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**WORKING CAPITAL MANAGEMENT AND
PROFITABILITY OF SELECTED DEPOSIT MONEY
BANKS IN NIGERIA**

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ABSTRACT

Working capital management is germane for the success of the banking industry, especially the current state of the sector which is engulfed with the effect of global decline in oil price that have resulted in high non-performing loans, deterioration of the bank asset quality, laying-off of staff amongst others. This is one of the reasons the profitability performance of the banking sector deeply depends on the efficient management of the banks' working capital. Therefore, the specific objective of this study is to examine how the profitability of firms will be enhanced through the effective management of working capital while, the general objective is to examine profitability and the working capital position of some selected banks in Nigeria. To empirically carry out the analysis, a pooled ordinary least squares (OLS) was engaged for the selected variables such as net interest income, current ratio, profit after tax, monetary policy rate, return on equity and return on asset for the period of seven years (2010 to 2016). It was found that working capital management have a significant negative impact on the performance of the selected banks and therefore recommend for a periodic review of the minimum capital base of the banking sector in other to cushion the effects of inflation and inculcate the time value of money.

Key Words: *Profitability, Banks Performance, Banking sector, Profit after tax, monetary policy rate. Return on asset, return on equity.*

INTRODUCTION

A sound, viable and competent banking sector is essential for a stable macroeconomic environment, therefore, the importance of deposit money banks in a country cannot be overemphasized, because they occupy key financial positions in a country and are essential agents that would lead to the growth and development of any economy (Oloye & Osuma, 2015). The financial manager takes three key finance decisions in an organization including the bank and these decisions includes; finance decision, dividend decision and investment decision where, the most prime amongst this three is the financing decision.

Bank managers are usually at a dilemma on how to balance shareholders who are stringent on profitability which have to do with their dividends and depositors who are also stringent with liquidity which has to do with their demand deposits and term deposit as the case may be. This is why effective management of a banks working capital is highly imperative in corporate financial management because it deals directly with the liquidity and profitability of deposit money banks. Thus, working capital is defined mathematically as the difference between current assets and current liabilities which is a measure of the health of a financial institution. Working capital management also meets the short term financial obligation of a firm. Working capital of a bank simply represents the operating liquidity available to run the bank on a daily business basis.

Therefore, the efficient management of a banks working capital can birth benefits such as; maintaining a high level of customers' confidence, enhances the payment of short-term obligations, it leads to growth of the sector which would contribute its quota immensely to the development of any nation e.tc. Working capital is highly imperative to maintaining the solvency, liquidity, survival and profitability of an enterprise (Hoque, Mia & Anwar 2015). Yahaya and Bala, (2015) also stated that ineffective working capital management reduces profitability and may also lead to the financial crises of an organization which negates what Umoren and Udo (2015) posited that profitability is a yard stick to measuring the operating efficiency of an enterprise

but amongst the varying factors affecting bank performance, ineffective working capital management was not considered as one of them.

In time past the Nigerian banking sector have witnessed deposit money banks inability to meet up obligations of customers' due to inadequate liquidity. This has led to the central bank of Nigeria (CBN) sometimes taking over the management of deposit money banks such as MainstreetBank, Spring Bank and even Skye Bank as at the fourth quarter of 2016. In 2008, CBN gave out bailout funds to some banks because of their high level non-performing accounts and they could not meet up demands of customers and also satisfy shareholders demand for dividend. It is against this background that this paper seeks to examine profitability and the working capital position of the selected deposit money banks. Section one dwells on the introduction, section two discusses the conceptual, theoretical framework and empirical review of relevant literatures. While section three discusses briefly the methodology. Section four provides analysis and discussions on working capital and profitability of the selected deposit money banks in Nigeria. Thus, the paper ends with conclusion and recommendation.

Problem, Objectives, Research Questions and Related Hypotheses

Failure of a bank automatically connotes its working capital failure which could be highly contagious leading to a bank run on the distressed bank which may commensurate to a bank panic in the banking sector. The major cause of the bank's liquidation internally was as a result of the unavailability of sufficient working capital to carry on with the day to day running of the business. Therefore it is against this background that this paper seeks to examine the working capital position and performance of the selected deposit money banks.

In view of the aforementioned problems, the following research questions will be considered in this study.

1. To examine how the profitability of firms will be enhanced through the management of working capital?
2. How does the management of working capital significantly affect the performance [Return on asset (ROA) and Return on equity (ROE)] of deposit money banks?
3. What relationship exist between monetary policy rate (MPR) and deposit money banks liquidity?

The following hypotheses would be tested in the course of this study;

Hypothesis One: Profitability of firms cannot be enhanced through effective management of working capital.

Hypothesis Two: There is no significant relationship between working capital management and deposit money bank's performance (ROE and ROA).

Hypothesis Three: There exists no relationship between monetary policy rate (MPR) and deposit money banks liquidity.

The following objectives are expected to be achieved:

1. How profitability of firms will be enhanced through the management of working capital.
2. To examine how working capital significantly affects return on assets and return on equity which would be used as bank performance proxies (dependent variables).
3. To examine the relationship that exists between monetary policy rate and deposit money banks liquidity.

REVIEW OF RELATED LITERATURE

The management of working capital has a lot of role to play in liquidity of banks and other enterprise. According to Smith (1980), the management of working capital plays germane roles in a firm's profitability and risk management as well as its value as cited in (Adagye, 2015). The term working capital management (WCM) and management of working capital (MWC) can be used interchangeably.

Conceptual framework

Management of working capital (MWC) is concerned with the differences that arise in the management of current assets, current liabilities and the inter-relationship that exist between them. Umoren and Udo (2015) further defined the management of working capital (MWC) as all management actions and decisions that ordinarily influence the size and effectiveness of the working capital. Therefore, the aim of working capital is to optimally manage current assets and current liabilities such that an acceptable level of net-working capital can be achieved. Thus, net working capital (NWC) is the mathematical difference between current assets and current liabilities of an organization. If a firm cannot maintain a satisfactory level of net working capital it would be insolvent and if not corrected would commensurate into bankruptcy.

Pandey (2010) posited that working capital has two concepts thus; gross working capital and the net working capital. He further opined that gross working capital covers the current assets while the net working capital refers to the difference between a firm's current assets and current liabilities. Working capital refers to the firm's investment in two types of assets, an enterprise investment in current assets needed to operate over a normal business cycle, and an enterprise investment in non-fixed assets (Bevan & Danbolt, 2002; Sogorb-Mira, 2005, as cited in Mbawuni, Mbawuni & Nimako, 2016).

Al Shubiri (2011) defined working capital as the amount of a business current assets that is being financed by long-term debts and/or equity. Padachi, Howorth, and Narasimhan (2012) also defined working capital as the lifeblood of a business and its effective provisioning can do much to ensure the success of the business, downfall of the enterprise can be linked to neglect and inefficient management. Taking an inference from the afore-mentioned definitions of working capital, effective management of working capital can be defined as the professional conscious practice of maintaining an excess of current assets over current liabilities to maintain a good current ratio which is a basic measure for a firm's overall liquidity. Thus, Lovy, (2016) defined liquidity as the guarantee that funds will be available quickly to cover all cash outflow commitments in a timely manner. Lovy further deduced an inference from the definition that easily convertible assets are kept in anticipation for customers' demand in terms of demand deposits.

This study is built on the Peckings order theory as popularised by Myers and Majluf in 1984. The peckings order theory states that the cost of financing increases with asymmetric information. Thus, this theory follows a three order of preference which finance managers usually follow. The theory also posits that internal source of finance is the most preferred means of financing a firm followed by debt financing and the last resort is equity financing which have to do with the involvement of external ownership into the business.

How peckings order theory does affects the working capital of firms? As working capital has to do with the capital involved in the daily finance of the business it is highly imperative for the best financing mix to be used in order to ensure excess of current assets over liabilities. The rationale for adopting theory is that it speculates the best means of making capital available either through internal

source, debt financing or equity financing. Thus, it ensures the availability of working capital to a firm through the three major financing sources namely; internal source, debt financing and equity financing respectively.

Working Capital Management

There are two major strategies for working capital management which are discussed below;

- (i) **Aggressive strategy:** Profitability is the main focus of this strategy thus, it is characterized with high risk and high profitability (return) as the case may be. Aggressive strategies involves long term funds which are utilized only to finance fixed assets and part of permanent working capital while, short term funds are utilized to finance temporary working capital. It saves the interest cost at the cost of high risk.
- (ii) **Conservative strategy:** This strategy involves low risk and profitability. In most cases it is termed a risk free approach to working capital financing. Working capital here is financed by long-term sources of funds such as term loans, equities e.tc

Empirical framework

Yeboah and Yeboah, (2014) examined working capital management on Ghanaian banks profitability using regression models within a six year period (2005-2010) and it was empirically proven that cash conversion cycle is inversely related to bank's profitability. Umoren and Udo (2015) also examined the effects of working capital management on the profitability and liquidity of select deposit money banks using descriptive statistics, Regression and Pearson's correlation coefficients. it was found that there is a significant positive relationship between banks' performance and bank size; there is a significant negative relationship between profitability and cash conversion cycle which supports the findings of (Yeboah & Yeboah, 2014).

Shin and Soenen (1998) and Deloof (2003) also investigated and found that profitability and risk-adjusted returns are inversely related to the cash conversion cycle, further suggesting that aggressive working capital policy improve firm performance [CITATION ALS11 \l 1033]. Hoque, Mia and Anwar (2015) examined Working Capital Management and Profitability: A Study on Cement Industry in Bangladesh. It was revealed that profitability position and working capital position over the period in study is not satisfactory.

Bandara (2015) also examined the impact of working capital management policy on market value addition in Sri Lankan companies. Descriptive statistics, correlation and panel regression analysis were adopted as tools for measurement and analysis. According to the overall panel regression model, working capital investment policy and working capital financing policy both recorded a negative relationship to market value addition.

Yahaya and Bala (2015) asserted that liquidity signifies more profitability, stating that listed Deposit Money Banks in Nigeria should maintain a higher acid test ratio (quick ratio) as it will have a positive impact on their profitability. They further stated that banks' management should minimize the cash held as current assets and focus more on investing them, to ensure a higher return.

Afza and Nazir (2008) performed an analysis on the impact of various types of working capital management policies on financial performance and it was also found that there are two types of working capital policy: these policies are conservative and aggressive working capital. They used a sample of 263 non-financial firms with 17 different sectors. The results conducted showed that there is an inverse relationship between the degree of aggressiveness of these policies and profitability.

Ogodor and Mukolu (2015) worked on working capital adequacy and organisation performance. They selected First Bank Nigeria Plc and Guaranty Trust Bank Plc for their analysis using ordinary least square (OLS) as its estimation technique and the result of their findings revealed that working capital management does have a significant impact on banks' performance during the period under review.

Mandiefe (2016) investigated the effects of working capital management on the profitability of Afriland First Bank Cameroon using a twelve-year time series data from (2002-2013) which was extracted from the bank's financial statement. Thus, using correlation and ordinary least square for the analysis, the result of the analysis showed that working capital management influenced the Afriland First Bank Cameroon. In summary of literatures, most of the studies reviewed shows that working capital management plays a significant role in the success of any enterprise due to its positive effects on profitability and liquidity.

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METHODOLOGY

Research Design, Source and Type of Data, and Method of Data Analysis

This research looks at the exploratory study on working capital management and deposit money banks' performance in Nigeria. Secondary data's was used in this study and the data's were sourced from the annual financial statement of the selected banks for the corresponding years and the world development indicator (WDI) the period under study is between 2010-2016. In order to estimate the relationship between working capital management and deposit money banks performance this study would employ the pool ordinary least square (OLS) to ensure that the estimated results for this study are not spurious.

Population of the Study, Sample Size and Sampling Technique

The sample population is the nineteen deposit money banks (19) that exist in the Nigerian banking sector. This study used the simple random sampling technique in choosing the samples from the population. Five banks were selected thus; (Guarantee Trust bank, Fidelity Bank, Access Bank, Zenith bank, and United Bank for Africa) were selected and engaged as the sample size and six variables were engaged for the analysis; return on assets and return on equity are as indicators of banks performance. While, profit after tax, net interest income, current ratio and monetary policy rate are the independent variables

Table 3-1 Data Source

Variable Name	Identifier	Source of Data	Definition and Measurement
Profit after tax	PAT	Banks financial Statement	Profit after tax is defined as the profit earned by the bank after all forms of financial deductions have been made such deduction may include taxation. It is a measure of financial health and strength of an

			organisation.
Current ratio	CR	Bank Financial Statement.	Current ratio is defined as a liquidity ratio that measures a company's ability to pay short-term and long term obligations. It is computed by dividing current asset by current liabilities.
Net interest income	NII	Banks Financial Statement.	This is defined as the mathematical difference between revenue bearing assets and the cost of serving the interest burdened liabilities. It is usually included in the income statement of the Banks balance sheet.
Return on Asset	ROA	Banks financial Statement.	This is a profitability indicator of how profitable a firm is in relation to its total assets. It is usually computed in percentages. It is calculated as net income divided by the firm's total assets.
Return on Equity	ROE	Banks financial Statement.	This is also a profitability indicator of the amount of net income returned as a percentage (%) of shareholders equity. It is calculated by dividing net income with shareholders equity.
Monetary Policy Rate	MPR	World Development Indicators.	This rate is usually stipulated by the central bank of Nigeria (CBN) to the deposit money bank. This is the interest rate at which CBN lends to deposit money banks and other clients.

Source: Compiled by the Authors.

Model Specification

Thus, the model as adopted from Yeboah and Yeboah, (2014) is specified as:

$$bp_{it} = \beta_0 + \sum_{i=1}^n \beta_i X_i + e_{it} \text{-----} (3.1)$$

Where; *bp* = is bank profitability proxied by return on equity and return on asset; β_0 is constant; *X* = profit after tax, current ratio, net interest income, and monetary policy rate. The variables in this model were adopted from the empirical work of Yeboah and Yeboah:

It is assumed in this study that each individual i is observed in all time periods. The observations for individual i can be summarized below, given that bank performance is captured by return on asset and return on return equity:

$$roa = \dots \dots \dots (3.2)$$

$$roe = \dots \dots \dots (3.3)$$

The implicit form of equations (3.2) and (3.3) is in equation (3.4), while the explicit form is found in equations (3.6) and (3.7) for return on asset and return on equity respectively as proxies for bank performance

$$BP = f(PAT, CR, NII, MPR) \dots \dots \dots (3.4)$$

Equation (3.5) is the bank performance equation; which is the combination of return on asset (roa) and return on equity (roe) which are specified separately in equations (3.6) and (3.7)

$$bf_{it} = \alpha_0 + \alpha_1 pat_{it} + \alpha_2 cr_{it} + \alpha_3 nii_{it} + \alpha_4 mpr_{it} + \mu_{it} \dots \dots \dots (3.5)$$

$$roa_{it} = \alpha_0 + \alpha_1 pat_{it} + \alpha_2 cr_{it} + \alpha_3 nii_{it} + \alpha_4 mpr_{it} + \mu_{it} \dots \dots \dots (3.6)$$

$$roe_{it} = \alpha_0 + \alpha_1 pat_{it} + \alpha_2 cr_{it} + \alpha_3 nii_{it} + \alpha_4 mpr_{it} + \mu_{it} \dots \dots \dots (3.7)$$

$\{pat_{it}, cr_{it}, nii_{it}, mpr_{it}\} \overset{i}{i} \overset{N}{N} = 1$ e.i.d(exogenous and identically distributed)

The idiosyncratic disturbance term μ_{it} is assumed to be serially not correlated with the independent variables of the past, present and future time periods of the entities. This is a strong assumption which is to eliminate lagged endogenous variable. Also, it is assumed that the idiosyncratic disturbance term is not correlated with the entity specific effect. Entity in this study is referred to as banks.

The error variance is the mean squared error which represents the unbiased estimate of error variance in the regression. It helps to test the violation of OLS assumptions in a given regression model which is as shown below:

$$V[\mu_i | pat_{it}, cr_{it}, nii_{it}, mpr_{it}] = \sigma_u^2 I, \sigma_u^2 > 0 \text{ and finite (homoscedasticity and no serial correlation)}$$

$$V[\mu_i | pat_{it}, cr_{it}, nii_{it}, mpr_{it}] = \sigma_u^2 I, \sigma_u^2 > 0, \text{ finite and } cov[\mu_{it}, \mu_{is} | pat_{it}, cr_{it}, nii_{it}, mpr_{it}] = 0 \forall s \neq t \text{ (no serial correlation)}$$

$$V[\mu_i | pat_{it}, cr_{it}, nii_{it}, mpr_{it}] = \Omega_{u,i} (pat_{it}, cr_{it}, nii_{it}, mpr_{it}) \text{ independent and no multicollinearity}$$

The above OLS violation assumptions (no multicollinearity, no serial correlation, no heteroscedasticity or assumption of equal variance) will be tested in section four to show that those assumptions are not violated and to avoid spurious results. The observations are exogenous across entities (banks), but not necessarily across time. This is guaranteed by random sampling of entities for this study.

As earlier defined: *bf* is bank performance; proxied by return on asset (*roa*) and return on equity (*roe*) 'see equations (3.6) and (3.7)' *pat* is profit after tax; *cr* is current ratio; *nii* is net interest income; and *mpr* is monetary policy rate (See table 3-1): α_0 is the constant term; $\alpha_1, \alpha_2, \alpha_3, \alpha_4$ are the coefficients of the exogenous variables *i* and *t* represents banks and years under review. μ is the error term which captures other exogenous variables that are not specified in the model.

The assumption about the error term is that it helps to predict the nature of the regression model that is; whether the model is referring to the random effects or fixed effects (Hsiao, Lahiri, and Lee, 1999). In a fixed effect regression model, μ_{it} is presumed to be non-stochastically over *i* and/or *t* making the fixed effect model analogue to a dummy variable model in one dimension. In random effects model, μ_{it} assumed to stochastically vary over *i* or *t* requiring special treatment of the error variance (Hsiao, Lahiri, and Lee, 1999).

Thus, it is expected that $\beta > i = 1, 2, 3$, while, $\beta_4 < 0$. All things beign equal, the 'a priori expectaion is that an increase in profit after tax, current ratio, net interest income increases banks performance while monetary policy rate has an inverse relationship with banks profitability. The study adopts the pooled OLS (the combination of fixed effect and random effect panel model) in examining the influence of working capital on five deposit money banks (GT bank, Fidelity Bank, Acces Bank, Zenith bank, and UBA) performance in Nigeria for the selected period. The formulation of fixed effect model brings to bear the divergences across banks which are captured in differences in the constant term (Greene, 2007). As stated earlier, the general objective of this research would be to examine profitability and the working capital position of some selected Deposit money banks in Nigeria. The methods used pooled ordinary least square (OLS). The pooled OLS estimator ignores the panel structure of the data and simply estimates β as;

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 $est\beta POLS = (W'W)^{-1}W'y$ where $W = [i_{NT} X Z]$ and i_{NT} is a $NT \times 1$ vector of ones

The random effects estimator is the feasible generalized least squares (GLS) estimator;

Where $W = [i_{NT} X Z]$ and i_{NT} is a $NT \times 1$ vector of ones. The error covariance matrix Ω is assumed block-diagonal with equicorrelated diagonal element

$$\delta^{u^2} = \frac{1}{Nt-1} \sum_{t=0}^T \sum_{i=0}^T \delta^{uit^2}, \delta^{c^2 = \sigma^2 - \rho^2} \dots \dots \dots (3.8)$$

Where:

$$\delta^{u^2} = \frac{1}{Nt-1} \sum_{t=0}^T \sum_{i=0}^T (\hat{u}_{it} - \bar{u}_i)^2 \dots \dots \dots (3.9) \text{ and}$$

$$\delta^{it} = y_{it} - \beta POLS \text{ and } \delta^{u^2} = \sum_{t=0}^T \sum_{i=0}^T \delta^{u^2} \dots \dots \dots (3.10)$$

The degree of freedom correction in δ^{u^2} is also asymptotically necessary when $N \leftrightarrow \infty$

The fixed effect or within the model estimator of the slope coefficient β estimates within the model $est\beta_{FE} = (\tilde{X}'\tilde{X})^{-1}\tilde{X}'y$

RESULTS AND DISCUSSIONS

Presentation of Results

The starting point of the analysis is to first of all determine the summary statistics of the selected variables which is presented in table 4-1

Table 4-1 Summary Statistics of Variables

Variable	Mean.	Standard Deviation	Minimum	Maximum
ROA	3.538857	1.592306	0.4	6.1
ROE	22.05057	9.780796	0.38	37.1
PAT	4.80e+07	3.66e+07	-0.79660	1.27e+08
CR	1.340571	0.5229045	0.93	4
NII	9.68e+07	5.53e+07	2.64e+07	2.65e+08
MPR	11.46429	2.334321	6.25	14

Source: Authors' compilation using Stata 13

Table 4-1 presents the descriptive statistics of the variables employed. The descriptive statistics shows the trend and comprehensive evidence about the variables. Therefore, it demonstrates the average, and standard deviation of the different variables of interest in the study (Yeboah&Yeboah, 2014). Also, the minimum and the maximum value of the variables are presented in the descriptive statistics of the variables. The mean of ROA is 3.54 and it ranges from 0.4 to 6.2; the mean of ROE is 22.05 and it ranges from 0.38 to 37; the mean of PAT is 4.8 and it ranges from negative 0.79 to 1.27; the mean value of CR is 1.34 and it ranges from 0.93 to 4; the mean value of NII is 9.68 and it ranges from 2.64 to 2.65 and MPR has a mean value of 11.46 and rages from 6.25 to 14 respectively.

Table 4-2 Ordinary Least Squares Result for Return on Asset

<i>ROA</i>	<i>Coefficient</i>	<i>Standard Error</i>	<i>P-value</i>
<i>PAT</i>	2.45e-08	1.16e-08	0.043**
<i>CR</i>	-0.6339066	0.4566943	0.175
<i>NII</i>	-1.58e-09	7.66e-09	0.837
<i>MPR</i>	0.0111	.110701	0.921
<i>_cons</i>	3.23607	1.339466	0.022**

*Note: The probability values * and ** means that the coefficients are significant at 1% and 5%, respectively*

Source: Authors using Stata 13

Table 4-2 presents the estimated output of Pooled OLS results for return on assets. From the table; a unit change (increase) in profit after tax leads to about 2.45 unit increase in return on asset. With the probability value of 0.043, it could be inferred that profit after tax is statistically significant to the model at 5% level. If current ratio increases by 1%, return on asset decreases by 63%. The inverse relationship could be attributed to the fact that the capital base of the bank are not been periodically reviewed to a higher figure; thus; the current ratio of the bank tends not to increase with respect to return on asset. Net income ration and current ratio are statically not significant in the model. As could be seen, a unit change in net income ratio, leads to a decrease in return on asset by 1.58 units. Thus; an effective monetary policy has the potential of increasing return on asset by 1.11% in this wise, other policies such as macro prudentialpolicies, social protection policies will enhance the efficacy of the financial sector that will aid bank performance.

Table 4-3 Ordinary Least Squares Result with Return on Equity

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ROE	Coef.	Std. Err.	P value
PAT	1.63e-07	5.71e-08	0.008*
CR	-4.97833	2.249671	0.035**
NII	6.03e-09	3.77e-08	0.874
MPR	0.4999244	.5453116	0.367
cons	14.57062	6.598191	0.035**

Note: The probability values * and ** means that the coefficients are significant at 1% and 5%, respectively

Source: Authors using Stata 13

Table 4-3 is somewhat similar to table 4-4. The starting point of this study is to measure bank performance using two indicators which are: return on asset and return on equity to know the best measurement of bank performance.

Table 4-2 presents the estimated output of Pooled OLS results for return on equity. From the table; a unit change (increase) in profit after tax leads to about 1.63 unit increase in return on equity. With the probability value of 0.008, it means that profit after tax is statistically significant to the model at 1% level. If current ratio increases by 1 unit, return on asset decreases by 4.98 units. Net income ratio increases return on equity by 6 units, monetary policy rate increases return on equity 49.99 units. Net income ration and current ratio are statically not significant in the model in both the return on asset model and return on equity model for the fixed effect regression analysis, while profit after tax and current ratio are statistically significant at 1% and 5% level with the *p values* of 0.008 and 0.35 respectively

Table 4-4 Result from Fixed Effect Panel Regression for Return on Asset

ROA	Coef.	Standard. Error	P-value
PAT	5.79e-09	1.16e-08	0.622
CR	-1.012866	0.3777625	0.013**
NII	-1.04e-08	6.66e-09	0.131
MPR	0.2004445	0.0899958	0.035**
cons	3.327229	0.9933245	0.002*

Note: The probability values * and ** means that the coefficients are significant at 1% and 5%, respectively

Source: Authors using Stata 13

Table 4-4 presents the estimated output return on asset fixed model. From the table; a unit change (increase) in profit after tax leads to about 5.79 unit increase in return on asset. An increase in current ratio increases by 1 unit leads a decrease in return on asset by 1 unit. If net income ratio increases by 1 unit, return on equity decreases by 1 unit as well; monetary policy rate increases return on equity 20%. In this model, current ratio and monetary policy rate are statically significant to the model at 5% levels respectively.

Table 4-5 Result from Fixed Effect Panel Regression for Return on Equity

<i>ROE</i>	<i>Coefficient</i>	<i>Standard Error</i>	<i>P-value</i>
<i>PAT</i>	7.21e-08	6.23e-08	0.258
<i>CR</i>	-6.534084	2.031212	0.003*
<i>NII</i>	-6.09e-08	3.58e-08	0.101
<i>MPR</i>	1.627185	.4839031	0.002*
<i>_cons</i>	14.58356	5.34106	0.011**

*Note: The probability values * and ** means that the coefficients are significant at 1% and 5%, respectively*

Source: Authors using Stata 13

Table 4-5 presents the estimated result of fixed effect panel regression for return on equity. From the table; a unit change (increase) in profit after tax leads to about 7.2 unit increase in return on equity. Though, not statically significant, but economically significant due to a direct correlation existing between the two variables (pat and roe). If current ratio increases by 1 unit, return on asset decreases by 6.5 units. Net income ratio decrease return on equity by 6.09 units, monetary policy rate increases return on equity 1.63 units. Net income ration and net income ratio does not satisfy the ‘*a priori expectation*’ due to the inverse relationship; while other variables satisfies the *a priori expectation*

Table 4-6 Result from Radom Effect Panel Regression Model for ROA

<i>Roa</i>	<i>Coefficient</i>	<i>Standard Error</i>	<i>P value</i>
<i>Pat</i>	1.00e-08	1.12e-08	0.371
<i>Cr</i>	-0.9741838	.3752761	0.009**
<i>Nii</i>	-9.24e-09	6.58e-09	0.161
<i>Mpr</i>	0.1653548	.0883903	0.061***
<i>_cons</i>	3.363307	1.171894	0.004*

Note: The probability values *, **and *** means that the coefficients are significant at 1% , 5% and 10%, respectively

Source: Authors

Table 4-6 presents the estimated result of random effect panel regression for return on asset. From the table; a unit change (increase) in profit after tax leads 1 unit increase in return on asset; a percentage increase in current ratio decreases return on asset by 9.74%; a unit increase in net income ratio leads to a decree in return on asset by 9.24 units; a unit increase in monetary policy rate increases returns on asset by 15.5%; Net income ration and profit after tax are not statistically significant to the model; but current ratio and monetary policy rate are statically significant 5% and 10% respectively.

Table 4-7 Result from Radom Effect Panel Regression Model for ROE

<i>ROE</i>	<i>Coefficient</i>	<i>Standard Error</i>	<i>P-value</i>
<i>PAT</i>	1.63e-07	5.71e-08	0.004*
<i>CR</i>	-4.97833	2.249671	0.027**
<i>NII</i>	6.03e-09	3.77e-08	0.873
<i>MPR</i>	0.4999244	.5453116	0.359
<i>_cons</i>	14.57062	6.598191	0.027**

Note: The probability values * , **and *** means that the coefficients are significant at 1% , 5% and 10%, respectively

Source: Authors

Table 4-7 presents the estimated result of random effect panel regression for return on equity. From the table; a unit change (increase) in profit after tax leads 1 unit increase in return on asset; a unit increase in current ratio decreases return on asset

by 4.98; a unit increase in net income ratio leads to an increase in return on equity by 6 units; a unit increase in monetary policy rate increases returns on equity by 49.99%; Net income ration and profit after tax are not statistically significant to the model; but net income ratio and monetary policy rate are not statically significant to the model; while profit after tax and current ratio are statically significant to the model at 1% and 5% level with p values of 0.004 and 0.027 respectively.

Table 4-8 Correlation Matric

	<i>Roa</i>	<i>roe</i>	<i>Pat</i>	<i>Cr</i>	<i>nii</i>	<i>Mpr</i>
ROA	1.0000					
ROE	0.7690	1.0000				
PAT	0.5371	0.6995	1.0000			
CR	-0.2369	-0.3017	-0.0594	1.0000		
NII	0.4323	0.6023	0.8249	-0.0773	1.0000	
MPR	0.2019	0.3535	0.3753	0.0283	0.3669	1.0000

Source: Authors using Stata 13

The correlation matrix a presented in table 4-8 shows the relationship between variables selected 1222for this study. The most common correlation coefficient is Pearson’s correlation coefficient which is used in this study to determine the presence or absence of multicollinearity among the variables. It compares two ratio variables, and most times, the main diagonal of the correlation matric table is a set of ones, because the correlation between a variable and itself is always 1. In other words, a correlation matrix is also a symmetric matrix. In a nutshell, as has seen in table 4-8, the variables exhibit no incidence of multicollinearity as the coefficient is less than 0.8.

Discussion of Results

This section discusses the estimated results from the regression model. The estimate for this study aggress with the study of Mandiefe(2016) who also used the panel ordinary least squares. The study found that that working capital management influenced performance of Afriland First Bank in Cameroon. This argument is validated from the pooled OLS estimated results in *table 4-2 and 4-3*. An increase in profit after tax, increases return on equity and return on asset by 1.63 units and 2.5 units respectively. Similarly, monetary policy rates enhances the performance of Banks by 10% and 49.9% respectively. On the contrary, current

ratio tends to reduce return on asset by 63% and 4.98 units reduction on return on equity. The rationale behind this negative relationship could be that the banks' ability to pay short-term and long-term obligations. For negative sign in net interest income it means that revenue generated from the banks interest-bearing assets is less than the cost of servicing (interest-burden) liabilities.

The findings also support Umoren and Udo (2015) who examined the effects of working capital management on the profitability and liquidity of select deposit money banks using Pearson Correlation Matrix to determine the level of the incidence of multicollinearity. This study also aligns with Umoren and Udo, (2015) as it was observed in the study that the model exhibit no incidence of multicollinearity, (See table 4-8).

Hoque, Mia and Anwar (2015) carried a study on management of working capital and profitability in Bangladesh using cement industry and it was revealed that profitability position and working capital was not satisfactory. This study also confirms the argument of Hoque, Mia and Anwar, (2015) as current ratio and net interest income have a negative relationship with return on asset and return on equity (*see table 4-4 and table 4-5*). In line with that, Yahaya and Bala, (2015) posed that liquidity implies better performance, stating that listed Deposit Money Banks in Nigeria should maintain a higher acid test ratio to increase profitability.

Bandara (2015) also examined the impact of working capital management policy on market value addition in Sri Lankan companies where descriptive statistics, correlation and panel regression analysis were adopted as tools for measurement and analysis. According to the overall panel regression model, working capital, investment policy and working capital financing policy both recorded a negative relationship to market value addition.

This study is in disagreement with Afza and Nazir (2008) who argued that there is an inverse relationship with the degree of policies and profitability, in *tables 4-2, 4-3, 4-4 4-5 and 4-6*; it can be seen that there exist a positive relationship between monetary policy rates and banks performance (return on assets and return on equities); this means monetary policy rates enhance banks performance by approximately 10.1%, 50%, 20%, 62%, 16.5% and 50% respectively which in turn would commensurate to a higher working capital. This means that effective

monetary policy and strong institutional framework will enhance performance (Osabohien et al., 2017).

CONCLUSION AND RECOMMENDATIONS

The deposit money banks must develop necessary steps to utilize its idle cash and bank balances in other to meet its short term debt obligations and operating cost thereby improving its current ratio. It was also shown from the analysis that the return on equity (ROE) is a better measure of performance.

This paper have shown that there is a significant relationship between working capital management and bank performance from the afore-shown analysis. The corporate restructuring implemented and carried out during 2005 by the then CBN Governor Professor Chukwuma Soludo, has repositioned the deposit money banks but it would be highly imperative for the time value of money to be considered in working capital efficiency. Therefore, there should be a periodic recapitalization of bank such that the ₦25 Billion Minimum Capital Requirement should be reviewed at least once in every five years to meet up with the changing time value of money so as to ensure and enable the global competitiveness of the Nigerian deposit money banks.

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