. J. (2009). Investment, financial factors and cash flow from Nigerian panel data. *Journal of African Development*, 11(1), 77-108.
- Ali, S., Yassin, M., & AbuRaya, R. (2020). The Impact of Firm Characteristics on Corporate Financial Performance in Emerging Markets: Evidence from Egypt. *International Journal of Customer Relationship Marketing and Management*, 11 (4). 70-89 doi:[10.4018/IJCRM.2020100105](https://doi.org/10.4018/IJCRM.2020100105)
- Alnori, F. (2020). Cash holdings: Do they boost or hurt firms' performance? Evidence from listed non-financial firms in Saudi Arabia. *International Journal of Islamic and Middle Eastern Finance and Management*, 13 (5), 919-934.
- Alslehat, N. & Al-Nimer, M. (2017) Empirical Study of the Relationship between Cash Flow Management and Financial Performance of Jordanian Insurance Companies. *International Business Management*, 11 (3), 776-782.
- Amuzu M. S. (2010) *Cash flow Ratio as a measure of performance of listed companies in emerging economics:*

- The Ghana Example*. PhD thesis.
- Azhar, K. A., & Ahmed, N. (2019). Relationship between Firm Size and Profitability: Investigation from Textile Sector of Pakistan. *International Journal of Information, Business and Management*, 11 (2), 62-73.
- Aziz, S., & Abbas, U. (2019). Effect of Debt Financing on Firm Performance: A Study on Non-Financial Sector of Pakistan. *Open Journal of Economics and Commerce*, 2(1), 8-15.
- Brush, H. W., Bromiley, P. & Hendrickx, M. (2017). The Free Cash Flow Hypothesis for Sales Growth and Firm Performance. *Strategic Management Journal*, 21, 455-472.
- Buvanendra, S., Sridharan, P. & Thiyagarajan, S. (2017) Firm characteristics, corporate governance and capital structure adjustments: A comparative study of listed firms in Sri Lanka and India. *IIMB Management Review*. 29, 245–258
- Chris (2019). What is a cash flow statement? Retrieved from <https://www.investopedia.com/investing/what-is-a-cash-flow-statement>
- Günay, F., & Fatih, E. C. E. R. (2020). Cash Flow Based Financial Performance of Borsa İstanbul Tourism Companies by Entropy-MAIRCA Integrated Model. *Journal of Multidisciplinary Academic Tourism*, 5 (1), 29-37.
- Jawed, M. S., & Kotha, K. K. (2020). Stock liquidity and firm value: Evidence from a policy experiment in India. *International Review of Finance*, 20, 215–224
- Konak, F. (2018. September 4-6). Effect of cash flow on firm performance: Empirical evidence from Borsa İstanbul Industrial Index. Paper presented at *International Multidisciplinary Congress of Eurasia Conference*, Rome Italy
- Liman, M., & Mohammed, A. S. (2018). Operating cash flow and corporate financial performance of listed conglomerates companies in Nigeria. *IOSR Journal of Humanities and Social Science*, 23 (2), 1-11.
- Mohammed, M., & Yusheng, K. (2019). The effect of liquidity and capital structure on the financial performance of firms listed on the Ghana Alternative Market (GAX). *International Journal of Research in Economics and Social Sciences*, 8 (2), 74–92.
- Nangih, E, Ofor, T. N., & Ven. Onuorah, J. K. J., (2020). Cash Flow Management and Financial Performance of Quoted Oil and Gas Firms in Nigeria. *Journal of Accounting and Financial Management*, 6 (4), 1-11.
- Ogbeide S., & Akanji B. (2018). A Study on the Relationship between Cash Flow and Financial Performance of Insurance Companies: Evidence from a Developing Economy. *Review of International Comparative Management*. 18 (2), 148-157.
- Onyekwelu, U.L, Chukwuani, V.N, & Onyeka, V.N. (2018). “Effect of Liquidity on Financial Performance of Deposit Money Banks in Nigeria”. *Journal of Economics and sustainable development*, 9 (4), 19-28.
- Sundas, S. (2019). Firm Size and Financial Leverage Choice Evidence from an Emerging Economy. *International Journal of Commerce and Finance*, 5 (1), 25-33.
- Watson, J. & Wells, P. A. (2005). The Association between various earnings and cash flow measures of firm performance and stock returns: Some Australian Evidence. *School of accounting, University of Technology, Sydney*. Available at SSRN: <https://ssrn.com/abstract=815365> or <http://dx.doi.org/10.2139/ssrn.815365>