

WORKING CAPITAL MANAGEMENT OPTIMALITY AND FIRM VALUE: EVIDENT FROM THE NIGERIAN CONSUMER GOODS SECTOR

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ABSTRACT

The paper studied working capital management Optimality (account receivable management-ARM, account payable management-APM, inventory management-INVM, cash conversion cycle-CCC, and cash conversion efficiency-CCE) and value (Tobins' Q) of 9 selected quoted consumer goods firms in Nigeria from 2013 to 2020. The data were gotten from the Annual Financial Statements of the 9 selected quoted consumer goods firms in Nigeria from 2013 to 2020 with each having 72 data points for each of the variables. The panel data methodology was based on the random and fixed effects models ascertained using the Hausman Specification test. Evidently, the study supported the Random Effect Model. Furthermore, The study laid claim that showed that Optimality (account receivable management-ARM, account payable management-APM, inventory management-INVM, cash conversion cycle-CCC, and cash conversion efficiency-CCE) exhibited mixed effects on the value (Tobins' Q) of the 9 selected quoted consumer goods firms in Nigeria from 2013 to 2020. Hence, the paper concludes that though account receivables, account payables, inventory, and cash conversion cycle are major drivers of working capital management but such effects are mixed. As such, managers of the consumer goods firms must ensure that it increases their unproductive bill payables while ensuring that all their unnecessary current liabilities are curtailed. More so, they should employ stock optimization techniques that can determine the right quantities of stock to hold. Lastly, they should try to improve the actual cash which was generated from sales within a given time period since cash conversion efficiency contributed minimally to firm value.

Keywords: Working Capital Management Optimality, Firm Value, Nigerian Consumer Goods Sector

1.0 INTRODUCTION

In recent times, the need for optimal working capital management in every human venture cannot be understated. This is because the extent to which a firm will continue as a going

entity is dependent on its ability to manage both its current assets and liabilities without incurring high risk. Evidently, all a firm's financing decision revolves around an efficient WCM. More so, the construct encompasses the compulsory managerial judgment in pursuing the model that counterbalances the risk and returns (Ling, Ali & Ming, 2019). Corroborating evidence by Rahman, Iqbal, and Nadeem (2019), indicates that WCM forms a crucial part of financial management and contributes significantly to a firm's wealth creation since it forms the basis of organizational profitability and liquidity. Thus, working capital management has to do with the establishment and application of working capital policy to day-to-day operations.

Evidently, the consumer goods firms in Nigeria have a large spectrum of short-term financing needs, which has created a dilemma for managers on the size of inventories and periodic receivables to keep the firms profit and yet liquid to maintain credibility and enhanced credit rating. Firms with a high rate of returns crash in the face of inadequate working capital management. The operation of factories could be halted if the manager runs short of funds to meet financial obligations. This is even more pronounced for the high exigency-prone operational sectors like the consumer goods sector.

More so, Nigerian manufacturing firms among which the consumer goods firms are among have suffered from some inadequacies such as poor debt management, and poor investment management (Gao & Wang, 2017). This has resulted in consistent bad debts, high inventory costs, and eventual adverse effects on firm performance. High-profit making is not necessarily an indication of effective working capital management as a firm could just have large assets and a high-profit base but runs the risk of liquidity if such assets cannot readily be turned into cash. Lack of ready cash causes firms to fall short in meeting financial obligations. Such firms may run into debts that could affect their performance in the long run, especially when it results in a loss of credibility that would affect the smooth running operations of the business (Eljelly, 2004). A manager that neglects the firm's operating cycle may end up with longer account receivables time frame and a shorter account payable time frame, which is an aspect of ineffective and inefficient working capital management.

A review of extant WCM and firm value studies reviewed incongruent findings. These inconsistencies/mixed findings are adjudged on the fact that while studies of (Wang, Akbar, & Akbar, 2020) exerted negative results, and the positive effect proponents who argue that using a large volume of working capital inhibits firm performance and growth (Khalid, Saif, Gondal, & Sarfraz, 2018). More confusion is the mixed findings from recent researchers like Vartak and Hotchandani (2019), Ling, Ali, and Ming (2019), and Kasozi (2017). These extreme positions put investors at crossroads in using firm external information in evaluating corporate performance for investment decisions.

Stemming from the above-perceived gap, this paper examined the effect of working capital management (WCM) optimality on the value of quoted consumer goods firms in Nigeria. Specifically, this paper examined the effects of accounts receivable management (ARM), accounts payable management (APM), inventory management (INVM), cash conversion cycle (CCC), and cash conversion efficiency (CCE) on Tobin's Q(TB).

For ease of reference, the rest segments of this paper are structured into literature reviews (conceptual linkages, theoretical underpinning, and empirical studies and hypotheses formulation), methodology (research design, population, sample size, data source and estimation, model specification, and operationalization and Apriori Expectations), results and discussion (data analysis, diagnostic tests, model selection, and discussion), and conclusions and recommendations.

2.0 LITERATURE REVIEWS

2.1 Conceptual Linkages

The term "working capital management" (WCM) remains one of the most debatable discourses within the corporate finance parlance since in current times; there is intense competition and struggle for survival in the Nigerian manufacturing/Industrial sector. Conceptually, WCM is expressed as the sum of all the firm's current assets (CA) in relation to current liabilities (CL). In other words, net working capital (NWC) is an indication of a firm's ability to meet its short-term financial/maturing obligations. Mathematically, it is expressed as:

$$\text{NWC} = \text{Total Current Asset} - \text{Total Current liabilities}$$

Consequently, a firm's NWC is the portion of a firm's current assets that is used to finance its long-term funds. Meanwhile, working capital management (WCM) optimality is a firm's strategic and decisive action aimed at ensuring that, it balances its liquidity and profitability objectives. This is because; both constructs are sometimes conflicting in that in an attempt to make a profit, the liquidity objective may not be achievable (Akinleye and Adeboboye, 2019). Evidently, This signals that inefficient management of a firm's working capital has the capacity to impede both the going concern of the firm/sustainability, reduce its market values and at the same time make the firm to be illiquid (Kumaraswamy, 2016). More explicitly, WCM is all about bridging the financial gap which exists between current assets and current liabilities so as to reduce the likelihood of the inability of the firm not to meet its maturing obligations.

Meanwhile, firm value measures the market value vis-à-vis the book value of the firm. The goal is to see whether the firm is undervalued or overvalued in its current market price (usually represented by the share price). For firms to earn higher market value, it must invest in assets with the highest possible positive Net Present Values (NPVs). However, the need for liquid assets is apt to manage the day-to-day activities and obligations of the firm as they fall due. In keeping with the Keynesian liquidity preference theory by economist Keynes (1936), investors prefer liquid investments to illiquid ones and will always demand a premium for investments that have longer maturity periods. Thus, illiquid assets in form of long-term investment would have a negative relationship with the net working capital. This means that firm value has a negative relationship with firm liquidity. Hence, the paper hypothesizes:

2.2 Theoretical Underpinning

Agency theory was postulated by Jensen in 1968. The theory posits that it is the responsibility of the business managers (agents) to act on behalf of the business owners (principal).

However, the business managers (agents) may pursue their own interests at the expense of the business owners which in turn may result to the agency problems. However, the inability of the business owners to verify and control their agent gives rise to agency cost: a type of internal company expense that typically arises in the wake of core inefficiencies, dissatisfactions, and disruptions, such as conflicts of interest between shareholders and management.

The relevance of agency theory to WCM could be viewed from the perspective of the financial manager, who in most cases is an agent to the owner of a firm, and who takes all the most vital decisions regarding the assets and liabilities of the firm. In business operations, day-to-day decisions is based primarily on guaranteed cash flows which facilitate proper management of available resources to ensure effective operations and sustainability of the business. It is expected that a business should be managed efficiently and profitably to increase the cash flows. Business managers can adopt either aggressive or conservative WCM strategies to manage working capital components. This idea is supported by agency theory which describes modern firms in such a way that the principal and agent are distinct parties who should be bound by the common interest which is not the case in most firms. This theory judges the managers (agents) on their applications of the working capital strategies.

Justifiably, the presence of agency problems in firms may explain the greater use of collateral lending to firms as a way of dealing with these agency problems. Lenders' strategies for dealing with agency problems add significantly to the cost of funds for working capital. According to Akoto, Awunyo-Vitor, and Angmor (2013), "managers can create value for their shareholders by creating incentives to reduce their accounts receivable".

2.3 Empirical Review and Hypotheses Formulation

With regards to WCM indicators and firm value nexus, ample of studies supported the finding that WCM has a significant effect on firm value as demonstrated in the works of Vijayakumaran (2019). The disagreement comes from the dichotomy in the direction of such effects. While the works of Gao and Wang (2017) posited a positive effect from CCC claimed it was a negative effect, whereas the work of Vijayakumaran (2019) recorded that cash conversion efficiency (also known as NTC) has a negative on Firm Value.

Using the generalized least squares (GLS), Tarek and Rafik (2020) reported that the quick ratio (QR) has high adverse effects on Tobin's Q of 16 quoted Egyptian manufacturing firms from 2013 to 2017. However, the current assets ratio (CAR) and cash ratio (CR) were directly related to Tobin's Q and such a relationship was high.

Vijayakumaran (2019) examined the relationship between the efficiency of working capital management (WCM) and the firm value for a selected panel of Chinese listed companies. The net trade cycle (NTC) and its components (Days Sales Outstanding, Days Inventories On-Hand, and Days Payables Outstanding) are used to measure the efficiency of WCM, while the firm value is measured by the Tobin's Q ratio. The study makes use of the panel data methodology to estimate the regression models. This study indicated that the net trade cycle is negatively associated with firm value. More specially, the study finds that firm value is adversely affected by the number of days accounts receivable and inventories, indicating

that working capital provides a real opportunity for financial executives to release cash and improve firms' value.

Similarly, using the quantile regression approach, Simon, Sawandi, and Abdul-Hamid (2018) reported that accounts receivable management and inventory management were positively associated with Tobin's Q, whereas accounts payable management, cash conversion cycle, and cash conversion efficiency were negatively associated with Tobin's Q of 75 quoted non-financial firms in Nigeria from 2007 to 2015. This is not however the case with ROA.

Gao and Wang (2017) and Gao and Wang (2017) in separate studies reported that WCM efficiency affects share prices.

Arachchi, Perera, and Vijayakumaran (2017) adopted the panel data methodology and reported that Cash Conversion Cycle (CCC) is inversely related to Tobin Q of 44 listed companies in Sri Lanka over the period 2011-2015. This suggests that managers can create value for their shareholders by efficiently managing investment in the working capital of their firms.

In sequel to the above, the study hypothesizes:

H0: WCM indicators (ARM, APM, INVM, CCC, and CCE) do not affect the (Tobin's q) of consumer goods firms significantly.

3.0 METHODOLOGY

This paper adopted the export facto research design since the variables are existing data. This study relied mainly on secondary/existing data from 9 quoted consumer goods firms purposively selected. The Nine whose reports are readily available from 2013 to 2020 is Cadbury Nigeria Plc., Champion Brew. Plc., Dangote Sugar Refinery Plc, Flour Mills Nig. Plc., Guinness Nig Plc., Nestle Nigeria Plc., Nigerian Breweries Plc., P Z Cussons Nigeria Plc. and Unilever Nigeria Plc. The data set is a panel framework consisting of 8 years period (2013 to 2020) and 9 cross-sections of firms which is 72 observations for each variable. Criteria for inclusion of these firms into the sample are as follows:

1. They must be firms in the consumer goods sector in the NSE.
2. They must have been rendering annual financial reports to the public from 2013 to 2020.
3. The data for the computation of variables of the study must be available in the financial report of the selected firms.

The study adopted the models of Simon, Sawandi & Abdul-Hamid (2018) which employed ARM, APM, INVM, CCC and CCE as proxies for WCM and controlled them for firm size, sales growth and financial debt ratio for all the non-financial firms in Nigeria. Hence, the resent model of this study is

$$TQ_{it} = \alpha_0 + \beta_1 ARM_{it} + \beta_2 APM_{it} + \beta_3 INVM_{it} + \beta_4 CCC_{it} + \beta_5 CCE_{it} + \beta_6 FS_{it} + \mu_{it}$$

Where:

μ = Random error term

α = Constant

i = the notation to present the number of firms in the model

t = the time period of the time series

$b_1, b_2, b_3, b_4, b_5,$ and $b_6,$ are the coefficients of the regression equation.

NB: Refer to table 3 on how the studied variables are denoted and operationalized

Table 1: Operationalization and Apriori Expectation

SN	Variables	Acronym	Tobin's Q
1	Accounts Receivable Management	ARM	-
2	Accounts Payable Management	APM	+
3	Inventory Management	INVM	-
4	Cash Conversion Cycle	CCC	-
5	Cash Conversion Efficiency	CCE	-
6	Firm Size	FS	+/-

Source: Researcher's Compilation (2022)

Table 2: Acronyms and the Measurement of Variables

SN	Variables	Acronym	Measurement	Proxy
1	Tobin's Q	TQ	(Market capitalisation + Total debts) / Total assets	Dependent
2	Earnings Per Share	EPS	Net Profit/Total Shares	Dependent
3	Economic Value Added	EVA	Net investment x Actual return on investment – cost of capital	Dependent
4	Accounts Receivable management	ARM	[(Account receivable/Sales) x 365]	Independent
5	Accounts payable management	APM	[(Account payable/Purchases) x 365]	Independent
6	Inventory management	INVM	[(Inventory/cost of sales) x 365]	Independent
7	Cash conversion cycle	CCC	[ARM + INVM – APM].	Independent
8	Cash conversion efficiency	CCE	[Cash-flow from operations/sales]	Independent
9	Firm size	SIZE	Natural logarithm of the firm total assets at the end of the financial year	Control

Note: S = Sampled, NS = Not sampled.

4.0 RESULTS AND DISCUSSIONS

4.1 Data Analysis

The sourced data were analyzed using descriptive statistics. The result is presented thus:

Table 3: Descriptive Statistics Summary

Variables/Unit of Measurement		Maximum	Minimum	Mean	Std. Dev.	Observations
ARM	(%)	74.14	0.42	17.28	16.48	72
APM	(%)	175.40	0.08	59.98	41.48	72
INVM	(%)	750.01	1.16	54.29	101.81	72
CCC	(%)	691.69	-101.84	11.60	102.43	72
CCE	(%)	46.04	-19.05	11.48	11.76	72
TQ	(%)	177.32	-59.68	94.02	37.21	72
FS	(LN)	19.91	15.55	17.98	1.082	72

Sources: Eviews 9 (2022)

Table3 above affirmed that ARM, APM, INVM, CCC, CCE, TQ, and FS had maximum values of 74.14%, 175.40%, 750.01%, 691.69%, 46.04%, 177.32%, and N19.91. Meanwhile, they reported minimum values of 0.42%, 0.08%, 1.16%, -101.84%, -19.05%, -59.68%, and N15.55in terms of the degree of volatility, ARM, APM, TQ, and FS clustered around their mean values since their mean values were higher than their standard deviation values. However, INVM, CCC, and CCE deviated far from their mean values since their mean values were lower than their standard deviation values.

4.2. Diagnostic Test of the Models

Since the presence of some anomalies could distort regression analysis, the study carried out the requisite diagnostic tests suitable for panel studies such as tests of normality and Heteroscedasticity. The results are presented in Tables 4 and 5 respectively.

Table 4: Normality Test for WCM and TQ Model

Models	Jarque-Bera (JB) Statistics	Prob. Value	Remarks
WCM and TQ	19.9219	0.0000	Lacks normal distribution

Sources: Eviews 9 (2022)

The normality test result stated in table 4 above evidence that the model Lacks normal distribution since its p-value estimated at 0.0000 is lower than 5%. However, the Heteroskedasticity test stated in table 5 below evidenced that the model is Homoskedastic. As such, it can be relied upon.

Table 5: Heteroskedascity Test for WCM and FIP Models

Models	Breusch-Pagan LM Statistics	Prob. Value	Remarks
WCM and TQ	87.17327	0.0710	Homoskedastic

Sources: Eviews 9 (2022)

4.3 Model Estimation

The Hausman statistics were employed to determine the most suitable panel models. The estimation is presented in table 6 below:

Table 6: Panel Regression Estimate for WCM on TQ Model

Dependent Variable: TQ

Sample: 2013 2020

Periods included: 8

Cross-sections included: 9

Total panel (balanced) observations: 72

Study Variables	Fixed Effect Model			Random Effect Model *Preferred		
	Coefficient	t-Statistic	Prob.	Coefficient	t-Statistic	Prob.
ARM	756.49	1.75	0.06	577.09	9.66	0.01
APM	-756.67	-1.74	0.06	-576.43	-8.66	0.01
INVM	756.60	1.75	0.06	576.42	8.66	0.01
CCC	-756.62	-2.75	0.02	-576.43	-8.66	0.01
CCE	0.22	1.45	0.06	0.49	1.39	0.07
FS	-6.86	-0.27	0.78	1.07	0.16	0.88
C	221.32	0.49	0.62	57.53	0.47	0.64
Adjusted R-Squared	0.87			0.86		
F-statistic (Prob)	2.09 (0.02)			19.72 (0.03)		
Durbin Watson (DW)	1.60			1.72		
Hausman test	2.33 (0.88)					

Source: Extract from Eviews Results

The model from which this result in Table 5 was derived is as follows:

$$TQ_{it} = \alpha_0 + \beta_1 ARM_{it} + \beta_2 APM_{it} + \beta_3 INVM_{it} + \beta_4 CCC_{it} + \beta_5 CCE_{it} + \beta_6 FS_{it} + \mu_{it}$$

The results in table 6 above were produced from least square regression based on Fixed Effect and Random Effect. The most suitable model for the analyses was determined using the Hausman test. The result of the Hausman statistics is 2.33 with 0.88 a probability value that is greater than the 0.05 level of significance. The study thus did not reject the null hypothesis that the random effect model is preferred. Hence, the study adopted the Random Effect Model to explain the effect of working capital management variables on return on the firm value measured as Tobin Q amongst consumer goods firms in Nigeria. The result indicates that both cross-section and period effects influence the outcome of the analysis.

From the results, the R-square (0.87) indicates that working capital management strategy explains about 87% of the changes in firm value (Tobin Q) of the consumer goods firms in Nigeria. Meanwhile, the resulting F-statistics showed a significant 86% explanatory power on firm value. This implies that 86% of the propensity for changes in firm value of the consumer goods firms is determined by the WCM strategies including account receivables, account payables, inventory, cash conversion cycle, and cash conversion efficiency. Specifically, the model is stated below:

$$TQ_{it} = 57.53 + 577.09ARM^* - 576.43APM^* + 576.42INVM^* - 576.43CCC^* + 0.49CCE + 1.07FS$$

Furthermore, the extent to which these variables determine firm value as tested with t-statistics revealed that account receivable and inventory have a positive and significant effect on firm value while APM and CCC have a negative and significant effect, whereas CCE did not have a significant effect. This is in tandem with the findings of Simon, et al (2018) since the study showed mixed findings wherein APM, CCC, and CCE had Negative effects while account receivables and IRVM showed a positive effect on Tobin's Q. Also, Arachchi, et al (2017), Gao and Wang (2017), Simon, et al (2018), and Vijayakumaran (2019). While the works of Gao and Wang (2017) posited positive effects of CCC, Arachchi, et al (2017) claimed it was a negative effect, whereas the work of Vijayakumaran (2019) recorded that CCE (also known as NTC) has a negative on Firm Value. As such, their disagreement comes from the dichotomy in the direction of such effects.

5.0 CONCLUSIONS AND RECOMMENDATIONS

Arising from the various findings displayed earlier, the paper concludes that though account receivables, account payables, inventory, and cash conversion cycle are major drivers of working capital management but such effects are mixed. Hence, the paper proffers the following recommendations:

1. The management of the Nigerian consumer goods sector should avoid holding unnecessary current liabilities that increase bills payable which are not productive because the unpaid liabilities deter firm value.
2. The managers of consumer goods firms should employ stock optimization techniques that can determine the right quantities of stock to hold. This will appraise the appropriate amount of inventory level necessary to optimize the cost of inventory.
3. Efforts must be made to improve the actual cash which was generated from sales within a given time period since cash conversion efficiency contributed minimally to firm value.

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