WORKING CAPITAL MANAGEMENT AND FIRM VALUE: EVIDENCE FROM LISTED NON-FINANCIAL FIRMS IN NIGERIA

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Abstract

This study examined the effect of working capital management on the firm value of non-financial firms in Nigeria using the enterprise value multiple which was measured as enterprise value scaled by EBITDA as the indicator of firm value and extracted panel data from audited financial statements of sampled thirty-three non-financial firms listed on the Nigerian Exchange Group (NGX) Plc from 2012 to 2021. The results of the static panel least square and the panel fixed effect model estimation techniques revealed that all the WCM components have a significant effect on the firm value of non-financial firms in Nigeria which implies that WCM is highly essential for improved firm value. We, therefore, recommend that non-financial firms in Nigeria should adopt conservative account payable management strategies that will enable quick settlement of short-term obligations when they fall due. They should also adopt liberal account receivable management strategies that will not endanger their liquidity and cash flow.

Keywords*: Working Capital Management, firm value, non-financial firms*

1.0. Introduction

Globally, firms have continued to give more attention to working capital performance because the present global economy, with its attendant challenges, can distort normal business conduct if adequate working capital (WC) is not in place (PWC, 2021; CFO, 2021; KPMG 2020). Effective working capital management (WCM) is imperative for businesses in order to face any headwinds and to achieve business growth, success, and survival, as well as report better financial performance through investing excess cash in investment opportunities with high returns, which improves firms' profitability and maximize shareholders wealth (KPMG 2020; Sawarni, et al., 2020; PWC, 2021; CFO, 2021).

Deloitte (2023) stated that the WC performance of big firms in the year 2022 was not encouraging and that managers must give the necessary attention to liquidity management which is the hallmark of WCM because, without this, the survival of firms could be threatened. Also, PWC (2023) working capital reports, further stressed the importance of working capital efficiency, more so because their WC survey revealed that effective WCM can optimize restructuring activities and change management.

Although in the past, the focus of research in the field of corporate finance has been on the long-term financing decisions of firms with little attention given to the short-term financing decisions. The fall out of the U.S financial crisis in 2008 and the COVID-19 pandemic in 2020 with their attendant liquidity crunch necessitated the increased focus of finance managers and researchers on the short term financial health of firms with keen attention given to crucial working capital (WC) drivers in order to achieve appropriate working capital level (Afza & Nazir, 2008; Mohamad, & Saad, 2010; Sharma & Kumar, 2011; Takon & Atseye, 2015; Hingurala et al., 2017; Akbar et al., 2021).

WCM involves formulating and implementing policies that enhance the effective management of firms' current assets and liabilities, enabling firms to achieve both profitability and enhanced firm value objectives. Investment in WC components is an essential aspect of the company's operation because it does not involve various financing options, unlike investment in fixed assets with different financing options, such as leasing or renting fixed assets. Hence, identifying key WC drivers and an optimum WC level is vital to the survival and success of an organization, and this has become a challenge to financial executives as they strive to achieve efficient WC management. (Lamberson, 1995; Takon & Atseye, 2015).

Firms are usually faced with the challenge of the management of WC because some have yet to be able to identify the WC drivers and the adequate level of working capital needed for their operation. The need to identify cashflow need of firms has made it imperative for them to ensure proper management of their receivables, payables and inventory (Knauer & Wohrman, 2013) because unnecessary investment in the aforementioned components of WC can reduce firms profitability (Vishnani & Shah, 2007; Ricci & Vito, 2000).

Inefficient management of working capital plays a significant role in the failure of most ailing firms because it does not harm profitability only but the overall health of an organization, irrespective of the firm's profit orientation, size, and nature of business (Siddiquee and Khan. 2009). Hence, effective WCM is highly imperative for non-financial firms because they have significant investments in Working capital and failure to effectively manage the WC can threaten their survival as a going concern. Furthermore, shareholders' wealth maximization and increased firm value can be enhanced and achieved through efficient WCM because WCM does not only it impacts on profitability but also market performance (Shin & Soenen, 1998).

In practice, decisions regarding working capital management differ and it is based on countries' economic conditions, business practices, and technological changes. Firms operating in Countries going through a recession would have an increased need for WCM as against those firms operating in a business friending economic clime (Enqvist et al., 2014). Unfortunately, Nigeria as a nation is presently faced with lots of challenges that can threaten firms' existence if WC is not efficiently managed.

The persistent harsh business environment in Nigeria as a result of some macro and micro economic factors such as unstable fiscal and monetary policies, insecurity, exchange rate instability, epileptic power supply, and inadequate infrastructural facilities, makes it exigent for non-financial firms to pay closer attention to the effective management of their working capital as these would boost their ability to survive the unconducive business climate as well as enable them to achieve their profitability and enhance firm value objective because failure in this regard could inhibit the ability of firms to generate high returns on investment, illiquidity, and inability to meet their daily obligations. These could lead to business distress (Owolabi & Alu 2012; Olayemi, 2021; Oke & Adebola, 2022).

Several prior studies on WCM in Nigeria had focused on the short-term financial performance of firms which is profitability (Akindele & Odusina, 2015; Simon et al., 2018), while few studies (Dabo et al., 2018; Ibrahim & Isiaka, 2021) have investigated the effect of WCM on the long-term financial performance of firms, which is their firm value; this study is unique because it used a novel metric to measure the firm value of the non-financial firms in Nigeria and this metric which is enterprise value scaled by earnings before interest, tax depreciation, and amortization has rarely been used in studies relating to working capital and long term firm performance despite its importance in evaluating the actual market value of a firm. This metric is important to investors because it aids their decision-making as regards share investment, firm purchase in relation to mergers and acquisitions. Furthermore, results from prior research on the impact of WCM on the firm value of non-financial firms in Nigeria are inconclusive; this study would enrich the literature in this regard.

The objective of this study is to examine the effect of WCM on the firm value of listed non-financial firms in Nigeria and to contribute to the scarce literature on the WCM and firm value of listed non-financial firms in Nigeria.

2.0. Literature Review

2.1. Working Capital Management (WCM)

Working capital comprises the current asset and current liabilities of firms, and it is considered the lifeblood of a firm because it provides needed liquidity for the sustenance of firms' daily operations and servicing of short-term obligations that fall due. WC is the capital firms require to fund their daily operations (Chauhan, 2019). WCM is the management of the current asset and liabilities components of a firm's balance sheet to achieve sufficient liquidity to offset short-term obligations and ensure the smooth running of the firm as a going concern (Oke & Adebola, 2022). Efficient WCM management equips firms to be more resilient during challenging economic periods as their operation will not be halted by cash crunch or illiquidity arising from poor WCM (Hossain & Zariyawati, 2022; Seth et al., 2020).

2.2. Firm Value (Enterprise Value)

Firm value (enterprise value) is the total market value of a firm which comprises the total value of stock price, minority interest, preference shares, and debt minus cash. It is the value that gives investors the true worth of a company and the purchase price of a firm in the event of a merger and acquisition (Wikipedia). Enterprise value is a significant value that investors and potential firm acquirers are interested in because it enables them to evaluate a firm in its totality, and it aids their investment decision. Firm value is the investors' acuity of firms' success, which is always mirrored in the share price of the firms. Also, firms with higher firm value are more attractive to investors and potential buyers (Ilham et al., 2022).

2.3. CASH CONVERSION CYCLE (CCC) THEORY

Cash conversion cycle (CCC) theory describes the importance of managing firms' inventories, receivables, and payables, which are essential components of working capital. According to Richards and Laughlin (1980), the theory inventor, CCC is measured by subtracting the account payables period from the sum of the account receivable and inventory periods. This theory emphasizes the importance of the early unlocking of cash from receivables, quick conversion of inventories into sales, and delay in the payment of payables without compromising the firm's integrity. CCC theory further explains the importance of effective management of the account

receivable period, account payable period, and inventory period, as these would greatly influence the ability of firms to achieve their profitability objectives, enhance their value as well as provide enough liquidity for the continued survival of the firm. CCC theory stresses the importance of WC management because this would enable firms to reduce reliance on external financing and help firms with financial constraints to meet their cash needs. A short CCC is evidence of efficient WCM, since it implies that firms quickly free up cash flow from WC, which can be used for investment activities. At the same time, a longer CCC is a pointer to inefficient WCM. This is harmful to the operation of a firm as this indicates an undue lock up of cash in WC components. This has the potential of resulting in illiquidity and ultimately a business failure because fallen obligations would not be met without reliance on reserves and external financing.

2.4. Empirical Literature

The study of Ilham et al. (2022) on WCM and firm value of Indonesian manufacturing firms from 2015 to 2019 revealed that WCM positively and significantly impacts firm value. The study used Current assets/ current liabilities as a proxy for WCM, while forty (40) firms were used as the study sample size.

Chamberlain and Aucouturier (2021) evaluated the effect of WCM on the firm performance of European-listed firms from 2004 to 2016. The study revealed that CCC and inventory days positively impact firm value, while days receivables have a negative and insignificant effect on firm value. Firm value was measured by Tobin's Q.

Ibrahim and Isiaka (2021) researched the effect of WCM on the firm value of non-financial firms in Nigeria from 2014 to 2018 using a sample size of 71 listed firms from the Nigerian stock exchange. The panel estimation technique result revealed that Average payable period significantly and positively affects firm value. In contrast, Inventory turnover period and Average collection period had a significant inverse effect on the firm value of non-financial firms in Nigeria.

Sawarni et al. (2020) studied the impact of WC efficiency on the firm performance of India non-financial firms using 414 firms from 2012-2018. The result of the panel least square estimation technique revealed that net trade cycle has a significant negative impact on firm value, with an insignificant effect between receivable days. In contrast, payable and inventory days have a statistically negative effect on firm value.

Pratheepkanth (2020) examined the relationship between WCM and firm value in 100 non-financial Sri Lankan listed firms from 2014 to 2018. Employing the regression analysis and using total market value of the firm as the indicator of firm value, the author revealed the existence of a positive association between firms' Cash conversion cycle, Account payable days, firm size, and firm value. In contrast, accounts receivable and inventory days have a negative but significant relationship with firm value. The result showed that firm managers should concentrate more on managing their cash conversion cycle to improve their firm value.

A study by Pestonji and Wichitsathian (2019) revealed that the WC financing policy has a significant inverse effect on the firm value of 68 listed companies in Thailand from 2012 to 2016.

Baños-Caballero et al. (2020) conducted a cross–country analysis of the effect of net operating WC on the firm value of thirty countries from 1995 to 2013. The study's outcome showed that the value of net working capital (NWC) depends on the country's investors' protection and level of economic and financial development. Also, investors in countries with more remarkable financial and economic development and more vigorous investor law enforcement ascribe more significant value to the NWC of firms. The reverse is, however, the case in countries with a low level of financial and economic development and investor protection law enforcement.

Simon et al. (2018) examined the effect of WCM on the financial performance of non-financial firms in Nigeria from 2002 to 2015 using 75 sample firms. The study revealed that account receivable and inventory management have a significant positive effect on the firm value measured by Tobin's Q, while an insignificant relationship exists between account payable management and firm value.

Dabo et al. (2018) conducted a study on the effect of WCM on the firm value of 47 listed manufacturing firms in Nigeria from 2011–2016. Using economic value added as a measure of firm value, the study revealed that the inventory holding period significantly and positively affects the firm value of listed manufacturing firms in Nigeria. On the other hand, CCC has an insignificant but positive effect on firm value.

Using USA firms' quarterly financial data from 2003 to 2012, Cumbie & Donnellan (2017) assessed the impact of WC components on the firm value. The result of their panel least square estimation technique showed that account payables (AP), account receivables(AR), and

inventory(INV) have a significant relationship with firm value. The study further indicates that investment in accounts receivable beyond a minimizing point does not increase firm value.

A study on the effect of WCM on the firm value of 44 firms listed on the Colombian stock exchange for the period 2011 to 2015 was also conducted by Hingurala et al. (2017). The result of the panel least square estimation technique revealed that CCC, AR, and INV significantly and negatively affect firm value. In contrast, AP had a significant positive effect on firm value. This result suggests that efficient WCM creates value for shareholders through increased market value.

3.0. Research Methodology

In this study, we examine the effect of WCM on the firm value of listed non-financial firms in Nigeria from 2012 to 2021. To achieve this objective, we used ex-post facto research design, the purposive sampling technique, and the static panel least square, fixed effects and random effects estimation techniques. Thirty-three (33) non-financial firms listed on the Nigerian Exchange Group (NGX) Plc were selected based on the availability of data. The data used in this study were extracted from the audited financial statements of the sampled firms. Data from the firm's financial statements are usually reliable because they have been audited by external auditors and are credibile for external use.

3.1. Model Specification

To achieve the objectives of this study, we modified the model developed by Nurein and Din (2017). The independent variables of interest for the WCM are the account payable period, account receivable period, and inventory holding period. The indicator of firm value, the dependent variable for this study, is the enterprise value scaled by EBITDA. The control variables included in the study are leverage, current assets to total assets, and current liabilities to total assets. These control variables were meant for the robustness of the results as well as account for specific firms' characteristics.

$FV_{it} = f(WCM_{it,} CVR_{it})$ …… 3.1

$WCM_{it} = f(APP_{it}, ARP_{it}, IHP_{it})$ …….. . .3.2

$CVR_{it} = f(LEV_{it,} CATA_{it,} CLTA_{it,})$ ……..……3.3

Combining equations 3.1, 3.2, and 3.3, the econometric model is specified as:

$FV_{it} = \beta 0 + \beta_1 APP_{it} + \beta_2 ARP_{it} + \beta_3 IHP_{it} + \beta_4 LEV_{it} + \beta_5 CATA_{it} + \beta_6 CLTA_{it} + \varepsilon it$ ……..3.4

Where:

APP_{it} = Average Payable Period of non-financial firm i at time t;

ARP_{it} = Average Receivable Period of non-financial firm i at time t;

IHP_{it} = Inventory holding Period of non–financial firm i at time t.

LEV_{it} = Leverage of non-financial firm i at time t;

$CATA_{it}$ = Current Asset to Total Asset of non-financial firm i at time t;

$CLTA_{it}$ = Current Liabilities to Total Asset of non-financial firm i at time t;

β = Coefficients

ε_{it} = white noise

Table 1. Operationalization of Study Variables

Variables	Connotation	Measurement	Previous Studies	A priori Expectation
Firm Value (Enterprise value / EBITDA)	FV	(Equity value + Total Debt – cash & cash equivalents + preferred stock + Minority Interest) / EBITDA	Nurein and Din (2017)	
Account Receivables period	ARP	Account receivables divided by sales X 365 days	Nurein and Din (2017), Minhas (2021)	-
Inventory Turnover period	ITP	Inventory /cost of sales X 365 days	Nurein and Din (2017), Minhas (2021)	-
Account Payable Period	APP	Account payables/sales X 365 days	Nurein and Din (2017), Minhas (2021)	+
Leverage	LEV	Total debt / total capital	Soukhakian and Khodakarami (2019), Hingurala et al. (2017)	_
Current Assets / Total Assets	CATA	Current Asset/Total Asset	Mohamad and Saad (2010), Bambang et al. (2017	+
Current Liabilities/	CLTA	Current Liabilities/ Total Asset	Raheman et al.	_

Total Assets			(2010), Bambang et al. (2017	

4.0. Results and Discussion

4.1. Results

Table 2. Descriptive Statistics

	FV	APP	ARP	IHP
Mean	6.78	47.94	56.20	81.36
Median	4.85	34.15	31.00	47.38
Maximum	98.80	369.00	622.24	2092.67
Minimum	-135.84	0.09	-0.38	1.79
Std. dev	14.15	50.90	78.32	162.31
Skewness	-1.31	2.79	3.60	7.72
Kurtosis	42.88	13.29	19.45	80.83

Source: Authors' Computation (2023)

Table 2 summarizes the descriptive statistics of the dependent and independent variables used in the study. The mean value of firm value (FV) is 6.78, while the maximum and minimum values are 98.80 and -135.84, respectively. The account payable period (APP) mean value is 47 days, while the maximum and minimum APP days are 369 days and 0.09 days, respectively. The account receivable period (ARP) for the sample firms has a mean value of 56 days, while the maximum and minimum days for collecting cash from debtors are 622 and -0.38, respectively. The inventory holding period (IHP) has a mean value of 81 days which implies that, on the average sample, firms hold their stocks for 83 days before converting them to cash, while the maximum and minimum holding days are 2092 days and about 1.79 days, respectively. The standard deviation result shows that all the variables deviated from their mean. Tthe variables are leptokurtic and this implies that the series have more values above the sample mean. FV has a long left tail because it is negatively skewed while other variables have positive skewness .

Table 3: Pearson Correlation Analysis

	FV	APP	ARP	IHP	LEV	CATA	CLTA

FV	1	-0.2148	-0.0907	-0.3218	0.0385	-0.0819	0.0694
APP	-0.2148	1	0.5563	0.3237	0.2445	-0.0920	0.1778
ARP	-0.0907	0.5563	1	-0.0034	0.1310	0.0607	0.0579
IHP	-0.3218	0.3237	-0.0034	1	-0.0425	-0.0323	-0.0313
LEV	0.0385	0.2445	0.1310	-0.0425	1	0.1425	0.7758
CATA	-0.0819	-0.0920	0.0607	-0.0323	0.1425	1	0.3992
CLTA	0.0694	0.1778	0.0579	-0.0313	0.7758	0.3992	1

Source: Authors' Computation (2023)

Table 3 shows the absence of multicollinearity in the variables used for the study because the relationship between the variables does not reflect a strong correlation as the correlation between them is not up to 0.80, which is a rule of thumb. Hence the problem of multicollinearity does not exist in the model.

Table 4. The Hausman Test

	Probability Value
Hausman	0.0342

Source: Authors' Computation (2023)

The Hausman test is used to determine the appropriate method of estimation between the fixed effect and the random effect model. The result in Table 4 shows that the appropriate model is the fixed effect model because the p-value of the Hausman test is less than 5%.

Table 5. Variance Inflation Factor

Variables	**Centered VIF**	**Remarks**
APP	1.92	No multicollinearity
ARP	1.61	No multicollinearity
IHP	1.21	No multicollinearity
CATA	1.38	No multicollinearity
CLTA	3.28	No multicollinearity
LEV	2.85	No multicollinearity

Source: Authors' computation (2023)

The study conducted a Variance Inflation Factor (VIF) to check for multicollinearity among the variables. The result revealed the absence of multicollinearity among the variables as the centered mean of the variables is not up to 10 (Gujarati, 2003).

Table 6 Panel Least Square Result

	Pooled	Random Effects	Fixed Effects
APP	-0.0482**	-0.0497***	-0.0478**
	(0.0152)	(0.0147)	(0.0410)
ARP	0.0025	0.0099	0.0318**
	(0.8291)	(0.4379)	(0.0547)
IHP	-0.0234***	-0.0244***	-0.0291***
	(0.0000)	(0.0000)	(0.0006)
CLTA	16.9742***	12.1902	-2.3005
	(0.0126)	(0.1169)	(0.8402)
CATA	-12.27632***	-12.3284***	-17.1015**
	(0.0020)	(0.0074)	(0.0201)
LEV	-6.1980	-5.2596	2.4660
	(0.3169)	(0.4707)	(0.8267)
R^2	15%	11%	32%
Adj R^2	13.16%	9.6%	23%
F-Stat	9.5399	6.8320	3.5956
Prob (F-Stat)	0.000000	0.000001	0.000000
D.W	1.7598	1.8538	2.1075

Source: Authors' Computation (2023). *, **, *** represent 10%, 5% and 1% significance levels; the P values are in parentheses

4.2. Discussion of Findings

The result of the fixed effect model in Table 6 above will be discussed as follows. From the result, APP has a negative and significant effect on the firm value of listed non-financial firms in Nigeria. The result revealed that a one-day reduction in the payable days would, on average, increase the firm value of non-financial firms in Nigeria by 0.0478. according to this finding, non-financial firms in Nigeria should take advantage of trade discounts and other incentives attached to an early settlement of suppliers as this would enhance their firm value. Delaying the payables payment could send wrong signals to suppliers regarding firms' financial health (Deloof, 2003). This result is consistent with the findings of Ibrahim and Isiaka (2021), Sawarni et al. (2020) while the result is contrary to the findings of Hingurala et al. (2017) and Pratheepkanth (2020).

ARP has a significant positive effect on the firm value of non-financial firms in Nigeria, and the result implies that an increase in the number of receivable days by one day will, on average, result in a 0.0318 increase in the firm value of listed non-financial firms in Nigeria. This result depicts the harsh reality of Nigeria's present economic situation with the high level of inflation and unfriendly government monetary and fiscal policies, which has affected the disposable income of consumers, resulting in reduced demand for goods and services. For any non-financial firm to survive amidst all these, there is a need to formulate and implement liberal trade receivable policies that would help to improve sales and profitability. In achieving improvement in sales level, there is a need for caution to avoid the incidence of doubtful and bad debt. Hence proper monitoring and management of non-financial firms' receivables to ensure the timely unlocking of cash from receivables becomes highly exigent. This result is consistent with the findings of Simon et al. (2018) and Onodje (2014) but contrary to the findings of Kayani et al. (2021) and Bhatia and Srivastava (2016).

A significant negative relationship exists between IHP and the firm value of non-financial firms in Nigeria. This result indicates that a reduction in inventory days by one day would result in a 0.0291 increase in firm value. Therefore, conservative inventory management should be implemented by non-financial firms in Nigeria. This strategy would enable non-financial firms to hold an optimum inventory level that minimizes cost and ensure a smooth production process at all times. It will also enable them to achieve early conversion of inventory to cash. This result is consistent with the finding of Sharma and Kumar (2011) and Nurein and Din (2017) and contrary to the findings of Sivashanmugan and Krishnakumar (2016).

The R^2 of 32% shows that WCM variables moderately explain the behaviour of firm value of non-financial firms in Nigeria. The F- statistics of 3.5956 with a probability value of 0.000000 implies that the model is well fit, and the Durbin-Watson of 2.11 indicates the absence of autocorrelation in the model.

5.0. Conclusion And Recommendations

The study examined the effect of WCM on the firm value of non-financial firms in Nigeria, and the results discussed above revealed that the working capital management components, which

are the account payable period, account receivable period, and inventory holding period, all have a significant effect on the firm value on non-financial firms in Nigeria. This result signifies the importance of working capital management in the achievement of long-run financial performance of non-financial firms in Nigeria and the need for firm managers to give the necessary attention to the management of these components through the implementation of policies and the adoption of appropriate strategies that would enhance the efficiency of the WC components.

Although the results obtained are consistent with the theory that underpin this study in terms of significance, but the relationship of the variables with firm value is not consistent with the A-priori expectation. According to CCC theory, the account payable period and the account receivable period are supposed to depict positive and negative signs, respectively. However, these WC components depict an inverse sign. The result obtained is consistent with prior studies on the Nigerian economy (Simon et al., 2018; Ibrahim & Isiaka, 2021) and this explains the peculiarity of the Nigerian business climate and the need for firm managers to implement conservative policies to manage account payables and liberal policies to manage account receivables in order to achieve improved firm value

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