Working Capital Management and Firm Value of Listed Consumer Goods Firms in Nigeria

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ABSTRACT

Purpose: Working capital management is critical to the liquidity, operational continuity and market value of consumer goods firms. However, Nigerian evidence remains mixed and frequently emphasises accounting profitability rather than market-based value. This study examined the associations of accounts receivable period (ARP), accounts payable period (APP) and cash conversion cycle (CCC) with the firm value of listed consumer goods firms in Nigeria.

Methodology: The study adopted an ex post facto research design. Secondary data were obtained from the audited annual reports and Nigerian Exchange records of 10 firms covering 2015–2024, producing 100 firm-year observations. Firm value was measured as the financial-year-end market value of ordinary equity divided by total assets, and its natural logarithm was used in the regression analysis. The data were analysed using descriptive statistics, diagnostic tests, Pearson correlation and random-effects panel regression with EViews 9.

Findings: The findings revealed that ln(ARP) had a positive and significant association with ln(FV) (β = 0.377, p = .004), while ln(APP) had a negative and significant association with ln(FV) (β = −0.471, p = .015). CCC had a negative but insignificant association with ln(FV) (β = −0.000126, p = .908). The model was jointly significant (F = 11.226, p < .001) and explained approximately 26.0% of the variation in ln(FV).

Unique Contribution to Theory, Practice and Policy: The study reinforces the liquidity–value trade-off perspective by demonstrating that the value implications of working capital depend more on its components than on the aggregate cash cycle. It recommends selective customer-credit management, payment discipline within negotiated supplier terms and component-level evaluation of CCC. It also supports improved working capital disclosures by listed firms to enhance investor assessment and market discipline.

Keywords: Accounts Payable Period; Accounts Receivable Period; Cash Conversion Cycle; Consumer Goods Firms; Firm Value; Nigeria

JEL classification: G12; G32; L66

INTRODUCTION

Working capital management links daily operating decisions to liquidity, financing requirements, risk and shareholder value. Receivables influence sales and customer retention but also expose firms to collection costs and default risk (Preve and Sarria-Allende, 2010). Payables provide spontaneous financing but may become costly when delays damage supplier confidence or forfeit discounts. Inventory protects production and sales, yet excessive holdings absorb cash and increase carrying costs. The cash conversion cycle integrates these operating flows by measuring the interval between cash committed to operations and cash recovered from customers (Richards & Laughlin, 1980). Accordingly, working capital policy is not simply a liquidity decision; it is a value-allocation decision.

Prior research shows that the value effect of working capital is unlikely to be uniformly positive or negative. Deloof (2003) found that shorter receivable and inventory periods were associated with higher profitability, while Kieschnick et al. (2013) showed that shareholders do not assign equal value to every additional unit

invested in working capital. Subsequent studies identify an optimality problem: reductions in excessive working capital can release funds for productive investment, but overly aggressive policies may disrupt operations, weaken customer relationships, or increase stock-out risk (Baños-Caballero et al., 2014; Aktas et al., 2015). Cross-country evidence further indicates that the value of working capital depends on institutional development, investor protection, and financing conditions (Baños-Caballero et al., 2020).

These trade-offs are particularly important for Nigerian consumer goods firms. The 2015–2024 period included the COVID-19 shock, supply-chain disruptions, exchange-rate adjustments and severe inflationary pressure. Headline inflation reached 34.19% in June 2024, increasing replacement costs and the amount of cash required to sustain operating cycles (National Bureau of Statistics [NBS], 2024). In this environment, slow collection raises the real cost of receivables, while extended supplier credit may either provide a valuable financing buffer or reveal difficulty in meeting obligations. Market participants may therefore interpret similar working capital ratios differently depending on the underlying operating strength of each firm.

Nigerian evidence remains mixed. Simon et al. (2018) reported inconsistent associations between working capital measures and both return on assets and Tobin's Q across 75 non-financial firms. Ighoroje and Umeora (2022), using nine consumer goods firms, also found mixed value effects across receivables, payables, inventory, CCC, and cash conversion efficiency. More recent studies have examined firm value in pharmaceutical firms (Bello et al., 2024) and have used current ratio and net working capital to explain market capitalisation in consumer goods firms (Okwor et al., 2025). However, much of the domestic literature still emphasises accounting profitability, uses short or earlier samples, or applies aggregate liquidity measures rather than the operating periods through which managers actually influence cash flow.

This study addresses that gap by examining the association of ARP, APP, and CCC with a market-based firm-value ratio for listed Nigerian consumer goods firms over 2015–2024. The focus on market value complements the dominant profitability literature and captures investors' expectations about future cash flows, risk, and growth. The study also extends the Nigerian consumer goods evidence through a more recent period that includes substantial macroeconomic disruption.

The specific objectives are to determine whether ARP, APP and CCC are significantly associated with firm value. Accordingly, three null hypotheses were formulated, stating that each working capital measure has no significant association with firm value.

LITERATURE REVIEW

Conceptual Review

Working Capital Management

Working capital management refers to the planning and control of the current assets and current liabilities that support a firm's daily operations. It covers decisions concerning inventories, trade receivables, trade payables and the short-term financing required to sustain the operating cycle. Its central objective is not merely to maximise liquidity, but to maintain operational continuity at the lowest feasible financing and opportunity cost. Excessive investment in working capital ties funds to relatively low-return assets and may reduce the resources available for profitable investment. Conversely, an excessively restrictive policy may produce stock-outs, lost sales, strained customer relationships and interruptions in production (Baños-Caballero et al., 2014; Aktas et al., 2015). Working capital management is therefore an optimisation decision involving a balance between liquidity, profitability, risk and value creation.

Firm Value

Firm value represents investors' assessment of the present value of a company's expected future cash flows after considering risk and growth opportunities. Unlike accounting profitability, which reports realised performance for a particular period, a market-based value measure is forward-looking because the share price incorporates available information and investors' expectations. Nevertheless, market value may also reflect

macroeconomic conditions, investor sentiment and market-wide shocks that are not directly attributable to working capital decisions.

The conventional approximate Tobin's Q combines the market value of equity and the book value of liabilities and expresses the total relative to total assets (Chung & Pruitt, 1994). The present study did not use that conventional approximation. Firm value is measured as the financial-year-end market value of ordinary equity divided by the book value of total assets, indicating the market value assigned to shareholders' equity for each naira of total assets. The original firm-value ratio is reported in the descriptive analysis, while its natural logarithm, ln(FV), is used as the dependent variable in the regression analysis.

Accounts Receivable Period

The accounts receivable period (ARP) is the average number of days a firm takes to collect amounts owed by customers. It is commonly computed as average trade receivables divided by revenue and multiplied by 365 days. A shorter ARP releases cash more quickly, reduces the financing committed to customers and limits exposure to default, collection costs and inflation. These considerations imply a negative relationship between ARP and firm value when prolonged collection reflects weak credit control.

The relationship may, however, be positive under a deliberate and profitable credit policy. Granting customers additional time can stimulate sales, support distributors, strengthen customer loyalty and differentiate a firm from competitors. Kieschnick et al. (2013) show that the value of receivables depends on sales expectations, financial constraints and other firm characteristics. Consequently, the value effect of ARP is theoretically ambiguous: a longer period may destroy value when it results from inefficient collection, but may enhance value when credit is selectively extended to profitable and creditworthy customers.

Accounts Payable Period

The accounts payable period (APP) measures the average number of days a firm takes to settle obligations to suppliers. It is calculated as average trade payables divided by cost of sales and multiplied by 365 days. Supplier credit is a spontaneous source of short-term financing; therefore, a longer APP may preserve cash, reduce reliance on costly external finance and provide flexibility during periods of liquidity pressure. From this perspective, extending the payment period within agreed terms may support firm value.

Excessive or involuntary payment delay can have the opposite effect. Suppliers may withdraw favourable terms, increase prices, demand cash payment, withhold early-payment discounts or interrupt the supply of essential inputs. Persistent delays may also signal financial distress to investors. Thus, the direction of the APP–firm value relationship depends on whether the payment period reflects negotiated financing and bargaining power or liquidity weakness and deteriorating supplier relationships.

Cash Conversion Cycle

The cash conversion cycle (CCC) measures the number of days between the cash committed to acquiring operating inputs and the cash recovered from customers. It is computed as the inventory holding period plus ARP minus APP (Richards & Laughlin, 1980). A shorter cycle ordinarily indicates that funds invested in operations return to cash more quickly, thereby reducing external financing requirements and creating greater capacity for investment and distribution to shareholders.

A low or negative CCC should not automatically be interpreted as evidence of efficiency. It may arise from rapid inventory turnover, cash sales and strong bargaining power over suppliers, but it may also result from unusually long payment delays. Moreover, firms can shorten the cycle excessively by maintaining inadequate inventory or imposing credit terms that discourage customers. The aggregate CCC must therefore be interpreted together with its component periods because firms with similar cycle lengths may have substantially different operating and risk profiles.

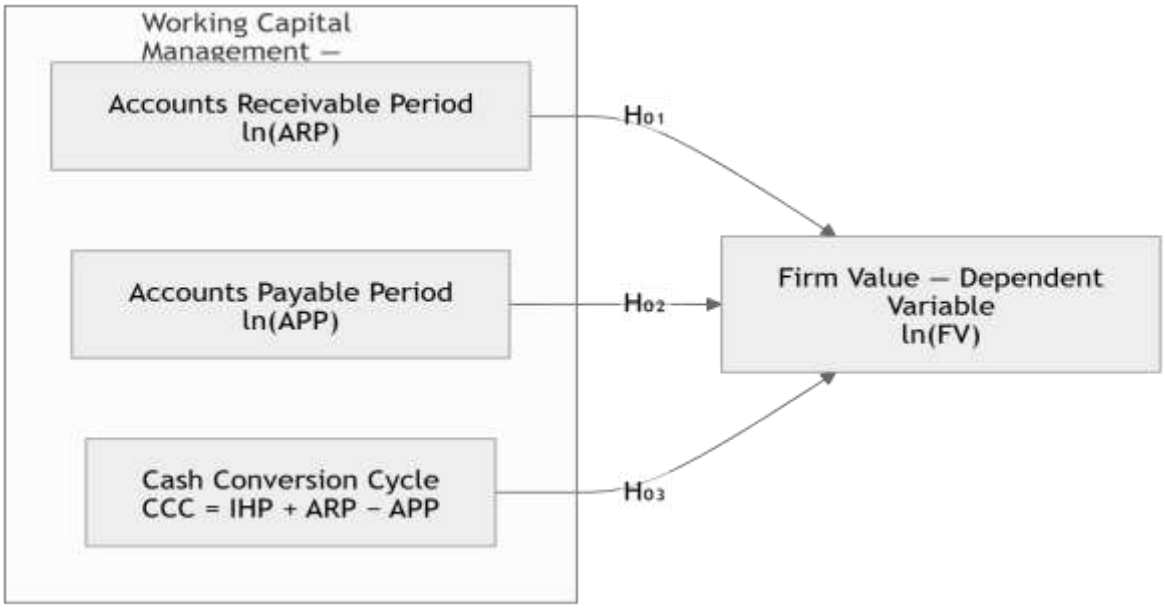

Figure 1. Conceptual Framework of the Study

Source: Authors' conceptualisation (2026).

The diagram illustrates the relationship between the three independent variables - Accounts Receivable Period [ln(ARP)], Accounts Payable Period [ln(APP)] and Cash Conversion Cycle (CCC) and the dependent variable, Firm Value [ln(FV)]. Each independent variable is connected to firm value by a directional arrow, indicating the association examined in the study. The Inventory Holding Period (IHP) is used only in calculating CCC and is not included as a separate explanatory variable.

Theoretical Review

Cash Conversion Cycle Framework

The cash conversion cycle framework developed by Richards and Laughlin (1980) provides the principal analytical foundation for the study. The framework advances beyond static liquidity ratios by tracing the time required for funds invested in inventory and receivables to return to cash after allowing for supplier financing. It links inventory, receivables and payables within a single operating-cycle measure and shows how changes in their timing affect the firm's short-term financing requirement.

Applied to firm value, the framework suggests that a reduction in the time for which cash is tied up can lower financing costs, increase free cash flow and release resources for productive investment (Almeida et al., 2014) However, the framework also requires attention to the source of any reduction. Value is unlikely to improve where a shorter cycle is achieved through insufficient inventory, commercially restrictive customer credit or supplier-payment practices that threaten operational continuity. The framework consequently supports examining ARP and APP separately in addition to considering the aggregate CCC.

Liquidity–Value Trade-off Perspective

The liquidity–value trade-off perspective holds that both excessive and insufficient working capital can reduce firm value. A conservative policy protects liquidity and operating continuity but can impose financing and opportunity costs when too much capital is held in receivables or inventory. An aggressive policy releases cash and may improve asset utilisation, but it increases the probability of lost sales, production disruption and damaged commercial relationships. Firm value is therefore expected to be maximised around a working capital level at which the marginal operating benefit equals the marginal financing and risk cost (Baños-Caballero et al., 2014; Aktas et al., 2015).

For listed Nigerian consumer goods firms, this trade-off is shaped by inflation, financing costs, customer quality, supplier power, exchange-rate pressure and supply-chain uncertainty. The theory does not require the effects of ARP, APP and CCC to have uniform signs across firms or periods. Rather, it predicts conditional relationships that depend on whether each operating-period decision supports profitable sales and continuity or reflects inefficiency and financial strain. The study tests linear average associations because the balanced panel contains 100 firm-year observations; it does not claim to identify an optimal level or establish causality.

Empirical Review

International Empirical Evidence

Deloof (2003) examined large Belgian non-financial firms and found that longer receivable and inventory periods were associated with lower gross operating income. The negative association between the payable period and profitability was interpreted cautiously because less profitable firms may delay payments to suppliers. Although the study established the importance of operating-period measures, its accounting-profitability outcome and possible reverse causality limit direct conclusions concerning market-based firm value.

Kieschnick et al. (2013) investigated United States corporations from 1990 to 2006 and demonstrated that an incremental dollar invested in net operating working capital was valued at less than an incremental dollar held in cash for the average firm. They further showed that the value assigned to working capital varied with expected sales, debt, financial constraints and bankruptcy risk, while customer credit had a stronger valuation effect than inventory investment. Their findings support the use of a market-based outcome and indicate that the value implications of working capital depend on firm conditions rather than a universal minimum-cycle rule.

Evidence of non-linearity was provided by Baños-Caballero et al. (2014), who found that corporate performance was strongest around an optimal working-capital level and that financial constraints influenced this relationship. Aktas et al. (2015) similarly reported that firms moving towards an efficient working-capital level subsequently improved operating performance and investment. Together, these foundational studies indicate that reducing excessive working capital can release resources and create value, but reductions below operational requirements may weaken sales and interrupt production.

More recent evidence has extended the analysis to working-capital efficiency and market-based firm value. Habib (2022) examined 964 firm-year observations from United States companies using data-envelopment analysis and regression. The study found that working-capital-management efficiency had a significant positive effect on firm value after considering endogeneity and additional robustness tests. The findings suggest that value creation depends not simply on maintaining a short operating cycle but on efficiently converting receivables, inventories and short-term financing into sales and income.

Ahmad et al. (2022) examined 577 firms from three developing Asian economies between 2004 and 2020 using dynamic system GMM. Working capital was measured through investment policy, financing policy, CCC and net working capital, while performance was represented by return on assets and Tobin's Q. The findings showed that the relationship differed between the 2008 financial crisis and the COVID-19 period and also depended on whether performance was measured using an accounting or market-based indicator. The study demonstrates that major economic disruptions can change both the cost and valuation of working-capital investment.

Jabbouri et al. (2024) investigated 753 firms listed across 10 Middle East and North African emerging markets using the GMM estimator. Their findings showed that financial constraints shaped the appropriate working-capital strategy. Financially constrained firms adopted relatively aggressive policies to reduce working-capital investment and financing costs, whereas unconstrained firms maintained higher investments to support sales and performance. The results rejected a one-size-fits-all approach and reinforced the argument that the value effect of working capital depends on firms' financing capacity and operating conditions.

Hassan, et al. (2023) examined companies in Scandinavian countries and found that working capital could protect firm performance during periods of economic uncertainty. The results showed that the effects were heterogeneous across firms and working-capital components, thereby indicating that receivables, inventories and payables should not necessarily be expected to produce identical performance outcomes. The study further highlights the role of firm and institutional conditions in determining whether conservative or aggressive working-capital policies are beneficial.

Kiymaz, et al. (2024) compared companies from developed and emerging economies and reported significant differences in how working-capital components influenced firm performance. The study found that CCC and its constituent periods did not produce uniform effects across the two economic groups. These differences were attributed to financing conditions, institutional development and variations in firms' access to short-term credit. The findings are relevant to Nigeria because they indicate that evidence obtained from developed markets may not be transferred directly to emerging economies with higher financing costs and institutional constraints.

Using BRICS firms, Johan, et al. (2024) examined the effectiveness of CCC in improving firm performance. The results revealed an inverse relationship between CCC and performance, suggesting that prolonged operating cycles increased financing requirements and weakened firms' ability to convert operational investment into financial outcomes. However, the magnitude of the relationship varied across countries and firm characteristics. The findings support the expectation that shorter cycles can improve performance while also emphasising the need to consider the components responsible for changes in the aggregate cycle.

Recent African evidence was provided by Kayani, et al. (2025), who examined working-capital management and firm performance in the emerging markets of Egypt and South Africa. The findings demonstrated heterogeneous effects across firms, countries and economic conditions. The study showed that the contribution of working capital to performance depended on the institutional environment, firms' financial flexibility and exposure to economic uncertainty. This evidence is particularly relevant because it establishes that working-capital policies in African markets operate within financing and macroeconomic conditions that may differ substantially from those in developed economies.

Huynh et al. (2025) analysed 441 listed Vietnamese enterprises and found that the estimated effects of working-capital components were sensitive to model specification and the treatment of endogeneity. Some relationships that appeared significant under conventional models became insignificant when more robust estimation procedures were employed. The study therefore cautions against interpreting associations between operating periods and performance as direct causal effects without considering reverse causality, firm heterogeneity and omitted variables.

Johnson et al. (2026) further demonstrated that working-capital findings may change when value-based performance measures are employed instead of conventional accounting-profitability indicators. Their study showed that a working-capital policy that appears favourable when evaluated through profit may not necessarily generate a similar result under value-based measurement. Collectively, the recent international evidence indicates that working capital influences performance and value, but the direction and magnitude depend on the component examined, financial constraints, institutional conditions, economic crises, performance measurement and econometric specification.

Nigerian Empirical Evidence

Simon et al. (2018) examined 75 Nigerian non-financial firms using several working-capital measures and both accounting- and market-based outcomes, including return on assets and Tobin's Q. Their findings varied across working-capital components and performance measures. Although the multi-sector sample provided broad Nigerian evidence, it did not isolate the operating characteristics of consumer goods firms and covered an earlier economic period.

Ighoroje and Umeora (2022) examined working-capital optimality and firm value among nine listed Nigerian consumer goods firms. The study employed receivables, payables, inventory, CCC and cash-conversion

efficiency and reported mixed effects across the indicators. Although sector-specific and directly related to the present study, its period ended in 2020 and therefore did not fully capture the severe inflationary, exchange-rate and financing conditions experienced through 2024.

Bello et al. (2024) investigated the effect of working-capital management on the value of listed Nigerian pharmaceutical firms. Working capital was measured using average collection period, average payment period, inventory conversion period and CCC. The study reported that the working-capital indicators had significant implications for firm value. However, pharmaceutical firms operate under distinctive regulatory, inventory-storage, importation and demand conditions, limiting the direct transfer of the findings to consumer goods firms.

Akpadaka and Edeh (2024) examined the relationship between CCC, financial stability and firm value in the Nigerian consumer and industrial goods sectors between 2013 and 2023. The study used DIO, DSO, DPO and aggregate CCC as working-capital indicators, while firm value was measured by Tobin's Q. The findings showed that DPO positively influenced firm value, DSO had a negative but insignificant relationship, and CCC negatively affected firm value. Financial stability, represented by the Altman Z-score, had a strong positive relationship with value. The results demonstrate that the aggregate CCC and its constituent periods can produce different conclusions and support their estimation in separate models.

Okwor et al. (2025) examined the effect of working-capital management on the firm value of listed Nigerian consumer goods manufacturing firms from 2010 to 2023. The study used current ratio and net working capital as explanatory variables and market capitalisation as the firm-value measure. The findings revealed that current ratio had a negative but statistically insignificant effect on market capitalisation, whereas net working capital had a significant negative effect. Although recent and sector-specific, the aggregate liquidity measures employed did not directly capture the receivable and payable periods through which managers influence the timing of operating cash flows.

The recent Nigerian evidence therefore remains inconclusive. Ighoroje and Umeora (2022) reported mixed effects across operating-period and efficiency measures, Bello et al. (2024) identified significant value implications in the pharmaceutical sector, Akpadaka and Edeh (2024) found different effects for CCC and its components, while Okwor et al. (2025) reported mixed results for current ratio and net working capital. These inconsistencies may be explained by differences in sectors, samples, periods, working-capital proxies, firm-value measures and estimation methods.

Gap in Literature

The literature indicates that working capital affects firm value through liquidity, financing costs, sales support and operational continuity. However, its effects are conditional: longer ARP may reflect inefficient collection or profitable customer credit, while longer APP may represent supplier financing or financial difficulty. Similarly, a short CCC may result from efficiency, inadequate inventory or delayed supplier payments. Recent international and Nigerian studies report mixed findings because of differences in economic conditions, sectors, variable measurement and estimation methods. Nigerian evidence largely emphasises accounting profitability, employs aggregate liquidity measures, covers earlier periods or treats CCC and its components inconsistently.

This study addresses these gaps as it examines the associations between ARP, APP and CCC with a market-based firm-value ratio for 10 listed Nigerian consumer goods firms from 2015 to 2024. It provides recent sector-specific evidence and interprets the results as associations rather than causal effects.

METHODOLOGY

Research design, population and sample

This study adopted an ex post facto research design because it utilised historical data obtained from audited annual reports and market records. The population comprised 21 consumer goods firms listed on the Nigerian

Exchange Limited as of 31 December 2024 (Nigerian Exchange Limited, 2024). A criterion-based purposive sampling technique was employed. Firms were selected if they were listed on or before 1 January 2015, remained listed throughout 2015–2024, and had complete audited annual reports and market data required to measure the study variables. Firms were not excluded solely because their financial year-end differed from 31 December. Implementing these criteria produced a balanced panel of 10 firms and 100 firm-year observations. BUA Foods Plc was excluded because it was listed in 2022 while the other firms excluded did not meet the continuous listing or complete data requirements. Data were extracted from the firms' audited annual reports and relevant NGX records.

Table 1. Sample firms and panel coverage

S/N	Company	NGX ticker	Observation period	Firm-year observations
1	Cadbury Nigeria Plc	CADBURY	2015–2024	10
2	Dangote Sugar Refinery Plc	DANGSUGAR	2015–2024	10
3	Unilever Nigeria Plc	UNILEVER	2015–2024	10
4	Nestlé Nigeria Plc	NESTLE	2015–2024	10
5	Union Dicon Salt Plc	UNIONDICON	2015–2024	10
6	Northern Nigeria Flour Mills Plc	NNFM	2015–2024	10
7	Champion Breweries Plc	CHAMPION	2015–2024	10
8	International Breweries Plc	INTBREW	2015–2024	10
9	NASCON Allied Industries Plc	NASCON	2015–2024	10
10	Honeywell Flour Mill Plc	HONYFLOUR	2015–2024	10

Source: Nigerian Exchange Limited (2024) and authors' sampling schedule.

Variable measurement

Table 2. Variable definitions and measurement

Variable	Symbol	Measurement	Role
Firm-value ratio	FV / ln(FV)	(Financial-year-end closing ordinary share price × ordinary shares outstanding) ÷ book value of total assets; natural logarithm used in regression.	Dependent
Accounts receivable period	ARP	(Average trade receivables ÷ revenue) × 365 days	Explanatory
Inventory holding period	IHP	(Average inventory ÷ cost of sales) × 365 days; used only to construct CCC	Component
Accounts payable period	APP	(Average trade payables ÷ cost of sales) × 365 days	Explanatory
Cash conversion cycle	CCC	IHP + ARP − APP	Explanatory

$$FV_{it} = (P_{it} \times NOSH_{it}) \div TA_{it}$$

Source: Author's compilation, 2026

where P_{it} represents the closing ordinary share price, $NOSH_{it}$ represents ordinary shares outstanding, and TA_{it} represents total assets of firm i in year t. Where the financial year-end was a non-trading day, the preceding trading day's closing price was used. Share-price and listing data were obtained from NGX Daily Official Lists and company records, while total assets were extracted from audited annual reports. All monetary values were harmonised in naira before calculating the ratio (Nigerian Exchange Limited, 2024).

Note: The original FV ratio was used for descriptive statistics, while ln(FV) was used as the dependent variable in the regression. IHP was used only to calculate CCC and was not entered separately in the regression model.

Model specification and estimation

The estimable baseline model is:

$$ln(FV_{it}) = \beta_0 + \beta_1 ln(ARP_{it}) + \beta_2 ln(APP_{it}) + \beta_3 CCC_{it} + u_i + \varepsilon_{it}$$

where i represents the firm, t represents the year, u_i denotes the time-invariant firm-specific effect, and ε_{it} represents the idiosyncratic error term. FV, ARP and APP were transformed into natural logarithms to reduce scale dispersion and permit percentage-based interpretation. CCC remained in days because it contained negative observations. Descriptive statistics and Pearson correlations were reported for the raw variables, while the VIF and regression analyses used the transformed variables specified in the model. The analysis was conducted using EViews 9. Descriptive statistics, Pearson correlation, variance inflation factors, the Breusch–Pagan–Godfrey heteroskedasticity test, the Hausman specification test and random-effects regression were employed. Statistical significance was evaluated at the 5% level. The Hausman test assessed whether the fixed and random effects estimates differed systematically. Failure to reject its null hypothesis supported retention of the random-effects model, although it did not independently confirm all random-effects assumptions (Wooldridge, 2010). Since CCC was constructed partly from ARP and APP, their simultaneous inclusion created structural overlap. Although the VIF values were below 5, the high correlation between APP and CCC indicated a potential specification concern. Consequently, the coefficients were interpreted as baseline partial associations rather than causal effects. Future robustness analysis should estimate the component model comprising ARP, APP and IHP separately from the aggregate CCC model, incorporate relevant control variables, test panel-error dependence and apply panel-robust standard errors.

RESULTS AND DISCUSSION OF FINDINGS

Descriptive statistics

Table 3. Descriptive statistics of the raw variables

Statistic	FV	ARP	APP	CCC
Mean	7.685	35.990	211.660	−90.030
Median	5.565	27.000	170.000	−46.000
Maximum	27.860	90.000	493.000	125.000
Minimum	0.780	4.000	21.000	−393.000
Standard deviation	6.823	18.670	124.102	118.254
Skewness	0.928	0.961	0.624	−0.812
Kurtosis	2.728	3.250	2.443	3.023
Jarque–Bera	14.659	15.666	7.781	10.995
Probability	.001	< .001	.020	.004
Observations	100	100	100	100

Source: EViews output, 2026

The descriptive statistics were reported in the original units before logarithmic transformation. The firm-value ratio averaged 7.685, with considerable variation across firms and years. ARP averaged approximately 36 days, while APP averaged about 212 days. The mean CCC of −90 days indicates that the sampled firms generally received operating cash before settling supplier obligations. However, this negative cycle did not necessarily indicate efficiency, as the long average APP and minimum CCC of −393 days showed that supplier financing was a major contributor. The Jarque–Bera results rejected normality for the raw series, indicating skewness and possible outliers. Accordingly, FV, ARP and APP were transformed into natural logarithms for the regression analysis, while CCC remained in days because of its negative observations.

Correlation and multicollinearity

Table 4. Pearson correlations among the raw variables

Variable	FV	ARP	APP	CCC
FV	1.000			

ARP	0.518	1.000		
APP	−0.272	0.044	1.000	
CCC	0.260	0.154	−0.951	1.000

Source: EViews output, 2026

The raw-variable correlation analysis revealed that FV was positively related to ARP (r = 0.518) and CCC (r = 0.260), but negatively related to APP (r = −0.272). The strong negative correlation between APP and CCC (r = −0.951) was consistent with the construction of CCC, in which APP is deducted from the sum of IHP and ARP.

Table 5. Variance inflation factors for the regression variables

Variable	**Coefficient variance**	**Uncentred VIF**	**Centred VIF**
Constant	0.822047	11.0869	N/A
ln(ARP)	0.023198	5.3818	1.6508
ln(APP)	0.038682	17.3443	3.5053
CCC	0.00000178	4.7722	4.5776

Source: EViews output, 2026

The centred VIF values ranged from 1.651 to 4.578 and were below the threshold of 5, indicating no severe multicollinearity among the transformed regressors. Although CCC recorded the highest VIF, its value remained within the acceptable range. The strong negative relationship between APP and CCC reflects the construction of CCC and was considered when interpreting the regression coefficients.

Diagnostic and specification tests

Table 6. Diagnostic and specification tests

Test	**Statistic**	**Degrees of freedom**	**p-value**
Breusch–Pagan–Godfrey F	1.7266	(3, 96)	0.1667
Breusch–Pagan–Godfrey Obs×R^2	5.1195	3	0.1633
Scaled explained sum of squares	2.3245	3	0.5078
Hausman cross-section random	4.2079	3	0.2399

Source: EViews output, 2026

The Breusch–Pagan–Godfrey probability values exceeded 0.05; therefore, the null hypothesis of homoskedasticity was not rejected, indicating no evidence of heteroskedasticity under the test. The Hausman test produced a Chi-square statistic of 4.208 with 3 degrees of freedom and a p-value of 0.2399. Since the p-value exceeded the 0.05 significance level, the null hypothesis was not rejected, indicating no statistically significant systematic difference between the fixed and random-effects estimates. Consequently, the random-effects model was retained for the regression analysis and hypothesis testing.

Random-effects regression

Table 7. Random-effects estimates for ln(FV)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.670616	1.004107	2.659691	0.0092

LOG(ARP)	0.376540	0.127379	2.956062	0.0039
LOG(APP)	-0.470818	0.190657	-2.469448	0.0153
CCC	-0.000126	0.001092	-0.115335	0.9084
	Effects Specification			
			S.D.	Rho
Cross-section random			0.848668	0.7724
Idiosyncratic random			0.460686	0.2276
	Weighted Statistics			
R-squared	0.259710	Mean dependent var		0.263480
Adjusted R-squared	0.236575	S.D. dependent var		0.530563
S.E. of regression	0.463575	Sum squared resid		20.63058
F-statistic	11.22627	Durbin-Watson stat		0.987835
Prob(F-statistic)	0.000002			
	Unweighted Statistics			
R-squared	0.181410	Mean dependent var		1.557352
Sum squared resid	93.34921	Durbin-Watson stat		0.218316

Source: EViews output, 2026

The random-effects regression model was jointly statistically significant ($F = 11.2263$, $p < .001$). The weighted R-squared value of 0.2597 indicates that ln(ARP), ln(APP) and CCC jointly explained approximately 26.0% of the variation in ln(FV). Thus, the working capital management variables jointly had a statistically significant association with the natural logarithm of firm value, although a substantial proportion of the variation remained attributable to factors outside the model.

The coefficient of ln(ARP) was positive and statistically significant at the 1% level ($\beta = 0.3765$, $p = 0.0039$). Since both FV and ARP were expressed in natural logarithms, the coefficient represents an elasticity. Accordingly, a 1% increase in ARP was associated with an approximate 0.377% increase in firm value, holding the other variables constant. Based on this result, the null hypothesis that ARP had no significant association with firm value (H_{01}) was rejected.

The coefficient of ln(APP) was negative and statistically significant at the 5% level ($\beta = -0.4708$, $p = .0153$). Since both FV and APP were expressed in natural logarithms, a 1% increase in APP was associated with an approximate 0.471% decrease in firm value, holding the other variables constant. Accordingly, the null hypothesis that APP had no significant association with firm value (H_{02}) was rejected.

The coefficient of CCC was negative but statistically insignificant ($\beta = -0.000126$, $p = 0.9084$). Since ln(FV) was the dependent variable and CCC remained in days, a one-day increase in CCC was associated with an approximate 0.0126% decrease in firm value. However, the association was not statistically distinguishable from zero. Consequently, the null hypothesis that CCC had no significant association with firm value (H_{03}) was not rejected.

DISCUSSION OF FINDINGS

The study found that the accounts receivable period had a positive and statistically significant association with the firm value of listed Nigerian consumer goods firms. Although faster collection ordinarily releases cash and reduces financing and default costs. The positive result suggests that longer customer-credit periods may support firm value when used to stimulate sales, strengthen distributor relationships and expand market share. Firms with strong brands and favourable growth opportunities may also have greater capacity to extend credit to reliable customers. This interpretation aligns with Jabbouri et al. (2024), who showed that the performance implications of working-capital investment depend on firms' financial flexibility and operating conditions. Kiymaz et al. (2024) similarly reported that working-capital components produced different effects across developed and emerging economies. The positive association may also reflect reverse causality because firms with stronger financial positions and higher market values may be better able to finance longer receivable periods. Therefore, the result does not imply that firms should indiscriminately extend customer credit. Instead,

it supports selective credit management in which expected sales and margins exceed the associated financing, collection, default and inflation costs.

The accounts payable period had a negative and statistically significant association with firm value, indicating that firms with longer supplier-payment periods tended to have lower market valuations. Although supplier credit preserves liquidity and reduces reliance on costly short-term borrowing, delayed payments may signal cash-flow pressure, cause the loss of early-payment discounts, weaken supplier confidence and disrupt access to essential inputs. Investors may consequently interpret persistent payment delays as evidence of liquidity or operational weakness. This result is consistent with Huynh et al. (2025), who found that longer supplier-payment periods could be associated with weaker firm performance. It differs from Akpadaka and Edeh (2024), who reported a positive relationship between DPO and firm value among Nigerian consumer and industrial goods firms. The difference may reflect variations in sector coverage, sample composition, measurement and estimation methods. Accordingly, the negative association does not mean that earlier payment will automatically increase firm value. Firms should settle obligations within negotiated terms while balancing the financing benefits of supplier credit against the costs of delayed payment.

The cash conversion cycle recorded a negative but statistically insignificant association with firm value. The negative direction is consistent with the expectation that a shorter operating cycle reduces financing requirements and releases cash for productive investment. However, the result provides insufficient evidence that CCC was independently associated with firm value after ARP and APP were controlled for. This finding differs from Johan et al. (2024), who reported an inverse CCC–performance relationship among BRICS firms, and Akpadaka and Edeh (2024), who found that CCC negatively affected firm value among Nigerian consumer and industrial goods firms. Several factors may have contributed to the insignificant result, including the limited sample of 10 firms, the unusually long supplier-payment periods underlying some negative CCC observations and the simultaneous inclusion of CCC with two of its components. Since CCC is calculated from inventory, receivables and payables periods, its coefficient captured only the variation not already represented by ARP and APP. This explanation is consistent with Huynh et al. (2025), who demonstrated that working-capital results could become insignificant after model-specification and endogeneity concerns were addressed.

In conclusion, the findings support the liquidity–value trade-off perspective by showing that the estimated value associations were not uniform across the working-capital components. Customer credit may enhance firm value when it supports profitable sales, whereas prolonged supplier-payment periods may reduce value when they reflect liquidity pressure or threaten supplier relationships. The insignificant CCC result further indicates that the aggregate cycle may conceal important differences among its underlying components. Working-capital decisions should therefore be evaluated at both component and aggregate levels.

CONCLUSION AND RECOMMENDATIONS

This study examined the association between working capital management and the firm value of listed consumer goods firms in Nigeria, using ln(FV) as the dependent variable in the regression analysis. The findings showed that the accounts receivable period had a positive and significant association with firm value, suggesting that customer credit may support value when selectively extended to profitable and creditworthy customers. Conversely, the accounts payable period had a negative and significant association with firm value, indicating that prolonged supplier-payment periods may signal liquidity pressure, weaken supplier relationships and reduce market value. The cash conversion cycle had a negative but insignificant association with firm value, showing that the aggregate cycle did not independently explain firm value after receivables and payables were considered.

Overall, the study extends the literature by demonstrating that the value implications of working capital depend more on the composition and commercial significance of its components than on the aggregate cash cycle alone. The findings reinforce the cash conversion cycle framework and liquidity - value trade-off perspective. They show that effective working capital management does not simply require shortening every operating period; rather, it requires balancing customer credit, supplier obligations, liquidity and operational continuity.

Based on the findings, the following recommendations are proposed:

1. **Strengthen selective credit management:** Listed consumer goods firms should adopt credit policies based on customer creditworthiness, payment history, sales contribution and expected margin. Credit should be extended only where its expected benefits exceed financing, collection, default and inflation costs.

2. **Maintain supplier-payment discipline:** Firms should settle supplier obligations within negotiated terms, monitor overdue balances and utilise early-payment discounts where economically beneficial. This would protect supplier relationships, ensure continuity of inputs and reduce signals of financial distress.

3. **Evaluate the components of the cash cycle:** Firms should use CCC as a monitoring indicator rather than a stand-alone value target. Inventory holding, receivable collection and supplier-payment periods should be examined separately to identify the actual sources of changes in the aggregate cycle.

Although this study provides useful insights into the relationship between working capital management and firm value, it is subject to certain limitations. First, the study focused exclusively on 10 listed consumer goods firms in Nigeria, thereby excluding unlisted firms and companies in other sectors. Second, working capital management was represented by ARP, APP and CCC, which may not fully capture other relevant dimensions such as inventory management and short-term liquidity policies. The simultaneous inclusion of CCC with ARP and APP also created structural overlap because CCC is partly derived from these variables. Third, the study relied on secondary data extracted from annual reports and NGX records, thereby limiting the analysis to publicly disclosed information. Finally, firm value may be influenced by factors such as firm size, leverage, profitability, inflation, exchange-rate movements and investor sentiment, which were not explicitly incorporated into the model.

Future studies should include firms from other sectors, estimate separate component and aggregate CCC models. Also, future studies incorporate controls such as firm size, leverage, profitability, liquidity, sales growth and year effects. They should also test for serial correlation and cross-sectional dependence, and apply panel-robust standard errors. Alternative firm-value measures and non-linear models should also be considered.

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