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Working Capital Management and Financial Performance: Evidence from Deposit Money Banks in Nigeria

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ABSTRACT: Clear and well-defined policies regarding working capital management are imperative for organizations. The efficient management of working capital not only enhances a bank's financial performance but also fosters customer confidence, facilitates the payment of short-term debts, and contributes to sectoral growth and national development The paper examines the impact of working capital management on the financial performance of Listed deposit money banks in Nigeria. To establish the aim, the paper applies the panel generalized method of moments on published data of deposit money banks in Nigeria from 2012 to 2022. The study uses variables such as working capital, gross operating profit, and cash conversion cycle, as components of working capital management and return on assets to represent financial performance. The outcome shows a positive and significant relationship between effective working capital management and financial performance. The gross operating profit was found to have a positive and significant impact on the financial performance of the banks. The paper identifies a negative but significant relationship between the cash conversion cycle and financial performance. Lastly, the macroeconomic factors, such as inflation rates, and interest rates, were found to have a significant impact on the financial performance of the banks. The study highlights the importance of effective working capital management, and strategic responsiveness to macroeconomic conditions for the financial success of listed deposit money banks in Nigeria. The paper offers, amongst others, that there should be regular assessments of financial performance and internal processes are essential to identify areas of improvement and ensure adherence to best practices in working capital management.

Keywords: Working Capital, Gross Operating Profit, Cash Conversion Cycle, Macroeconomic Factors, Return on Assets.

INTRODUCTION

Clear and well-defined policies regarding working capital management are imperative for organizations. Working capital, defined as the variance between current assets and liabilities, serves as a measure of a financial institution's health, meeting short-term financial obligations and ensuring operational liquidity daily (Oloye & Osuma, 2015). The efficient management of working capital not only enhances a bank's financial performance but also fosters customer confidence, facilitates the payment of short-term debts, and contributes to sectoral growth and national development (Hoque et al. , 2015). In contrast, inadequate working capital management can diminish profitability, precipitate financial crises, and undermine the overall efficiency of operations (Yahaya & Bala, 2015). While profitability traditionally serves as a metric for assessing operational efficiency, the significance of working capital management in bank performance has sometimes been overlooked (Umoren & Udo, 2015).

Effective liquidity management is a pivotal concern for organizations as it directly impacts their daily operations. It entails maintaining a surplus of current assets over liabilities to ensure a favorable current ratio, which is integral to overall liquidity (AlShubiri, 2011) & Padachi et al. , 2012). Working capital management ensures the availability of liquidity to sustain efficient functioning (Gupta, 2018). Gitman (2019) notes that working capital management entails overseeing current assets and liabilities to fulfill short-term financial obligations and mitigate the risk of bankruptcy associated with excessive short-term liabilities. The core aim of working capital management is to optimize the balance between current assets and liabilities, resulting in a favorable level of net working capital (Smith, 2019).

There has been considerable academic interest in exploring the interplay between working capital, capital structure, and financial performance, Zopounidis & Doumpos (2018) explored the use of multi-criteria decision aid (MCDA) methods in financial decision-making processes, considering factors such as debt, financial distress, investment, and corporate performance. Es calera and Herrera (2020) offer the significance of supplier financing and inventory management in generating economic value. Rasyid (2017) and Nanda and Panda (2018) reveal significant links between working capital policies and performance indicators. Similarly, studies by Senan et al. (2021) reveal significant associations between working capital factors and return on equity. Farhan et al. (2021), Pestonji and Wichitsathian (2019), and Basyith et al. (2021) shows that working capital investment has significance on financing policies on profitability.

Many studies centered on large multinational corporations, with relatively little attention given to the banking sector. This gap in the literature is particularly pronounced in the context of Nigerian banks, which face unique challenges in a market with low financial penetration. Given the critical role of the banking industry in Nigeria's financial system, identifying working capital and capital structure as pivotal performance indicators in the banking sector could inform the development of financial management policies aimed at enhancing industry profitability (Agiobenebo & Ezirim, 2018; Ansah-Adu et al. , 2018).

Past studies that explored factors influencing firm performance in Nigeria lack comprehensive analysis of their interrelationships (Mwangi, 2018). Some research has investigated factors driving financial performance in specific sectors like life assurance companies, these findings may not fully translate to the banking industry (Mutugi, 2018). There remains a dearth of understanding regarding the nuanced relationship between financial management strategies and performance outcomes in Nigerian banks (Wabita, 2018; Oloye & Osuma, 2015). This dearth of research motivated a deeper examination of the relationship between working capital management, capital structure, and financial performance within the Nigerian banking sector. The current study aimed to elucidate how working capital management impact the financial performance of deposit money banks (DMBs) in Nigeria.

The paper aims to:

1. Examine the relationship between working capital and financial performance of the DMBs in Nigeria.
2. How gross operating profit affect financial performance of the DMBs in Nigeria.
3. Conform how cash conversion cycle impact financial performance of the DMBs in Nigeria.
4. To examine the extent of macroeconomic factors on the financial performance of the DMBs in Nigeria.
5. Accordingly, the research evaluates the following null hypotheses:
6. There is no significant relationship between working capital and financial performance of the DMBs.
7. There is no significant effect of gross operating profit and financial performance of the DMBs.
8. There is no significant impact of cash conversion cycle and financial performance of the DMBs.
9. There is no significant impact of macroeconomic factors and financial performance of the DMBs.

METHOD

The study of working capital management is not a new practice. Scholars have for the last several decades paid attention to these concepts to suggest or recommend the most optimal strategies for acquiring and managing the finances of a company. Four important theories that particularly underpin scholarly work in the area of capital structure include the Modigliani-Miller theorem, the net income approach, the pecking order theory, and the trade-off theory. As for working capital management, firms may choose from the aggressive approach and the conservative approach.

The Modigliani-Miller Theorem asserts that a firm's market value is a factor of its earning power as well as the risk associated with its underlying assets (Modigliani & Miller, 1958). The theory further states that the value is not dependent on how it elects to fund its operations or distribute dividends. As is normally the case, a firm can select from three financing methods: issuing equity, debt or reinvesting profits instead of distributing them to shareholders. The fundamental argument is that under certain assumptions, it does not matter whether a firm chooses debt or equity.

The pecking order theory, postulated by Myer (1984), states that firms tend to prefer internal financing. The theory also argues that dividend policy is often inclined to investment opportunities available to the firms. In addition, unanticipated variations in investment opportunities and profitability imply that internally generated funds can be more expensive. Therefore, profitable and cash flow sufficient firms will tend to use less debt. Ghosh (2018) and Gachoki (2019) tested this theory and found that no relationship exists between debt and internal funds deficit. Other studies showed a positive relationship on capital structure choice that finance managers follows a hierarchal order when making capital structure decision and supporting the pecking order theory (Hewledge & Liang, 2020; Frank & Goyal, 2018; Kahugu, 2019).

The trade-off theory argues that managers seek to trade off tax savings on debt against cost of debt. Many studies show a strong significant relationship that the level of adjustment is relative to the cost of debt and many managers revise their capital structure to maintain an optimal balance of cost and debt (Graham & Harvey, 2018; De Jong *et al.* , 2018; Hovakimian, Opler & Titman, 2018; Dang, 2018). Working capital management essentially entails the management of liquidity, which is measured as a ratio of current assets to current liabilities (Porter & Norton, 2018). The two major approaches to the management of working capital are the aggressive approach and the conservative approach. The aggressive approach entails high levels of long-term assets and low levels of current assets (Porter & Norton, 2018). Though this may increase the profitability firm, it may increase the risk of illiquidity in the short term.

In essence, achieving optimal working capital ratios is often a difficult task for most organizations since organizations often face the dilemma of choosing between keeping current assets to meet short-term financial obligations and investing current assets to generate earnings. This is referred to as the liquidity-profitability trade-off. In fact, managing working capital entails a trade-off between risk and profitability. Focus on profitability tends to increase risk and focus on risk reduction tends to reduce profitability. Without a sound working capital management policy, a firm may experience poor financial performance (Gallagher & Andrew, 2017). It is, therefore, important to choose a working capital management approach that ensures a balance between idle current assets and long-term investments.

The paper follows the standard procedure for empirical testing required to evaluate the study's hypotheses. First, we employ some summary statistics including the mean, standard deviation, minimum and maximum to describe the variables. If the kurtosis is above three, the distribution is peaked or leptokurtic relative to the normal and if the kurtosis is less than three, the distribution is flat or platykurtic relative to normal. Jarque-Bera (JB) tests for the normal distribution of the series. It measures the difference of the skewness and kurtosis of the series with those with normal distribution. JB statistics show the normality or otherwise of the variables' distribution. The statistic, computed from equation (1), represents a goodness-of-fit assessment that confirms whether recovered sample skewness and kurtosis match normal distribution.

$$JB\text{-statistic} = 1/6 * [(\tilde{\mu}_3)^2 + 0.25\ (\tilde{\mu}_4 - 3)^2] \quad 1)$$

Where $\tilde{\mu}_3$ and $\tilde{\mu}_4$ are the skewness and kurtosis coefficients. The variable's series is non-normal distribution, if the JB is far from zero, and as such the test is significant at chosen level.

To find the relationship between working capital and the financial performance and confirm the slated hypotheses the paper uses return on assets as measure of financial performance as well as gross operating profit and cash conversion cycle as measure of working capital management being the as independent variables. Equation 2 (functional form) and Equation3 (linear form) provide models that connect how the management working capital impact firm's financial performance

$$\mathrm{ROA}_{i,t} = \mathrm{GOP}_{i,t}, \mathrm{CCC}_{i,t}, \mathrm{WKP}_{i,t}, \mathrm{IFR}_{i,t}, \mathrm{INT}_{i,t} \quad (2)$$

$$\mathrm{ROA}_{i,t} = \alpha_0 + \alpha_1 \mathrm{GOP}_{i,t} + \alpha_2 \mathrm{CCC}_{i,t} + \alpha_3 \mathrm{WKP}_{i,t} + \alpha_4 \mathrm{IFR}_{i,t} + \alpha_5 \mathrm{INT}_{i,t} + \mathrm{e}_{i,t} \quad (3)$$

Where ROA is return on asset, CCC is conversion capital cycle, GOP is gross operating profit, WKP is Working capital, IFR is inflation rate and INT is the interest rate. α_0 is constant and u is the error term. The economic a priori criteria refer to the sign and size of the parameters and the economic relationship between the variables. The apriori expression of this model is that $\alpha_i > 0\ (for\ i = 0\ to\ 3)$ and $\alpha_i < 0\ for\ i = 4, 5$.

The generalised method of moments (GMM) panel regression model for the estimation. The estimation uses the pooled OLS yields inconsistent estimators and heteroskedasticity errors. This study adopted ex-post facto, involving secondarily sourced data from the annual reports. The paper focus on the population of DMBs on the Nigerian Exchange Group (NGX) for Access Bank, First Bank, GTB, UBA, and Zenith Bank. The data, between 2012 to 2022, are extracted from the annual audited accounts and NXG reports.

The variables are defined. Return on assets indicates how profitable a company is in relation to its total assets. Gross operating profit is calculated as revenue less cost of goods sold, operating expenses, depreciation and amortization. It is earnings minus the direct manufacturing costs. Conversion capital cycle is simply a metric that expresses the time (measured in days) that it takes for a company to convert its investments in inventory and other resources into cash flows from sales. It measures how long each net input dollar is tied up in the production and sales process before it gets converted into cash received. Working capital is the difference between a company's current assets - and its current liabilities, such as accounts payable and debts. It gauges the short-term health of an organisation.

RESULT AND DISCUSSION

We present the results and evaluate the working hypotheses. Before presenting the GMM output, the paper as reported in Table 1, presents the statistics summary of the considered variables. The mean values of all the variables used were reported to be positive. This implies that all the variables used

have recorded an increasing trend for most periods. The mean value for ROA is an indication of increasing returns which also means rising performance for the banks. The maximum and minimum values indicate the highest points and lowest points of the variables throughout the study period. The highest value for return on equity during the period under study was 31% while the minimum value of ROA is 1%. The standard deviation for $\mathrm{ROA}_{i,t}, \mathrm{GOP}_{i,t}, \mathrm{CCC}_{i,t}, \mathrm{WKP}_{i,t}, \mathrm{IFR}_{i,t},$ and $\mathrm{INT}_{i,t}$, are respectively, 0. 087 2. 489, 1. 091, 3. 673, 0. 037, and 0. 011. Three variables $\mathrm{ROA}_{i,t},, \mathrm{IFR}_{i,t},$ and $\mathrm{WKP}_{i,t}$ are positively skewed from the normal distribution point, while others, $\mathrm{GOP}_{i,t}, \mathrm{CCC}_{i,t},$ and $\mathrm{INT}_{i,t}$ are negatively skewed. The variables are flat or platykurtic to normal being less than three. The Jarque-bera values for $\mathrm{ROA}_{i,t}, \mathrm{GOP}_{i,t}, \mathrm{CCC}_{i,t}, \mathrm{WKP}_{i,t}, \mathrm{IFR}_{i,t},$ and $\mathrm{INT}_{i,t}$are 0. 381, 2. 176, 10. 10, and 7. 118, 6. 379, and 9. 295 respectively.

Table 2 shows the outcomes of the generalized method of moments for the apnel estimation. The adjusted coefficient of determination suggests that about 73. 38% variation in return on asset is explained by variations in other variables. The Durbin Watson value of 2. 013 indicates the absences of serial autocorrelation. The coefficient of WKP of (0. 298) has a p-value of 0. 0032 which is less than 0. 05. The first null of no significant relationship between working capital and financial performance is rejected at 5%. This implies that there is a positive and significant relationship between working capital and financial performance. The coefficient of GOP of (0. 0279) has a p-value of 0. 0049 which is less than 0. 05. The second null of no significant relationship between gross operating profit and financial performance is rejected at 5%. This supposes that there is a positive and significant effect of gross operating profit on financial performance. The coefficient of the cash conversion cycle of (-3. 24E-06) has a p-value of 0. 0384 which is less than 0. 05. The third null of no significant relationship between cash conversion cycle and financial performance is rejected at 5%. This supposes that there is a positive and significant effect of gross operating profit on financial performance. The coefficient of the cash conversion cycle of (0. 082) has a p-value of 0. 0391, which is less than 0. 05. The third null of no significant relationship between cash conversion cycle and financial performance is rejected at 5%. This supposes that there is a significant effect of inflation, a measure of macroeconomic factors, on financial performance.

Nyabuti and Ondiek (2018) establishing a positive correlation between working capital management and financial performance. Arasa and K'obonyo (2018) highlight the significant role of effective strategic planning in enhancing overall performance. Valencia et al. (2020) found that Mexican firms typically maintain an optimal leverage ratio and rely on investment analysis techniques to analyze profitability. Jog and Srivastava (2019) reveal that investment decisions are primarily driven by funding opportunities and capital budgeting decisions are based on factors such as net present value and internal rate of return. Rasyid (2017) and Nanda and Panda (2018) reveal significant relationships between working capital policies and performance indicators. Similarly, studies by Senan et al. (2021) reveal significant associations between working capital factors and return on equity. Farhan et al. (2021) and Basyith et al. (2021) shows that working capital investment has significance on financing policies on profitability.

Table 1. Sample Statistics

	Mean	Med	Max	Min	SD	Skewness	Kurtosis	JB	P-value
$ROA_{i,t}$	0. 147	0. 156	0. 310	1. 096	0. 087	0. 0348	2. 646	0. 380	0. 827
$GOP_{i,t}$	2. 559	2. 270	6. 223	-1. 583	2. 488	-0. 022	2. 137	2. 176	0. 337
$CCC_{i,t}$	13. 07	13. 500	14. 00	11. 00	1. 091	-0. 858	2. 282	10. 10	0. 006
$WKP_{i,t}$	11. 85	11. 40	18. 60	8. 000	3. 673	0. 664	2. 177	7. 119	0. 028
$IFR_{i,t}$	0. 123	0. 117	0. 186	0. 080	0. 037	0. 331	1. 785	6. 379	0. 041
$INT_{i,t}$	0. 129	0. 133	0. 140	0. 110	0. 011	-0. 452	1. 596	9. 295	0. 010

Source: Author (2024)

Note: The selected banks include First Bank, Guaranty Trust Bank, Access Bank, Zenith Bank, and UBA.

Table 2. ROA Model (GMM Estimation)

Variable	Apriori	Coeff	Std. Err.	t-Stat	P-value
Const		0. 399	0. 685	0. 583	0. 563
$GOP_{i,t}$	(+)	0. 028	0. 018	-1. 565	0. 005
$CCC_{i,t}$	(+)	0. 000	0. 000	-0. 890	0. 038
$WKP_{i,t}$	(+)	0. 298	2. 020	0. 148	0. 003
$IFR_{i,t}$	(-)	0. 082	0. 198	0. 415	0. 039
$INT_{i,t}$	(-)	-0. 286	0. 458	-0. 624	0. 034
R-squared (Adj)		0. 7338			
Durbin-Watson stat		2. 013			
J-stat.		43. 000			
Prob(J-stat.)		0. 000			

Source: Author (2024)

The results indicate that effective working capital management is positively associated with the financial performance of listed deposit money banks in Nigeria. This implies that banks that optimize their working capital by managing their short-term assets and liabilities efficiently are more likely to experience enhanced financial performance. This positive relationship suggests that banks with better working capital management can maintain liquidity while simultaneously generating returns, thus enhancing overall profitability. This aligns with the broader financial management literature, which emphasizes the importance of working capital management as a key determinant of a firm's financial health.

The study finds that gross operating profit has a positive and significant effect on the financial performance of the listed deposit money banks. The positive impact on financial performance suggests that higher gross operating profits lead to improved overall financial outcomes, further emphasizing the importance of operational efficiency and cost management in the banking sector.

The cash conversion cycle shows a negative but significant impact on financial performance. This indicates that a longer cash conversion cycle, which may be indicative of inefficiencies in managing inventory, receivables, and payables, detrimentally affects the financial performance of banks. The negative impact underscores the importance of minimizing the duration of the cash conversion to free up cash for other productive uses, thereby enhancing profitability.

The outcome highlights the significant impact of macroeconomic factors on the financial performance of listed deposit money banks in Nigeria. This finding underscores the broader economic environment's role in shaping the financial outcomes of banks. Macroeconomic factors such as inflation rates, interest rates, and economic growth can influence banks' cost of funds, the demand for loans, and the overall financial health of borrowers, all of which subsequently affect the banks' financial performance. The significant impact of these factors suggests that banks need to consider the macroeconomic environment in their financial planning and risk management strategies to mitigate potential adverse effects.

CONCLUSION

This study provides valuable insights into the critical role of working capital management in the financial performance of listed deposit money banks in Nigeria. The findings demonstrate that effective working capital management significantly contributes to the financial success of these institutions. Specifically, a positive and significant relationship was established between working capital management and financial performance, highlighting the importance of optimizing the management of current assets and liabilities to achieve financial goals. The outcomes highlight the critical importance of effective working capital management, operational efficiency, and strategic responsiveness to macroeconomic conditions for the financial success of listed deposit money banks in Nigeria. With this, the banks can enhance their financial performance and achieve sustainable growth in a dynamic and challenging economic environment.

The paper offers the following recommendations. First, the banks should focus on improving their operational processes to increase profits. This can be achieved by adopting cost-effective measures, streamlining operations, advanced in technologies, and enhancing service delivery. Second, banks should prioritize the implementation of robust working capital management strategies. This includes optimizing the management of current assets and liabilities to ensure sufficient liquidity while maximizing profitability. Banks should regularly monitor their working capital components, such as accounts receivable, accounts payable, and inventory levels, to maintain an optimal balance that supports smooth operations and enhances financial performance. Third, there should be regular assessments of financial performance and internal processes are essential to identify areas of improvement and ensure adherence to best practices in working capital management. Banks should conduct periodic financial audits and performance evaluations to monitor progress, detect inefficiencies or irregularities promptly, and implement corrective measures to maintain optimal

financial health. Lastly, the banks should invest in continuous training and development programs for their staff. Educating employees on efficient working capital management practices, financial analysis, and the use of advanced financial technologies will enhance their competencies and contribute to better financial decision-making and performance.

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