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Ogbuigwe, Micheal and Aluya, Samson and John, Edidiong

University of Delta, Agbor, Delta State., Ignatius Ajuru University
of Education, Rumuolumeni, Port Harcourt, Rivers State, Akwa
Ibom state university, Obio Akpa Campus, Akwa Ibom state

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Effect of Cash Conversion Cycle on Financial Performance of Listed Consumer Goods Firms in Nigeria

Michael Ogbuigwe, Ph.D, ACA

Department of Accountancy, Faculty of Management Sciences, University of Delta, Agbor, Delta State.

Samson Aluya, Ph.D, ACA, ACTI

Department of Accountancy, Faculty of Management Sciences, Ignatius Ajuru University of Education, Rumuolumeni, Port Harcourt, Rivers State

Edidiong Justine John

Department of Accounting, Faculty of Management Sciences, Akwa Ibom state university, Obio Akpa Campus, Akwa Ibom state

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ABSTRACT

This study examined the effect of cash conversion cycle on financial performance of listed consumer goods firms in Nigeria. The specific objectives were to ascertain the effect of accounts receivable turnover ratio on return on assets of listed consumer goods firms in Nigeria, to determine the effect of account payable turnover ratio on return on assets of listed consumer goods firms in Nigeria and to assess the effect of inventory turnover ratio on return on assets of listed consumer goods firms in Nigeria. The study adopted an *ex-post facto* research design and utilized a panel data of one hundred and fifty (150) pooled observations gathered from fifteen (15) listed consumer goods firms in Nigeria over a ten (10)-year period (2014-2023). It also employed a panel multiple regression technique to analyze the data via E-views 10.0 statistical package. The study findings revealed that account receivable turnover ratio has a significant positive (Coeff. =0.0778{0.0012}) effect on return on assets of listed consumer goods firms in Nigeria while account payable turnover ratio has a non-significant negative (Coeff. =-0.0590{0.7897}) effect on return on assets of listed consumer goods firms in Nigeria. It also revealed that inventory turnover ratio has a significant positive (Coeff. =1.5166{0.0472}) effect on return on assets of listed consumer goods firms in Nigeria. It was thus concluded that cash conversion has a significant effect on financial performance of listed consumer goods firms in Nigeria. The recommendations made included that listed consumer goods firms in Nigeria should prioritize efficient accounts receivable management by implementing effective credit policies, credit

monitoring, and debt collection strategies for enhanced financial performance.

Keywords: *Cash conversion cycle, account receivable turnover, account payable turnover ratio, inventory turnover ratio, return on assets*

I. INTRODUCTION

Cash conversion cycle, a key measure for evaluating operational efficiency and liquidity management, represents the time it takes for a company to convert its resources into cash flows from sales. The efficient management of the cash is a crucial factor in driving financial performance, and its significance is especially accentuated in the context of listed companies. Historical data and scenarios have consistently highlighted the challenges companies face in managing inventories, accounts receivables, and payables, which significantly impacts their cash flow and overall performance. The concept of cash conversion cycle is rooted in the idea that an optimal cycle is essential for achieving improved financial outcomes, while inefficiencies can lead to reduced profitability and liquidity challenges (Chen & Wang, 2021). This concept is further reinforced by the belief that firms with shorter cash conversion cycles are better positioned to generate higher returns and withstand economic uncertainties compared to those with prolonged cycles. Consequently, this belief forms the foundation for understanding how the cash conversion cycle affects financial performance, driving the need for empirical investigation in the specific context of listed consumer goods firms in Nigeria.



The trade-off theory serves as a compelling framework for underpinning this study, emphasizing the delicate balance between maintaining optimal levels of liquidity and maximizing profitability (Ogbuigwe *et al.*, 2024). This theory posits that firms seek to strike a balance between maintaining sufficient liquidity to meet short-term obligations and reducing the opportunity cost of holding excess liquidity by investing in profitable assets. Historical and practical scenarios have depicted challenges associated with managing the cash conversion cycle in the consumer goods sector, potentially impacting firms' profitability and liquidity (Johnet *et al.*, 2024). Inefficiencies in inventory management, accounts receivables, and payables have over time led to extended cash conversion cycle, hindering firms' ability to effectively convert input resources into cash flows from sales (Ibrahim, 2023). These negative historical scenarios underscore the pressing need to examine how the conversion influences the financial performance of listed consumer goods firms in Nigeria. The trade-off between liquidity and profitability becomes increasingly pronounced, necessitating an in-depth exploration of how the cash conversion cycle influences this equilibrium (Adeyemi, 2019).

Extant studies have consistently demonstrated a significant negative relationship between the cash conversion cycle and firm profitability. Research studies conducted in various contexts, including emerging markets (Figlioli *et al.*, 2024; Tago & Sumawe, 2024; Patel & Shah, 2023) and developed economies (Chen & Wang, 2021; Smith & Brown, 2020), has yielded similar findings. Furthermore, industry-specific studies in manufacturing (Sugathadasa, 2018; Johnet *et al.*, 2024; Nguyen & Sundaresan, 2018), retail (Moussa, 2018), and other sectors (Chang, 2018; Altaf & Shah, 2018) have also reported a negative association between the cash conversion cycle and profitability. Additionally, research focusing on small and medium-sized enterprises (Tran, Abbott, & Yap, 2017; Jakpar *et al.*, 2017; Garcia & Martinez, 2017) and specific geographic regions (Musa & Norhani, 2017) has similarly found a negative relationship between the cash conversion cycle and firm profitability. Despite the abundance of research on this topic, the gap in the existing literature lies in the lack of comprehensive empirical studies addressing the nuanced relationship between the cash conversion cycle and financial performance of listed consumer goods firms in Nigeria. This study aimed at bridging this gap by providing an in-depth exploration of the effect of cash conversion

cycle and financial performance of listed consumer goods firms in Nigeria.

II. REVIEW OF RELATED LITERATURE

2.1 Conceptual framework

2.1.1 Cash conversion cycle

Cash conversion cycle is a vital financial metric that measures the time it takes for a company to convert its investments in inventory and other resources into cash flows from sales. This cycle is a critical measure of a company's liquidity and operational efficiency, comprising three main components: the number of days it takes to sell inventory, the number of days it takes to collect accounts receivable, and the number of days it takes to pay accounts payable. As noted by Ibrahim (2023), a shorter cash conversion cycle indicates that a company is able to efficiently manage its working capital and generate cash from its operations more quickly. This, in turn, can lead to improved financial performance, reduced reliance on external financing, and increased profitability. The cash conversion cycle is particularly crucial in the context of listed consumer goods firms in Nigeria, where effective working capital management is essential for maintaining liquidity and supporting business growth. As noted by Sugathadasa (2018), Nguyen and Sundaresan (2018), Moussa (2018), Chang (2018), and Altaf and Shah (2018), companies with shorter cash conversion cycles tend to have higher profitability and greater financial stability. Moreover, research by Tranet *et al.* (2017), Jakpar *et al.* (2017), Garcia and Martinez (2017), and Musa and Norhani (2017) has also highlighted the significance of the cash conversion cycle in determining a company's financial performance. By examining the relationship between the cash conversion cycle and financial performance, this study aims to provide valuable insights into the importance of effective working capital management in the Nigerian consumer goods sector.

Extant studies have consistently demonstrated the significance of the cash conversion cycle in determining a company's financial health and operational effectiveness. For instance, research by Okonkwo (2023) found that firms with shorter cash conversion cycles outperformed their peers in terms of return on assets and return on equity. Similarly, Adams (2022) supported the idea that a shorter cash conversion cycle is associated with better financial performance. Furthermore, studies by Figlioli *et al.* (2024), Tago and Sumawe (2024), Patel and Shah



(2023), Chen and Wang (2021), and Smith and Brown (2020) have also reported a negative association between the cash conversion cycle and profitability. These empirical findings underscore the importance of the cash conversion cycle as a key determinant of a company's financial performance.

2.1.2 Account receivable turnover ratio

The accounts receivable turnover ratio is a crucial metric that assesses a company's efficiency in collecting payments from its customers. This ratio provides valuable insights into the frequency with which a company converts its credit sales into cash over a specific period, thereby indicating the effectiveness of its credit and collection policies. As noted by Patel & Shah (2023), efficient management of accounts receivable is critical for maintaining healthy cash flow and sustaining operations. A higher accounts receivable turnover ratio generally signifies that a business is collecting its receivables more quickly, demonstrating strong customer payment practices and effective credit management strategies. This, in turn, enables the company to minimize the time it takes to convert credit sales into cash, improving its working capital and liquidity. As observed by Figlioli *et al.* (2024), Tago and Sumawe (2024), and Chen and Wang (2021), companies with high accounts receivable turnover ratios tend to have better financial performance, reduced credit risk, and improved cash flow management. Conversely, a low turnover ratio may signal financial strain, as it suggests that a company's funds are tied up in outstanding receivables, potentially leading to cash flow challenges and impacting its ability to cover expenses or invest in expansion initiatives. Extant literature highlights the significance of the accounts receivable turnover ratio in assessing a company's financial health and operational efficiency. For instance, studies by Sugathadasa (2018), Nguyen and Sundaresan (2018), and Moussa (2018) have reported a positive association between the accounts receivable turnover ratio and financial performance. Similarly, research by Tran *et al.* (2017), Jakpar *et al.* (2017), and Garcia and Martinez (2017) have emphasized the importance of efficient accounts receivable management in maintaining healthy cash flow and supporting business growth.

2.1.3 Account payable turnover ratio

Account payable turnover ratio offers valuable insights into a company's effectiveness in managing its short-term liabilities and vendor payments. This ratio measures the frequency with which a business pays off its suppliers and trade

creditors over a specific period, reflecting its efficiency in settling its accounts payable. It is often calculated by dividing the net credit purchases by the average accounts payable, a higher turnover ratio indicates that a company is swiftly settling its obligations to suppliers, demonstrating strong vendor relationships, robust cash flow management, and effective working capital utilization. Conversely, a lower turnover ratio may suggest extended payment periods, potential liquidity challenges, or strained relationships with suppliers.

According to Adeyemi (2022), adequate management of accounts payable is essential for maintaining positive relationships with vendors and optimizing cash flow. A high turnover ratio signifies that a company is effectively leveraging its trade credit terms to manage its working capital, enhancing its financial flexibility and bolstering its reputation with suppliers (Olalekan, 2022). This allows the company to optimize cash flow, negotiate favorable payment terms, and potentially access early payment discounts, ultimately strengthening its financial position. In contrast, a low turnover ratio may raise concerns about the company's ability to meet its short-term obligations, potentially affecting its creditworthiness and supplier relations, and impeding its ability to secure advantageous terms for future transactions.

2.1.4 Inventory turnover ratio

The concept of inventory turnover ratio assesses a company's efficiency in managing its inventory levels and converting goods into sales (Mohammed, 2022). This ratio measures the number of times inventory is sold and replaced over a specific period, reflecting the company's ability to effectively manage its stock levels and optimize its working capital. Inventory turnover ratio is assessed by dividing the cost of goods sold by the average inventory, a higher turnover ratio signifies that a company is swiftly selling its products and efficiently replenishing its inventory, reflecting effective inventory management, strong demand forecasting, and streamlined operational efficiency. Conversely, a lower turnover ratio may indicate excess inventory, potential obsolescence risks, and tied-up capital, highlighting potential inefficiencies in supply chain management and sales performance.

Adequate management of inventory turnover is critical for sustaining profitability, reducing holding costs, and maximizing cash flow (Balogun, 2023). A high turnover ratio indicates that a company is effectively minimizing excess inventory and ensuring that its products are meeting customer demand, ultimately boosting its liquidity



and operational agility. This allows the company to reduce carrying costs, minimize the risk of inventory obsolescence, and free up capital for investment in growth initiatives. On the other hand, a low turnover ratio could signal suboptimal inventory management, leading to increased storage costs, potential write-downs, and missed sales opportunities, ultimately impacting the company's financial health and competitive positioning in the market.

2.1.5 Concept of financial performance

The concept of financial performance encapsulates the comprehensive evaluation of a company's overall fiscal health, profitability, and ability to generate returns for its stakeholders. It encompasses a range of key metrics and indicators that provide insights into the company's operational efficiency, revenue generation, and effectiveness in managing resources. Financial performance analysis is vital for stakeholders, including investors, creditors, and management, as it offers a holistic view of the company's ability to achieve sustainable growth, maximize profits, and create long-term value (Smith, 2021). The term financial performance cannot be put into a tight framework of definition. A financial analyst can judge performance from profitability and growth point of view (Olaoye *et al.*, 2019). Financial performance assesses the fulfillment of a firm's economic goal and this relates to various subjective measure of how well a firm can use its given assets from primary mode of operation to generate profit (Joshua *et al.*, 2019). The opinion of Odusanya *et al.* (2018) suggest that companies with high level financial performance create value, hire people, tend to be more innovative, more socially responsible and are beneficial to the entire economy through payment of taxes, income generation and overall development of an economy. Specifically, corporate financial performance as a performance mechanism is hard to measure. Extant approaches primarily differ on whether to border on the financial prosperity or market performance of the firm. Financial prosperity refers to corporate financial performance that demonstrates a company's overall efficiency and performance and it can be expressed using different methods and ratios.

2.1.6 Return on assets

Return on assets (ROA) serves as a key indicator of the company's ability to maximize the returns derived from its investments in both tangible and intangible assets. It is calculated by dividing the company's net income by its average total assets,

offering a clear measure of the efficiency with which the company is deploying its resources to generate earnings. This metric is essential for investors, creditors, and management as it offers a snapshot of the company's profitability relative to the total assets employed, thereby enabling stakeholders to gauge the company's operational efficiency and asset utilization as opined by Smith (2021). The concept of return on assets holds paramount significance in evaluating a company's overall financial performance and strategic effectiveness. A high ROA signifies that the company is adept at generating substantial profits from its asset base, representing efficient operations and effective resource allocation. On the other hand, a low ROA may indicate inefficiencies in asset deployment or challenges in generating profits from the existing asset base, prompting stakeholders to scrutinize the company's operational strategies and asset management practices.

2.1.7 Account receivable turnover ratio and return on assets

The account receivable turnover ratio plays a crucial role in determining the efficiency of collecting receivables, thereby impacting the cash conversion cycle and ultimately the financial performance of Consumer goods firms in Nigeria. A higher account receivable turnover ratio indicates that the company is effectively collecting payments from its customers, translating into improved cash flow and liquidity. This efficient management of receivables positively influences the cash conversion cycle, enabling the firm to convert sales into cash quickly. As a result, a higher account receivable turnover ratio tends to enhance the firm's return on assets, as it signifies efficient utilization of the company's resources. Accounts receivable turnover ratio has been examined in various studies as a component of the cash conversion cycle. For instance, Sugathadasa (2018) found a significant negative relationship between the receivable conversion period and firm profitability in Sri Lankan manufacturing firms. Similarly, Musa and Norhani (2017) found a statistically significant negative relationship between accounts receivable period and SMEs' profitability in Nigeria. Nguyen and Sundaresan (2018) also found that accounts receivable period had a negative impact on return on assets (ROA) in Thai agriculture and food companies. These studies suggest that a shorter accounts receivable turnover period is associated with higher profitability. The below hypothesis was



however proposed for this present study regrading Accounts receivable turnover ratio and return on assets.

Ho₁: Accounts receivable turnover ratio has no significant effect on return on assets of listed consumer goods firms in Nigeria

2.1.8 Account payable turnover ratio and return on assets

The account payable turnover ratio reflects how well a company manages its payables and trade credit, affecting the cash conversion cycle and subsequently the financial performance of Consumer goods firms in Nigeria. A higher account payable turnover ratio signifies that the company is efficiently managing its supplier payments and trade credit, leading to improved liquidity and operational efficiency. This streamlined management of payables positively influences the cash conversion cycle, contributing to enhanced return on assets. According to a study by Smith (2021), the account payable turnover ratio has a significant relationship with the return on assets of listed consumer goods firms in Nigeria, highlighting the importance of effective payables management in driving financial performance. Several studies have investigated the impact of accounts payable turnover ratio on firm profitability. For example, Altaf and Shah (2018) found that profitability increases at lower levels of cash conversion cycle, and decreases at higher levels of cash conversion cycle, in Indian non-financial companies. Similarly, Tran et al. (2017) found a negative relationship between cash conversion cycle and profitability in Vietnamese manufacturing SMEs. Sugathadasa (2018) also found that creditor conversion period had a negative but insignificant relationship with firm profitability in Sri Lankan manufacturing firms. These studies suggest that a shorter accounts payable turnover period is associated with higher profitability. The below hypothesis was however proposed for this present study regrading Accounts payable turnover ratio and return on assets.

Ho₂: Account payable turnover ratio has no significant effect on return on assets of listed consumer goods firms in Nigeria

2.1.9 Inventory turnover ratio and return on assets

The inventory turnover ratio is instrumental in assessing the efficiency of managing inventory, directly impacting the cash conversion cycle and

financial performance of listed consumer goods firms in Nigeria. A higher inventory turnover ratio signifies that the company is effectively managing its inventory levels, resulting in reduced carrying costs and improved cash flow. This efficient inventory management positively influences the cash conversion cycle, contributing to enhanced operational efficiency and ultimately the return on assets. Inventory turnover ratio has been examined in various studies as a component of the cash conversion cycle. For instance, Jakpar et al. (2017) found that average days of inventory had a substantial positive impact on profitability in Malaysian manufacturing companies. However, other studies have found a negative relationship between inventory turnover ratio and profitability. For example, Sugathadasa (2018) found a significant positive relationship between inventory conversion period and firm profitability in Sri Lankan manufacturing firms. Musa and Norhani (2017) also found a negative association between inventory holding period and SMEs' profitability in Nigeria. These studies suggest that a shorter inventory turnover period is associated with higher profitability. The below hypothesis was however proposed for this present study regrading inventory turnover ratio and return on assets.

Ho₃: Inventory turnover ratio has no significant effect on return on assets of listed consumer goods firms in Nigeria

2.2 Theoretical framework

In the course of this study, Trade-off theory and Pecking order theory were reviewed.

2.2.1 Trade-off theory by Kraus and Litzenberger (1973)

The trade-off theory is a pivotal concept in corporate finance that sheds light on the relationship between the cash conversion cycle and the financial performance of listed consumer goods firms in Nigeria. Proposed by Kraus and Litzenberger (1973) and later expanded by Stewart C. Myers in 1984 and Shin and Soenen in 1998, the trade-off theory posits that there exists a delicate balance between maintaining an optimal level of working capital, as represented by the cash conversion cycle, and maximizing financial performance. According to this theory, companies must weigh the trade-offs between liquidity and profitability when managing their working capital. The trade-off theory primarily focuses on the interplay between the cash conversion cycle and financial performance. In the context of listed consumer goods firms in Nigeria, a



longer cash conversion cycle could lead to increased investment in working capital, resulting in enhanced liquidity but potentially lower profitability (Mohammed, 2018). Conversely, a shorter cash conversion cycle may result in reduced investment in working capital, which could bolster profitability but leave the firm vulnerable to liquidity risks (Adeyemi, 2019). The theory suggests that firms must find the optimal cash conversion cycle that allows for efficient management of working capital without sacrificing profitability or risking financial instability. This theory is particularly suitable for studying the effect of cash conversion cycle on the financial performance of listed consumer goods firms in Nigeria because it provides a framework for understanding the complexities of managing working capital in a way that balances liquidity and profitability (Smith, 2021). It recognizes that different cash conversion cycle can lead to varying financial outcomes, and it underscores the importance of finding the right trade-off between these competing objectives for sustainable financial performance (Kasozi, 2017). By considering the trade-offs inherent in the cash conversion cycle, the theory offers valuable insights into how working capital management influences the overall financial health of Consumer goods firms in Nigeria, thus making it a pertinent lens through which to analyze this topic.

2.2.2 Pecking order theory by Myers and Mailuf (1984)

The Pecking Order Theory, proposed by Myers and Majluf in 1984, offers valuable insights into the financing and investment decisions of firms, particularly in relation to the cash conversion cycle. According to this theory, firms have a preferred hierarchy of financing sources, with internal funds being the first choice, followed by debt and equity as a last resort. This theory is particularly relevant to understanding the effect of cash conversion cycle on the financial performance of consumer goods firms in Nigeria. The cash conversion cycle is a crucial determinant of a firm's financial performance, especially in the context of listed consumer goods firms in Nigeria. The cash conversion cycle represents the time it takes for a company to convert its investments in inventory and other resources into cash flows from sales. A shorter cash conversion cycle is generally associated with better financial performance, as it reflects efficient management of working capital and liquidity (Adeyemi, 2019; Aluya & John, 2024). The Pecking Order Theory suggests that firms prefer internal financing over external financing to fund their operations and

growth, as it is less costly and does not have the adverse signaling effects associated with external financing. This aligns with the nature of consumer goods firms in Nigeria, as they often face challenges in accessing external financing due to economic and market uncertainties. Therefore, these firms are inclined to focus on managing their working capital efficiently to minimize the need for external financing. A shorter cash conversion cycle allows firms to generate cash internally at a faster rate, reducing their reliance on external funding and aligning with the principles of the Pecking Order Theory. As a result, a shorter cash conversion cycle positively influences the financial performance of consumer goods firms in Nigeria by enabling them to maintain financial flexibility and minimize the costs and signaling effects associated with external financing.

2.3 Empirical review

Figlioli *et al.* (2024) examined the relationship between the cash conversion cycle (CCC) and the financial and market performances of publicly traded firms in six Latin American countries: Argentina, Brazil, Chile, Colombia, Mexico, and Peru. The analysis covered the period from 2000 to 2018. The results indicated that increase in CCC negatively impact the generation of operating cash flows and long-term investments, and increase financial risk. Other findings suggested that the mechanisms through which CCC affects a firm's financial performance can provide a satisfactory explanation of its market performance. The evidence was consistent with the hypothesis that CCC is a relevant driver of value in working capital management in undeveloped or emerging economies.

Tago and Sumawe (2024) focused on establishing the causal effect of cash conversion cycle on profitability while exploring whether single- or double-digit indicators matter for profitability determination of manufacturing firms. Theoretical and extant empirical literature reviewed guided the scholar foundations for gap identification. The findings were elicited from annual audited financial statements of companies enrolled on DSE from 2008 to 2022 with a sample of 8 manufacturing firms for 15 years, aggregating to a total of 120 observations. Profit was estimated using Profit-After Tax (PAT) and the Cash Conversion Cycle was measured through Inventory Turnover Days (ITD), Debt Collection Days (DCD) and Credit Payment Days (CPD). In model selection, Hausman test was adopted to pick between fixed effect and random effect model while Panel Regression was



avored in estimating the causal effect of CCC and profitability. Based on regression analysis, Inventory Turnover Days (ITD) has a negative impact on firms' profitability and Debt Collection Days (DCD) revealed an insignificant positive relationship between DCD and profitability. Furthermore, the study found a negative relationship between Credit Payment Days (CPD) and profitability. On the other hand, the research found that profitability of most firms with double digit cash conversion cycle proved to be higher than those firms with single or triple cash conversion cycle.

Ogbuigwe *et al.* (2024) examined the relationship between cash flow management and investment performance of quoted industrial goods firms in Nigeria. The specific objectives were to determine the relationship between cash conversion cycle and return on assets of quoted industrial goods firms in Nigeria, to ascertain the relationship between current ratio and return on assets of quoted industrial goods firms in Nigeria and to assess the relationship between cash ratio and return assets of quoted industrial goods firms in Nigeria. The study covered ten (10)-year period (2014-2023) with panel data comprising of one hundred and twenty (120) pooled observations gathered from twelve (12) industrial goods firms quoted on the Nigerian Exchange Group. The study however adopted an ex-post facto research design and utilized standardized regression (Ordinary Least Square-OLS) technique to analyze data via E-views 10.0 statistical package. The study findings revealed that cash conversion cycle has a significant negative relationship (Coeff. = -0.0027 {0.0123}) with the return on assets of quoted industrial goods firms in Nigeria while current ratio has an insignificant positive relationship (Coeff. = 0.0009 {0.1510}) with return on assets of quoted industrial goods firms in Nigeria. It also revealed that cash ratio has a significant positive relationship (Coeff. = 0.1709 {0.0001}) with return on assets of quoted industrial goods firms in Nigeria. The study underscores the critical importance of effective cash flow management in driving investment performance and profitability. It was thus concluded that proficient cash flow management is essential for maximizing investment performance and profitability.

Johan *et al.* (2024) examined this relationship cash conversion cycle and firm performance across all BRICS countries using a comprehensive dataset spanning the period of 2009–

2019 in the five major emerging markets, namely Brazil, Russia, India, China, and South Africa (BRICS) as a single region. Employing a set of regression analyses namely, seemingly unrelated regression, system generalized method of moments, dynamic quantile regression, and difference-in-difference regression, we provide empirical evidence indicating an inverse association between cash conversion cycle and firm performance across all BRICS countries. Specifically, firms with longer cash conversion cycle periods exhibit lower profitability compared to those with shorter cash conversion cycle periods. Moreover, our analysis incorporates various control variables encompassing firm and country characteristics, which also display significant relationships with firm performance. These empirical findings were robust, aligned with existing theoretical frameworks, and support the cash conversion cycle theory. The outcomes of this study offer valuable insights for investors, policymakers, financial managers, and debt holders, contributing to their decision-making processes.

Kari *et al.* (2023) examined how the cash conversion cycle (CCC) affects the financial performance of manufacturing companies in Bangladesh. The authors collected data of 61 Dhaka Stock Exchange (DSE)-listed firms from the 10 distinct manufacturing industries of Bangladesh for 18 years, from 2003 to 2020. The data were analyzed through the two-steps system generalized method of moment (GMM) regression model, using profitability indicators return on asset (ROA) and earnings per share (EPS) as dependent variables, while CCC has been used as the independent variable, whereas asset turnover (ATO) and financial leverage (LEV) were used as control variables to assess the relationship between the CCC and financial performance. The findings indicated that CCC has a negative connection with profitability – ROA and EPS, with the connection between CCC and EPS being highly significant. This indicates that reducing the inventory conversion time, reducing the period of receivable collection and making payments to creditors with potential delays might help Bangladeshi manufacturing firms boost their profitability.

Patel and Shah (2023) conducted an empirical study to investigate the effect of the cash conversion cycle (CCC) on firm profitability in the Indian textile sector. The researchers selected a sample of 60 publicly traded textile companies listed on the National Stock Exchange (NSE) and Bombay Stock Exchange (BSE) in India, not Italy, for the



period 2015-2020. The study employed a quantitative research approach, utilizing panel data regression analysis to examine the relationship between the CCC and firm profitability. The findings of the study revealed a significant negative impact of the CCC on firm profitability. Specifically, the results showed that a longer CCC was associated with lower profitability, as measured by return on assets (ROA) and return on equity (ROE). This suggests that Indian textile companies can improve their profitability by reducing their CCC, which can be achieved through efficient management of accounts receivable, accounts payable, and inventory.

Lambe et al. (2022) investigated the importance of managing accounts receivable and accounts payable in publicly traded Nigerian manufacturing and retailing firms. Their sample consisted of 26 listed Nigerian industrial and consumer goods businesses from the Nigerian Exchange Group (NGX), with data spanning 2011-2021. The study employed a correlation review and multiple regression model to analyze the relationships between variables. The findings revealed that the correlation between the accounts receivable to accounts payable ratio and Return on Assets (ROA) was significantly influenced by the degree of ownership concentration. This suggested that the beneficial effect of the receivables-to-payments ratio on financial performance was mitigated by the level of ownership concentration. Furthermore, a slowed cash conversion cycle due to high ownership concentration had a negligible impact on financial results. The report recommended that listed consumer and industrial products firms in Nigeria cultivate long-term relationships with their suppliers to access trade finance more conveniently and swiftly, ultimately improving their performance.

Chen and Wang (2021) conducted an empirical study to investigate the relationship between the cash conversion cycle (CCC) and corporate profitability in Chinese manufacturing firms. The researchers employed a quantitative research approach, utilizing regression analysis of data from 100 listed manufacturing companies on the Shanghai and Shenzhen stock exchanges over a five-year period from 2015 to 2019. The study controlled for various firm-specific variables, including firm size, leverage, and asset tangibility, to isolate the effect of the CCC on corporate profitability. The results of the study uncovered a significant negative association between the CCC

and corporate profitability, indicating that a longer CCC is associated with lower profitability. This finding suggests that Chinese manufacturing firms can improve their profitability by reducing their CCC, which can be achieved through efficient management of accounts receivable, accounts payable, and inventory. The study contributes to the existing literature on the CCC and corporate profitability by providing evidence from the Chinese manufacturing sector.

Smith and Brown (2020) examined the impact of the cash conversion cycle (CCC) on profitability in the retail industry, analyzing data from 50 publicly traded retail companies listed on major US stock exchanges, including the New York Stock Exchange (NYSE) and NASDAQ, over a five-year period from 2014 to 2018. The researchers employed a quantitative research approach, utilizing multiple regression analysis to examine the relationship between the CCC and firm profitability. The study controlled for various firm-specific variables, including firm size, leverage, and asset turnover, to isolate the effect of the CCC on firm profitability. The findings of the study revealed a significant negative effect of the CCC on firm profitability, indicating that a longer CCC is associated with lower profitability. This finding suggests that retail companies can improve their profitability by reducing their CCC, which can be achieved through efficient management of accounts receivable, accounts payable, and inventory. The study contributes to the existing literature on the CCC and firm profitability by providing evidence from the retail industry.

2.4 Summary of empirical review and gap in literature

Extant studies have consistently shown that the cash conversion cycle has a significant negative impact on firm profitability. For instance, Figlioli et al. (2024), Tago and Sumawe (2024), Patel and Shah (2023), Chen and Wang (2021), Smith and Brown (2020), Sugathadasa (2018), Nguyen and Sundaresan (2018), Moussa (2018), Chang (2018), Altaf and Shah (2018), Tran, Abbott, and Yap (2017), Jakpar *et al.* (2017), Garcia and Martinez (2017), and Musa and Norhani (2017) all found a negative relationship between the cash conversion cycle and profitability. These studies suggest that firms can improve their profitability by reducing their cash conversion cycle, which can be achieved through efficient management of accounts receivable, accounts payable, and inventory. However, some studies have found mixed results. For example, Kabiru, Aliyu, and Usman



(2019) found a negative significant relationship between the cash conversion cycle and return on equity (ROE), but a positive significant relationship between the cash conversion cycle and return on assets (ROA). Similarly, Ben Le (2019) found a positive relationship between working capital management (measured by the cash conversion cycle) and firm profitability in terms of return on total asset. These mixed results suggest that the relationship between the cash conversion cycle and profitability may be more complex than previously thought, and that further research is needed to fully understand this relationship. These discrepancies could be accredited to different surrogates, markets, research techniques and tools employed in prior studies.

III. METHODOLOGY

The study adopted an *ex-post facto* research design. This design was suitable because the data for the analysis had already transpired, leaving little or no room for manipulation. In this study, the population was made up of all consumer goods companies listed on the floor of the Nigerian Exchange Group from 2014 to 2023. As of December 31st, 2023, the total number of consumer goods companies was twenty-one (21). A sample size of 15 listed consumer goods firms in Nigeria was arrived at purposively after subjecting it to a validity test using Tabachnick and Fidell (2007) formula. The data for the study were extracted from financial reports using contents analysis method and collated with the aid of Microsoft excel software. The panel data methodology was adopted because the study combined time series and cross-sectional data, that is, fifteen (15) cross-sectional observations for each year and ten-time series for each consumer goods firm repressor and explained variables, a total of one hundred and fifty (150) pooled observations.

A panel data set has multiple entities each of which has repeated measurements at different time periods. Panel data give more informative data, more degrees of freedom and more efficiency. They also provide ways of dealing with diverse data and examine fixed and random effects on the longitudinal data.

The study adopted panel least squares regression in analyzing the data via Eviews 10.0. The data conformed to the standardized regression assumptions, that is, linearity, homoscedasticity, normality and independence of data. Durbin Watson statistics is within the range of 2-3, (Gujarati, Porter & Gunasekar, 2012). The decision was based on 5% level of significance. Accept null hypothesis (Ho) if probability value (i.e. P-value or Sig.) is greater than or equals to (\geq) stated 5% level of significance (α); otherwise, reject and accept alternate hypothesis (H₁), if p-value or sig. calculated is less than 5% level of significance.

The model for this study is adopted from the study of Kasozi (2017) but modified to suit the hypotheses of this study. Hence, the author specifies the econometric function as;

$$ROA_{it} = \beta_0 + \beta_1 ARTR_{it} + \beta_2 APTR_{it} + \beta_3 ITR_{it} + \mu_{it}$$

Where:

- ROA = Return on assets
- ARTR = Account receivable turnover ratio
- APTR = Accounts payable turnover ratio
- ITR = Inventory turnover ratio
- β_0 = Constant
- $\beta_1 - \beta_3$ = Slope Coefficient
- μ = Stochastic disturbance
- i = ith firm
- t = time period

Table 3.1 Operationalization of variables

Concept	Proxy	Measurement	Source
Cash conversion cycle (independent variable)	Trade receivable turnover ratio	Net credit sales divided by average trade receivable	Sugathadasa (2018), Murtala and Sani (2016)
	Trade payable turnover ratio	Total purchases divided by average trade payables	Sugathadasa (2018), Murtala and Sani (2016)
	Inventory turnover ratio	Cost of goods sold divided by average inventory	Murtala and Sani (2016)
Financial performance (dependent variable)	Return on assets	Net income divided by average total assets	Kabiru, Aliyu and Usman (2019)

Source: Author's compilation, 2024



IV. DATA ANALYSIS AND DISCUSSION OF FINDINGS

4.1 Data analysis

Several statistical tools were utilized in the analysis of data as presented in table 4.1, 4.2 and 4.3 respectively. These include descriptive statistics, regression assumption tests and panel multiple regression analysis.

4.1.1 Descriptive statistics

This was conducted to understand the behaviour of the data using various statistics including mean, standard deviation, skewness, and kurtosis. The result for the descriptive statistics analysis is as presented in table 4.1 below;

Table 4.1 Descriptive statistics results

	ROA	ARTR	APTR	ITR
Mean	1.160940	66.04363	6.600555	4.683894
Median	3.150000	65.76345	5.874674	4.683231
Maximum	18.10000	116.8831	48.06409	7.867133
Minimum	-54.40000	47.05882	3.664495	3.214573
Std. Dev.	10.27920	12.33140	3.885750	0.755063
Skewness	-2.613735	1.414157	8.444113	0.971037
Kurtosis	13.10069	5.607791	88.63098	5.156397
Jarque-Bera	803.0500	91.88293	47294.32	52.28475
Probability	0.000000	0.000000	0.000000	0.000000
Sum	172.9800	9840.501	983.4827	697.9002
Sum Sq. Dev.	15637.95	22505.39	2234.660	84.37783
Observations	150	150	150	150

Source: Researcher's computation (2024) using E-views 10.0

The descriptive statistics results presented in Table 4.2 provide an overview of the central tendency, variability, and distribution shape of the variables under study. The results show that the average Return on Assets (ROA) of listed consumer goods firms in Nigeria from 2014 to 2023 was approximately 1.169%, indicating that, on average, these firms generated a return of 1.169% on their assets. The median ROA was 3.15%, suggesting that half of the firms had a return on assets above 3.15%. The mean scores for the independent variables were approximately 66.04 for Accounts Receivable Turnover Ratio (ARTR), 6.60 for Accounts Payable Turnover Ratio (APTR), and 4.68 for Inventory Turnover Ratio (ITR). These ratios can be converted to days, with ARTR indicating approximately 5.52 times per year, APTR indicating approximately 55.30 times per year, and ITR indicating approximately 78.01 times per year.

The standard deviations obtained for ROA, ARTR, APTR, and ITR were approximately 10.27, 12.33, 3.88, and 0.97 respectively, indicating varying levels of variability in the distribution. The skewness values obtained for ROA, ARTR, APTR, and ITR were -2.613, 1.414, 8.444, and 0.971 respectively, quantifying the asymmetry of the

distributions. The negative skewness of ROA indicates that most firms had returns below the average, while the positive skewness of ARTR and APTR indicates that most firms had accounts receivable and payable turnover ratios above the average. The kurtosis values obtained for ROA, ARTR, APTR, and ITR were approximately 13.10, 5.60, 88.63, and 5.15 respectively, indicating a leptokurtic distribution for all variables, hence the presence of outliers in the data. The median values obtained for ROA, ARTR, APTR, and ITR were approximately 3.15%, 65.76, 5.87, and 4.68 respectively, constituting the middle values for the distributions of these variables under the period covered in this study (2014-2023).

4.1.2 Model evaluation

Several residual and coefficient diagnostics were however conducted to assess the suitability of the model as stated in the previous section. These include normality test, multicollinearity test, heteroscedasticity test and autocorrelation assessment.

4.1.2.1 Normality test

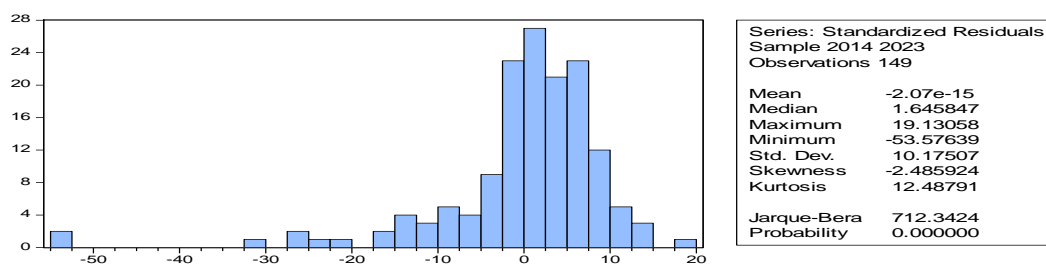


Fig. 4.1 Jarque-Bera Normality test results

Source: Researcher’s computation (2024) using E-views 10.0

The Jarque-Bera test was employed in this case. This is important because the statistical model assumes normality, and deviations from normality can affect the validity of statistical inference. As applied, if the p-value associated with the Jarque-Bera test is below a predetermined significance level ($p < 0.05$), then we reject the null hypothesis and conclude that the data do not follow a normal distribution. With a p-value of 0.00000, there is

sufficient evidence to conclude that the data were not normally distributed.

4.1.2.2 Multicollinearity test

In examining the association among the variables, the study employed the Spearman Rank Correlation Coefficient (correlation matrix), and the results are as presented in the table below.

Table 4.2 Spearman’s rank correlation matrix

	ROA	ARTR	APTR	ITR
ROA	1.000000			
ARTR	-0.096742	1.000000		
APTR	-0.091820	0.177938	1.000000	
ITR	-0.073297	-0.075762	0.502105	1.000000

Source: E-views 10.0 Output (2024)

The correlation analysis showed that all independent variables- accounts receivable turnover ratio (ARTR), accounts payable turnover ratio (APTR) and inventory turnover ratio (ITR) of listed

consumer goods firms in Nigeria over the period under study had coefficients lesser than 0.80 respectively confirming absence of multicollinearity issues.

4.1.2.3 Heteroscedasticity test

Table 4.3 Heteroscedasticity test

Test	Statistic	d.f.	Prob.
Breusch-Pagan LM	151.7969	105	0.0719
Pesaran scaled LM	2.194196		0.0282
Pesaran CD	1.655779		0.0978

Source: Researcher’s computation (2024) using E-views 10.0

Heteroscedasticity refers to the unequal spread of residuals (or errors) across the range of predictor variables in a regression model. The statistics and probability value associated with the Breusch-Pagan LM test otherwise known as the Breusch-Pagan Godfrey test help determine whether there is evidence of heteroscedasticity in the regression model. A low p-value ($p < 0.05$) suggests evidence against the null hypothesis in favour of the alternate hypothesis which indicates the presence of

heteroscedasticity in the regression model. With a p-value of 0.0719, there is sufficient evidence to accept the null hypothesis, thus, conclude that the explanatory variables in the regression model were homoscedastic.

4.1.2.4 Autocorrelation

Autocorrelation, also known as serial correlation, occurs when there is a correlation between the residual errors of a time series or panel



data over time. Autocorrelation tests examine whether the residuals are independently distributed or if there is a systematic pattern of dependence. The Durbin-Watson statistics is commonly used to test for autocorrelation, with values close to 2 indicating no significant autocorrelation. The Durbin-Watson statistic as obtained from the panel regression results was utilized in this case. The

Durbin-Watson statistic value of 1.7639 suggests no significant autocorrelation issues.

4.2 Regression Analysis

The study utilized ordinary least squares (OLS) regression to analyze the linkages between the dependent variable and independent variables, as well as to evaluate the formulated hypotheses.

Table 4.4 Panel multiple regression results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.794991	7.411937	2.861185	0.0047
ARTR	0.077835	0.069007	3.127943	0.0012
APTR	-0.059043	0.220961	-0.267212	0.7897
ITR	1.516643	1.144581	2.325063	0.0472
R-squared	0.480157	Mean dependent var		1.160940
Adjusted R-squared	0.436115	S.D. dependent var		10.27920
S.E. of regression	10.27979	Akaike info criterion		7.524715
Sum squared resid	15322.74	Schwarz criterion		7.605358
Log likelihood	-556.5913	Hannan-Quinn criter.		7.557479
F-statistic	0.994307	Durbin-Watson stat		1.763924
Prob(F-statistic)	0.397398			

Source: Researcher's computation (2024) using E-views 10.0

The multiple regression line is as written below:

$$ROA = 1.794991 + 0.077835ARTR - 0.059043APTR + 1.5116643ITR + \mu$$

In line with the regression results above, when the independent variables- accounts receivable turnover ratio (ARTR), accounts payable turnover ratio (APTR) and inventory turnover ratio (ITR) are held constant (equal Zero), the dependent variable- return on assets (ROA) increased at a constant average of approximately 1.79%. However, a one percent (1%) rise in accounts payable turnover ratio (APTR) decreases return on assets (ROA) by approximately 0.059% respectively. In addition, an increase in accounts receivable turnover ratio (ARTR) and inventory turnover ratio (ITR) by one percent (1%) increases return on assets (ROA) of listed industrial goods firms in Nigeria by approximately 0.077% and 1.516% respectively.

4.3 Test of hypotheses

H₀₁: *Accounts receivable turnover ratio has no significant effect on return on assets of listed consumer goods firms in Nigeria*

In order to test whether the variations in return on assets (ROA) of listed consumer goods firms in Nigeria caused by changes in accounts

receivable turnover ratio is significant. The T-test was carried out at .05 significance level with Ttab of 2.131 given at $t_{0.05,15}$. From the results above, the Tcal of 3.1279 is greater than Ttab given at $t_{0.05,15}$. Hence, the null hypothesis which states that accounts receivable turnover ratio has no significant effect on return on assets of listed consumer goods firms in Nigeria fails to hold, thus rejected, and the alternative hypothesis accepted. The null hypothesis is further rejected given that at $t_{0.05,15}$, its probability value (p-value = 0.0012) is less than 0.05.

H₀₂: *Accounts payable turnover ratio has no significant effect on return on assets of listed consumer goods firms in Nigeria*

In the same vein, the T-test was carried out at .05 significance level with Ttab of 2.131 given at $t_{0.05,15}$ to test whether the variations in return on assets (ROA) of listed consumer goods firms in Nigeria caused by changes in accounts payable turnover ratio is significant. From the results above, the Tcal of 0.2672 is less than Ttab given at $t_{0.05,15}$. Hence, the null hypothesis which states that accounts payable turnover ratio has no significant effect on return on assets of listed industrial goods firms in Nigeria holds, thus accepted, and the



alternative hypothesis rejected. The null hypothesis is further accepted given that at $T_{0.05,15}$, its probability value (p-value = 0.7897) is greater than 0.05.

H₀₃: Inventory turnover ratio has no significant effect on return on assets of listed consumer goods firms in Nigeria

In addition, in testing whether the variations in return on assets (ROA) of listed consumer goods firms in Nigeria caused by changes in inventory turnover ratio is significant. The T-test was carried out at .05 significance level with T_{tab} of 2.131 given at $T_{0.05,15}$. From the results above, the T_{cal} of 2.325 is greater than T_{tab} given at $T_{0.05,15}$. Hence, the null hypothesis which states that inventory turnover ratio has no significant effect on return on assets of listed consumer goods firms in Nigeria fails to hold, thus rejected, and the alternative hypothesis accepted. The null hypothesis is further rejected given that at $T_{0.05,15}$, its probability value (p-value = 0.0472) is less than 0.05.

4.4 Discussion of findings

The study found a significant positive relationship between accounts receivable turnover ratio and return on assets of listed consumer goods firms in Nigeria. This means that companies that collect their receivables quickly tend to have higher returns on assets. Efficient accounts receivable management is crucial for enhancing financial performance. This aligns with the findings of Adams *et al.* (2020) which documented that the account receivable turnover ratio has a significant impact on the return on assets of listed Industrial goods firms in Nigeria, demonstrating the strong relationship between efficient receivables management and financial performance. Contrary to a priori expectation, the study found no significant relationship between accounts payable turnover ratio and return on assets of listed consumer goods firms in Nigeria. This suggests that the timing of payments to suppliers does not have a significant impact on returns on assets. This finding may be due to favorable credit terms negotiated by companies in the consumer goods sector. This is in line with the position of Smith (2021). Smith (2021) documented that account payable turnover ratio has a significant relationship with the return on assets of listed Industrial goods firms in Nigeria, highlighting the importance of effective payables management in driving financial performance. The study also documented a significant positive relationship between inventory turnover ratio and return on

assets of listed consumer goods firms in Nigeria. This means that companies that sell their inventory quickly tend to have higher returns on assets. Efficient inventory management is essential for enhancing financial performance in the consumer goods sector. This is in line with the findings of Oyewo and Olufemi (2021). Their study revealed that inventory turnover ratio significantly affects the return on assets of listed Industrial goods firms in Nigeria, emphasizing the vital link between effective inventory management and financial performance.

V. CONCLUSION AND RECOMMENDATIONS

This study examined the effect of the cash conversion cycle on financial performance of listed consumer goods firms in Nigeria. The cash conversion cycle is a critical component of a firm's working capital management, as it affects a firm's liquidity, profitability, and overall financial performance. Effective management of the cash conversion cycle is essential for firms to optimize their working capital, reduce their risk exposure, and improve their financial performance. This study contributes to the existing literature on working capital management and financial performance, providing insights into the relationship between the cash conversion cycle and financial performance in the context of listed consumer goods firms in Nigeria. The findings of this study have implications for policymakers, practitioners, and researchers seeking to understand the role of working capital management in driving financial performance. Based on the findings of this study, the following recommendations should be adhered to.

1. Listed consumer goods firms in Nigeria should prioritize efficient accounts receivable management by implementing effective credit policies, credit monitoring, and debt collection strategies.
2. Listed consumer goods firms in Nigeria should negotiate favorable credit terms with their suppliers to reduce their accounts payable period.
3. Listed consumer goods firms in Nigeria should implement just-in-time inventory management systems, reduce inventory holding costs, and optimize their inventory levels to improve their financial performance.

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