

## WORKING CAPITAL MANAGEMENT AND PROFITABILITY OF FIRMS QUOTED IN NIGERIA

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### Abstract

This research analyses the impact of working capital management on the profitability of firms listed in Nigeria during the period from 2019 to 2024. This study employs a quantitative, ex-post-facto research design, analysing a sample of 25 firms across three sectors: industrial goods, healthcare, and construction/real estate, drawn from the population of all listed firms in the Nigerian exchange group. The researcher performs a preliminary analysis utilising descriptive statistics and a pairwise correlation matrix before executing the panel regression analysis. We conducted the Hausman specification test as a diagnostic tool for the analysis. The research results show a mixed picture: working capital turnover and current ratio have positive but not strong effects on profitability, while the cash conversion cycle has a negative and strong effect on the profitability of listed firms in Nigeria. The study concludes that liquidity and turnover are significant elements of working capital management; however, they do not independently influence profitability. Conversely, an increase in the cash conversion cycle is likely to result in a substantial reduction in firm profits. The study suggests that firm management should develop strategies to enhance profitability by reducing cash conversion cycles, ensuring optimal liquidity levels, and implementing best practices from established firms.

**Keywords:** *Working capital turnover, current ratio, cash conversion cycle, profitability.*

### Introduction

Business is considered the lifeblood of a developing economy and is essential to a nation's capital formation. Effective and efficient corporate management is so crucial. The acquisition of funds and their effective use to maximise returns are two of the biggest challenges facing fund managers today (Ntui Ponsian et al., 2014). Because it has a direct impact on the company's profitability, working capital management, or WCM, is a crucial corporate financial decision. Effective working capital management is essential, particularly for manufacturing companies whose assets are primarily made up of current assets, particularly inventory and trade receivables (Arunkmar & Ramanan, 2013).

Working capital management, or WCM, is essential to an organization's operational and financial success and goes well beyond simple math calculations. Effective working capital management becomes essential in today's fast-paced and uncertain company climate, which is marked by

technological innovation, shifting customer behaviour, and difficulties with the global supply chain.

Regardless of the type of business, WCM is a delicate and significant aspect of financial management that needs to be carefully considered (Dinku, 2013). Every organisation, whether it is profit-oriented or not, requires some level of management and working capital, regardless of its size and type of business. It is crucial for preserving the company's liquidity, lifespan, solvency, and profitability (Atta, Javed, Khalil, Ahmad, & Nadeem, 2017). One of the key components of many businesses' financial management is working capital administration. It addresses the selection of a company's present asset and liability composition (Mansoori & Muhammad, 2012).

According to Windaus (2014), working capital is a trustworthy measure of sound management and provides a clear picture of how well a business is run. Working capital management, or WCM, is a crucial business decision since it has a huge impact on the organisation's profitability. The challenges of managing current assets and current liabilities, as well as the relationship that exists between them, are related to WCM. Every choice pertaining to the management of current assets and liabilities is taken into account by WCM, including figuring out the ideal ratio of cash, receivables, inventory, and current liabilities as well as the link between them (Abuzayed, 2012). The money given to the company for a short period of time, usually a year, is referred to as working capital. It is a gauge of a business's effectiveness and immediate financial stability. It displays if a business has enough short-term assets to pay off its short-term debt. In addition to covering daily operational costs, working capital is needed to maintain inventory of consumables, work-in-progress, finished goods, raw materials, and spare components as well as to cover overdrafts. It is essential to a company's operational cycle (Rawat & Dave, 2017). The industry a business operates in, the number of credit days that creditors and debtors grant, and the amount of stock that must be maintained all affect how much working capital a business needs (Kosgey & Njiru, 2016). To make sure they have adequate resources to carry on with their daily operations, businesses need to keep an eye on their working capital (Runyora, 2012).

### **Statement of the problem**

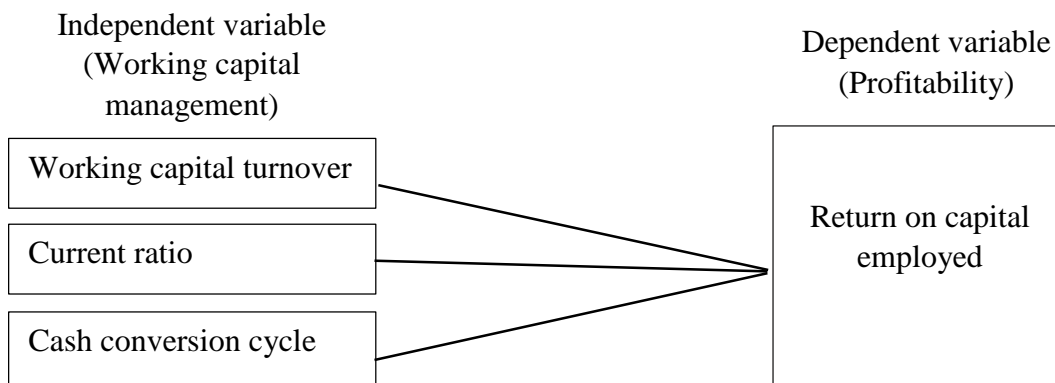
Despite the recognised importance of working capital management, numerous organisations, particularly in emerging markets such as Nigeria, face challenges in achieving optimal equilibrium between their short-term assets and liabilities. These firms frequently encounter cash flow constraints, wherein inadequate cash limits their capacity to meet daily operational expenses or seize growth opportunities, resulting in significant operational challenges. Egbide (2009) found that many business failures historically stem from financial managers' inadequacies in planning and controlling their firms' working capital. The inadequacies reported among financial managers continue to manifest in numerous organisations today, as evidenced by high bad debts and elevated inventory costs, which negatively impact operating performance (Osisioma, 2017).

Current research indicates that various factors influence firm profitability, with working capital measures, including the quick ratio and current ratio, potentially impacting profitability (Hery, 2018). Despite the significance of working capital management, there has been limited research on the impact of working capital turnover and the cash conversion cycle on the profitability of firms in Nigeria, indicating a notable gap in the literature.

This research seeks to investigate the influence of various aspects of working capital management on profitability among firms in Nigeria. It proposes strategic methods to enable firms to attain a sustainable and effective equilibrium between liquidity and profitability. The study utilises working capital turnover, current ratio, and cash conversion cycle as independent variables, with the return on capital employed serving as the dependent variable.

**LITERATURE REVIEW**

**Conceptual clarification**



**Fig1:** Conceptual framework of variables

**Source:** Researcher’s estimate, (2025)

**Concept of working capital management**

Working capital is defined as the difference between current assets and short-term liabilities. According to ICAN (2014), working capital is defined as the funds necessary for an entity to sustain its daily operational assets. Ani, Okwo, and Ugwunta (2012) define working capital as inventory that can be converted or resold for profit. For effective business operation, an enterprise must incur costs related to inventories and engage in credit sales of its goods or services. Maintaining inventories and extending credit incur financial costs (ICAN, 2014). Guthmann (1953), as referenced by Ismail, Mohammed, and Wan Mohammed (2015), defines working capital as “the portion of a firm’s current assets that is financed by long-term funds.” According to Napompech (2012), working capital refers to the amount allocated to an entity’s current assets in relation to the current liabilities used to finance this investment.

**Working capital turnover**

Lina (2013) described the working capital turnover ratio as an effective metric for assessing a firm's proficiency in managing its assets. It offers observations about the management of its working capital. The working capital turnover ratio indicates the effectiveness with which a firm utilises its working capital to produce revenues. People commonly use this ratio to evaluate liquidity by comparing current assets to current liabilities. Moreover, it assesses capacity to fulfil short-term debt obligations (Diddimani & Ishwara, 2014). Companies require capital to conduct their business operations, and this capital is referred to as working capital. The company expects to quickly recover any working capital it provides after selling its products in each period (Widagdo & Sa'diyah, 2021). Working capital turnover refers to the conversion of cash funds into components of working capital, which are then invested to generate cash returns.

**Current ratio**

The current ratio is characterised as an assessment of a company's capacity to produce cash to fulfil its short-term financial obligations. Avo (2013) posited that the current ratio serves as a barometer for a challenging financial landscape, indicating that the firm possesses sufficient resources to sustain its operations. Hina (2014) defined it as the proportion of a firm's current assets relative to its liabilities. A ratio below one (1) signifies potential liquidity challenges, as it suggests that the firm's total liabilities exceed its total assets, thereby indicating an inability to meet short-term debt obligations. In connection with the aforementioned definitions, Onyimba (2015) posited that the current ratio serves as a prevalent indicator of liquidity, calculated by comparing current assets to current liabilities. It is recommended that this ratio be maintained at two to one (2:1), signifying

that the firm possesses the capability to convert its assets into cash, as working capital plays a crucial role in achieving profitability for the firm. The firm's ability to transform its assets into liquid cash reflects its proficiency in managing working capital, which must be maintained at a standard level to prevent insolvency.

### **Cash Conversion Cycle**

The cash conversion cycle denotes the duration, measured in days, between a company's disbursement for payables and its receipt for receivables. The credit collection policy of the firm influences accounts receivable in relation to the rate at which receivables are converted into cash. Implementing a policy that allows customers a more extended period may enhance profitability; however, the process could compromise liquidity (Erik, 2012). There is a consensus among scholars that a shorter conversion period in days enhances liquidity and profitability.

### **Concept of profitability**

The main objective of any business organisation is profit generation; thus, profit maximisation serves as the fundamental impetus for the organisation. Profitability represents the capability of each firm (Agha, 2014). This measurement reflects the efficiency of management in utilising business resources to generate profit. Profit for a firm is determined by subtracting expenses incurred in generating income from the firm's revenue; therefore, profitability is assessed based on revenue and expenses. Return on assets (ROA), return on investment (ROI), return on equity (ROE), and profit before interest and tax (PBIT) serve as metrics for assessing firms' profitability in existing literature (Ricci & Vito, 2000; Owolabi & Alu, 2012; Otekinrin et al., 2019).

### **Theoretical framework**

The study hinges on Trade-Off Theory

#### *Trade-Off Theory*

The trade-off theory, introduced by Myers (1984) and referenced in Onyimba (2015), emphasises the risk and return trade-offs associated with various working capital strategies. Excessive working capital leads to cash being immobilised in accumulated inventory, which may result in waste and theft, reduced management efficiency, and subsequent profit loss. Conversely, insufficient working capital results in stagnated growth, heightened operational inefficiencies, and consequently diminished profitability (Pandey, 2007). A more aggressive working capital strategy characterised by low investment in working capital is associated with higher returns and increased risk, while a conservative strategy involving high investment in working capital tends to yield lower returns and reduced risk (Gitman & Zutter, 2014). Onyimba (2015) posited that trade-off theory exists between hedging and conservative theories, providing a viable financing strategy. The hedging theory is associated with higher profits, whereas the conservative approach is linked to increased risks, and neither effectively supports competent management of working capital. The trade-off theory provides a financing decision that occupies a position between these two theories. The specific trade-off between profitability and risk varies for each issue and is contingent upon the perceptions of decision-makers. A potential trade-off involves addressing the majority of monthly financial needs within a manageable timeframe, where the extent of these needs may be financed through a long-term source, while any supplementary support may require short-term financing.

### **Empirical review**

Emmanuella, Taiwo, Amos, and Mike (2022) looked into how managing working capital affects profits in Nigeria's industrial goods sector. We chose companies in the industrial goods sector, got data from the Nigerian Stock Exchange Factbook (2011–2020), and made seventy (70) observations. The regression analysis showed that there is a positive link between managing working capital (CCC, CR, QR, and WCTR) and ROA. There was a significant negative relationship between the current ratio (CR) and return on assets (ROA), while there was a positive but not

significant relationship between the cash conversion cycle (CCC), quick ratio (QR), and ROA. When tested at the 0.05 level of significance, WCTR and ROA do not have a significant or negative relationship.

Otekunrin, Nwanji, Fagboro, Olowookere, and Adenike (2021) looked at how managing working capital affected the profits of some listed agricultural and agro-allied companies in Nigeria between 2012 and 2016. We got secondary data from 18 of the 23 companies in Nigeria. Four of these companies are in agriculture. We looked at the data using a descriptive research design and a regression analysis. The results show that the time it takes to collect trade receivables and the time it takes to pay trade payables are both negatively related to profitability. The time it takes to turn over inventory and the time it takes to convert cash are both positively related to profitability.

Ibrahim, Usaini, and Elijah (2021) look into how managing working capital affects how well a business does. The study used a qualitative design and gathered data from 15 companies between 2005 and 2014 using secondary data sources from other empirical studies. We used the regression results from the empirical studies we looked at to analyse the study's data. The study finds that a longer cash conversion cycle and a longer debtors' collection period are linked to worse business performance. This means that these factors have a big effect on profitability, either for better or for worse. The study finds that a longer payment period for creditors is linked to better business performance, which leads to higher profits.

Olaoye and Okunade (2020) examined the relationship between working capital management and the profitability of publicly listed manufacturing firms in Nigeria. The research utilised secondary data from a sample of 10 listed manufacturing companies in Nigeria, covering the period from 2008 to 2017. The analysis employed a correlation matrix, Hausman test, trend analysis, and panel regression techniques. The study indicated that while the creditors payment period significantly affects profitability, the inventory turnover days and accounts receivable period do not show significant effects. This study suggests that effectively managed CPP over time could benefit manufacturing entities by improving their financial performance.

Oladimeji and Aladejebi (2020) analyse the influence of working capital management on the profitability of SMEs in Nigeria employed a quantitative research methodology, utilising pertinent secondary data derived from the annual financial reports of selected SMEs. Regression analysis was employed to assess the significance of working capital (WC) variables in predicting the profitability of SMEs. The findings indicate that between 2014 and 2018, there is no relationship between working capital management and the profitability of small and medium-sized enterprises. The study suggests that government policy should focus on fostering the growth of SMEs, while SMEs should implement prudent working capital policies and strategic measures to enhance their working capital structure and, consequently, their profitability in Nigeria.

Abdulazeez, Baba, Fatima, and Abdulrahman (2018) analyse the influence of working capital management on the financial performance of publicly listed conglomerate firms in Nigeria, covering a decade from 2005 to 2014. The study's data were quantitatively obtained from the annual reports and accounts of the companies under investigation. The research utilised descriptive statistics, assessed multi-collinearity, and applied Ordinary Least Squares (OLS) regression for data analysis. The analysis revealed a negative correlation between the debtor's collection period, creditors' payment period, and firm size with return on investment. Conversely, the cash conversion cycle exhibited a positive yet insignificant relationship with the financial performance of the companies examined.

Micheal, Segun, and Taiwo (2017) examined the impact of working capital management on the financial performance of publicly listed consumer goods manufacturing firms in Nigeria, specifically analysing its influence on return on assets and gross operating profit. The secondary data utilised were derived from annual financial statements spanning ten years, from 2005 to 2014, of a

purposively sampled group of fifteen firms. The researchers employed basic statistical methods to examine differences, drew conclusions through correlation analysis, and utilised panel regression to evaluate their hypotheses regarding performance and working capital management indicators. The results indicate that effective management of working capital enhances financial performance. In summary, a negative correlation is observed between the cash conversion cycle (CCC) and financial performance, whereas a positive correlation exists between the creditors' payment period, debtors' collection period, and financial performance.

Maisiba et al. (2017) discovered that TRCP and TPPP, both indicators of WCM, adversely affected profitability. A total of 44 retail trades were selected in Kenya. The liquidity ratio, debt ratio, and current ratio significantly affect profitability.

Kwadwo (2016) examined the impact of effective inventory management on profitability in select manufacturing firms in Ghana, revealing a significant positive correlation between raw materials, inventory management, and profit levels.

Sabo (2016) examined the relationship between working capital management and profitability in publicly listed Nigerian building material firms. The research utilised secondary data sourced from the annual reports and accounts of the companies covering the period from 2007 to 2014. The analysis employed a regression technique utilising panel data, descriptive statistics, a correlation matrix for each variable, and regression results concerning liquidity management and return on assets (ROA). The analysis revealed a negative and statistically insignificant relationship between the debt collection period, inventory conversion period, and return on assets (ROA). A notable negative relationship was identified among the credit payment period, company size, and ROA. The Inventory Conversion Period (ICP) and Debt Collection Period (DCP) exhibited negative and insignificant effects on Return on Assets (ROA).

Ogbuji and Ogunyomi (2014) conducted a study on the relationship between working capital management policy and financial performance in the Nigerian foods and beverage industry, using Nestle Nigeria Plc as the case study. The study spans a period of five (5) years, from 2008 to 2012. The cash conversion cycle measured working capital management, while return on assets measured financial performance. The results revealed that a negative, significant relationship existed between working capital management and profitability performance, and at the same time, a negative, insignificant relationship existed between working capital management and liquidity performance.

### **Gaps in research knowledge**

Only a few studies evaluated the effect of working capital management on profitability in Nigeria, with most of these studies focusing on a specific sector. Other studies available adopted various variables for working capital management, such as quick ratio, current ratio, etc., with barely any study using working capital turnover. The effect of working capital management is a growing concern to researchers, as there appears to be limited empirical literature in this area, especially in Nigeria, with most of these studies being anchored on pecking theory as well as agency theory. Hence, to fill the gap in literature, the present study value was conducted using working capital turnover, current ratio, cash conversion cycle, and return on capital employed for the period 2019-2024 and anchored on the theory of the cash conversion cycle, supported by the tradeoff theory.

## **METHODOLOGY**

### **Research Design**

The study adopts a quantitative, ex-post-facto research design to explore the causal relationships between working capital management practices and firm profitability. We analyse historical data from published financial reports. This non-intrusive approach is ideal for capturing the real-world

dynamics of financial management practices as well as determining the cause-effect relationship between the independent and dependent variables.

### Population of the study

The population for this study comprises all companies listed on the Nigerian Exchange Group (NGX) as of December 2024 from each sector available, selected to provide an analysis of financial and operational trends. During the study period, the selection criteria prioritised liquidity, market capitalisation, and data availability to ensure robustness and relevance for comparative analysis.

### Sampling and sampling technique

The project employs a sampling probability proportional to size. The study selected three (3) strategic sectors: construction/real estate (7), industrial goods (12), and healthcare (6), which serve as representatives for a balanced cross-sector comparison.

### Model specification

In order to test the hypotheses and ensure the robustness and generalisability of the findings, the study will incorporate alternative model specifications and sensitivity analyses before presenting the primary model. We formulated the following model.

$$\text{PROF} = \alpha_0 + \beta_1 \cdot \text{WCT} + \beta_2 \cdot \text{CR} + \beta_3 \cdot \text{CCC} + \beta_4 \cdot \text{NOE} + \beta_5 \cdot \text{CAGE} + \varepsilon$$

Where:

PROF	=	Firm profitability
WCT	=	Working capital turnover
CR	=	Current capital
CCC	=	Cash Conversion Cycle
NOE	=	Number of employees
CAGE	=	Company age
$\alpha_0$	=	Constant term
$\beta$	=	Beta factor
$\varepsilon$	=	Stochastic error term representing unobserved influences

### Data Analysis

In this section, the researcher performs preliminary pre-regression analysis such as descriptive statistics, correlation analysis and Hausman test.

### Descriptive analysis

The table below presents the results of the study's descriptive statistics. Particularly, the study examines the descriptive statistics for both the explanatory and dependent variables of interest. We examine each variable based on the mean, standard deviation, maximum, and minimum of 150 observations.

Table 4.1 Descriptive statistics

Variable	Obs	Mean	Std. dev.	Min	Max
Year	150	2021.5	1.713547	2019	2024
Company1	150	13	7.23526	1	25
ReturnOnCa~d	150	.0681053	.4011174	-1.9461	2.907
WorkingCap~r	150	-.6200667	42.32572	-484.94	117.63
CurrentRatio	150	1.499733	1.637388	0	7.2
CashConver~e	150	-178.76	731.5993	-2736	2393
NumberOfEm~s	127	1665.386	4531.764	0	21649
Company_Age	150	44.3	20.5517	5	84

**Source: SPSS**

Although the standard deviation of 0.4011 demonstrates that there are great variations across companies, with some losing money and others generating very high profits, the table above shows that, on average, corporations generate a 6.81% profit for every \$1 they invest. The analysis reveals that the average working capital turnover for the independent variable is -0.62, with a very high standard deviation and a wide range from -484.94 to 117.63, therefore stressing major issues in how businesses handle their working capital to produce income. While the minimum ratio of 0 and maximum of 7.2 indicate that some companies might be either very short on cash or have too much, indicating possible problems in how they use their assets, the average current ratio of 1.5 suggests that most companies have enough cash to cover short-term debt. Regarding the independent variable, the research reveals that the average working capital turnover is negative at -0.62, with a very high standard deviation and a wide range from -484.94 to 117.63, so pointing out major issues and discrepancies in how businesses handle and transform their working capital into income. The average current ratio of 1.5 indicates that most companies have enough cash on hand to pay their short-term debts; yet, the lowest ratio of 0 and the highest ratio of 7.2 indicate that some companies might not have enough or might have too much, so suggesting possible issues in their asset management. The study also reveals that the cash conversion cycle (CCC) has a negative mean of -179 days, implying that many businesses collect cash from consumers before paying suppliers, which is favourable for liquidity, yet the great standard deviation of 732 days and extreme values from -2736 to 2393 days expose great operational differences and possible data outliers or industry-specific practices. Suggestions so might be made that some companies might have reporting discrepancies or cash flow inefficiencies. The mean is 1665.38 and the standard deviation is 4531.76 for the first control variable of the study—the number of employees—which indicates mid-sized businesses but the high standard deviation indicates that firm sizes vary greatly, from small businesses to large corporations. With a mean of 44.3 and a standard deviation of 20.5517, the second control variable, company age, indicates that most businesses are mature and well-established, therefore implying experience in negotiating market conditions and applying financial strategies. Working capital, current ratio, cash conversion cycle, number of employees, and firm age disclose in the table the correlation matrix displaying the linear relationship between the dependent variable (return on capital) and the independent and control factors. The study shows that, in the framework of the sampled companies, most of the correlations among these factors are weak and statistically insignificant, implying that the variables function apart from one another. Suggesting that variations in turnover have little effect on profitability, the correlation between return on capital employed (ROCE) and working capital turnover is weakly positive (0.0643) and statistically insignificant ( $p = 0.434$ ). ROCE and the current ratio show a weak negative correlation (-0.1408) with a  $p$ -value of 0.0857, which indicates that liquidity has little direct effect on profitability in this context. ROCE and the cash conversion cycle show a weak negative correlation (-0.1408)

with a p-value of 0.0857, which is marginally significant, but still implies that shorter cash cycles may support better profitability.

**Correlation analysis**

The researcher looked at the relationship between important financial and company-level factors for 29 listed companies in Nigeria from 2019 to 2024 using the Pairwise Pearson Correlation Coefficients (correlation matrix).

**The results are presented in Table 4.2.**

Table 4.2 Correlation analysis

	ReturnOnCapital	WorkingCapitalTurnover	CurrentRatio	CashConversionCycle	NumberOfEmployees	CompanyAge
ReturnOnCapital	1.0000					
WorkingCapitalTurnover	0.0643 0.4340	1.0000				
CurrentRatio	0.0596 0.4687	0.0296 0.7193	1.0000			
CashConversionCycle	-0.1408 0.0857	-0.0038 0.9627	0.1008 0.2196	1.0000		
NumberOfEmployees	0.0800 0.3711	0.1048 0.2408	-0.0703 0.4325	0.0942 0.2923	1.0000	
CompanyAge	0.1733 0.0340	-0.0795 0.3333	-0.1278 0.1191	0.0982 0.2320	-0.1045 0.2424	1.0000

Source: SPSS

Working capital, current ratio, cash conversion cycle, number of employees, and firm age disclose in the table the correlation matrix displaying the linear relationship between the dependent variable (return on capital) and chosen independent and control factors. The study shows that, in the framework of the sampled companies, most of the correlations among these factors are weak and statistically insignificant, implying that the variables function apart from one another. Suggesting that variations in turnover have little effect on profitability, the correlation between return on capital employed (ROCE) and working capital turnover is weakly positive (0.0643) and statistically insignificant ( $p = 0.434$ ). ROCE and the current ratio have a weakly positive (0.0596) and non-statistically significant ( $p = 0.468$ ) relationship that suggests that in this context liquidity has minimal direct impact on profitability. With a p-value of 0.0857, ROCE and the cash conversion cycle reveal a weak negative association (-0.1408), which is somewhat minor but nevertheless suggests that shorter cash cycles may support higher profitability. With a very weak and negligible connection between ROCE and the number of employees (0.0800,  $p = 0.371$ ), business size as expressed by staff count has little bearing on profitability. Older companies often seem to be somewhat more lucrative, maybe due to accumulated expertise and operational stability; ROCE and business age show a positive (0.1733) and statistically significant ( $p = 0.034$ ) association. Other results show that the independent variables have weak relationships with one another, such as the very little correlation between working capital turnover and current ratio (0.0296,  $p = 0.719$ ), implying that multicollinearity is not likely to influence the regression results. Finally, save from business age, which seems to have a minor but important influence in explaining variances in firm performance, most working capital factors show limited and statistically insignificant direct correlations with profitability.

### Regression analysis

Two models were estimated: the fixed effects model, which accounts for differences across companies that do not change over time, and the random effects model, which assumes that individual firm characteristics are not correlated with the independent variables.

Table 4.3: Regression Result (Fixed effect model)

Fixed-effects (within) regression		Number of obs	=	127
Group variable: Company1		Number of groups	=	24
R-squared:		Obs per group:		
Within = 0.0887		min =		2
Between = 0.0006		avg =		5.3
Overall = 0.0171		max =		6
corr(u_i, Xb) = -0.5820		F(5, 98)	=	1.91
		Prob > F	=	0.0998

ReturnOnCapitalEmplo~d	Coefficient	Std. err.	t	P> t	[95% conf. interval]	
WorkingCapitalTurnover	-.0001386	.0007394	-0.19	0.852	-.001606	.0013288
CurrentRatio	.054696	.0438896	1.25	0.216	-.0324015	.1417935
CashConversionCycle	-.0002997	.0001065	-2.81	0.006	-.0005111	-.0000884
Company_Age	-.0024808	.0199135	-0.12	0.901	-.0419986	.037037
NumberOfEmployees	.0000299	.0000583	0.51	0.609	-.0000857	.0001456
_cons	-.0172416	.8933169	-0.02	0.985	-1.79	1.755517
sigma_u	.42518363					
sigma_e	.34335127					
rho	.60528471					(fraction of variance due to u_i)

F test that all u_i=0: F(23, 98) = 3.69	Prob > F = 0.0000
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**Source:** SPSS Output

The table shows the findings of the fixed effects model, which showed that majority of the working capital variables did not have a statistically significant effect on profitability. Specifically, working capital turnover showed a negative coefficient of -0.0001386 and a p-value of 0.852, which means that there was no significant link between turnover efficiency and return on capital employed (ROCE). The current ratio showed a positive coefficient of 0.0547, but it wasn't significant (p = 0.216). This means that short-term liquidity doesn't have a noticeable effect on profitability in this model. The age of the company and the number of employees likewise didn't have a big effect, with p-values of 0.901 and 0.609, respectively. In this scenario, nevertheless, the cash conversion cycle was the most important. It had a negative and statistically significant coefficient of -0.002997 (p = 0.006), which means that businesses with longer cash conversion cycles tend to make less money. This research backs up the assumption that taking too long to turn working capital into cash might hurt a company's financial success.

Table 4.4 Regression Analysis (Random effects model)

Random-effects GLS regression	Number of obs	=	127
Group variable: Company1	Number of groups	=	24
R-squared:	Obs per group:		
Within = 0.0830	min	=	2
Between = 0.1462	avg	=	5.3
Overall = 0.0887	max	=	6
corr(u_i, X) = 0 (assumed)	Wald chi2(5)	=	10.99
	Prob > chi2	=	0.0516

ReturnOnCapitalEmplo~d	Coefficient	Std. err.	z	P> z	[95% conf. interval]	
WorkingCapitalTurnover	.0000293	.0007148	0.04	0.967	-.0013717	.0014304
CurrentRatio	.0463528	.0323334	1.43	0.152	-.0170195	.1097252
CashConversionCycle	-.0001834	.0000711	-2.58	0.010	-.0003229	-.000044
Company_Age	.0076423	.0035638	2.14	0.032	.0006574	.0146271
NumberOfEmployees	.0000147	.0000155	0.95	0.343	-.0000157	.0000451
_cons	-.3964992	.1989506	-1.99	0.046	-.7864353	-.0065631
sigma_u	.30093428					
sigma_e	.34335127					
rho	.43444842	(fraction of variance due to u_i)				

**Source:** SPSS

On the other hand, outcomes were marginally different when using the random effects model. Its findings on working capital turnover and current ratio were similar to those of the fixed effects model: neither was statistically significant (p = 0.967 for working capital turnover and 0.152 for current ratio). Two variables, however, showed statistical significance when tested using this model. First, with a negative coefficient of -0.001834 (p = 0.010), the cash conversion cycle was still statistically significant, further proving that lengthier cash cycles hurt profitability. The second finding is that profitability is positively and significantly correlated with company age (r=0.0076423, p=0.032). It appears that companies with a longer history tend to have better financial results. This could be due to their wealth of knowledge, strong position in the market, and internal consistency. Staffing levels, meanwhile, continued to show no discernible correlation to bottom-line results. A Hausman test was run to find out which of the two models was better suited for the study. To determine if there is a systematic discrepancy in the estimates, the test contrasts the fixed effects model with the random effects model.

**Hausman specification test**

The Hausman test was performed to identify the suitable model between fixed effects and random effects estimations for examining the relationship between working capital management and profitability of listed firms in Nigeria. The assessment examines the reliability and effectiveness of both models by determining if the variations in their coefficients are systematic. The Hausman test yielded a chi-square statistic of 3.60, accompanied by a p-value of 0.6082. The p-value exceeds the conventional 5% significance threshold, leading to the conclusion that the null hypothesis, which posits that the differences in coefficients are not systematic, remains unchallenged. This indicates that the random effects model demonstrates greater efficiency and suitability for this study, given its assumption that the unobserved individual firm effects are uncorrelated with the explanatory variables. As a result, the interpretations and conclusions drawn in this study rely on the findings from the random effects model, which offers a broader understanding of the impact of working capital management on the profitability of Nigerian listed firms during the period from 2019 to 2024.

**Test of hypotheses**

Consequently, it was imperative to assess the random effect data to evaluate the study's hypotheses. The following is a detailed study of each independent variable utilising random effects regression.

Hypothesis 1: *There is no significant effect of working capital turnover on the profitability of listed firms in Nigeria.*

The random effects model's regression result shows that the working capital turnover coefficient is 0.0000293 and the p-value is 0.967. The coefficient's sign is positive, which means there is a small positive link with return on capital employed (ROCE), but the finding is not statistically significant because the p-value is much higher than 5%. This means that changes in working capital turnover don't really explain why certain listed companies in Nigeria are more profitable than others. So, the null hypothesis is not rejected, which means that working capital turnover did not have a big effect on profitability during the study period. This means that how often organisations turn their working capital into sales doesn't have much of an effect on how well they do financially.

Hypothesis 2: *Current ratio has no significant effect on the profitability of listed firms in Nigeria.*

According to the findings from the random effects regression analysis, the current ratio exhibits a coefficient of 0.0463528, accompanied by a p-value of 0.152. This outcome suggests a modest positive correlation between a firm's liquidity and its profitability, as assessed through ROCE. Nonetheless, the relationship lacks statistical significance as the p-value surpasses the 5% threshold for significance. Consequently, the null hypothesis remains unrefuted. The findings indicate that although liquidity plays a role in operational efficiency, it does not substantially influence the profitability of publicly listed companies in Nigeria as examined in this study. Companies may exhibit differing degrees of current assets in relation to their liabilities; however, this variability does not invariably lead to enhanced financial performance.

Hypothesis 3: *Cash conversion cycle does not significantly affect the profitability of listed firms in Nigeria.*

The outcome for the cash conversion cycle within the random effects model reveals a coefficient of -0.001834 accompanied by a p-value of 0.010. The coefficient demonstrates statistical significance at the 5% level, with the negative sign indicating an inverse relationship between the cash conversion cycle and profitability. To put it differently, an extended duration for a firm to transform its investments in inventory and other resources into cash is generally associated with a decline in profitability. Consequently, the null hypothesis is dismissed, signifying that the cash conversion cycle exerts a substantial adverse impact on the profitability of publicly traded companies in Nigeria. This outcome highlights the significance of adept working capital management, wherein minimising delays in the operating cycle can substantially enhance financial performance.

### **Discussion of findings**

The results indicated that working capital turnover exhibited a positive yet statistically insignificant association with profitability. This suggests that the effectiveness of firms in transforming working capital into sales does not substantially affect their financial performance during the study period. This study contradicts the findings of Emmanuella et al. (2022), which indicated a negative and insignificant relationship between working capital turnover and profitability. It aligns with the findings of Diddimani and Ishwara (2014), Lina (2013), and Mobeen and Naveed (2013), which indicated a positive and significant relationship with profitability. This suggests that an increase in working capital turnover is anticipated to significantly enhance profitability. The insignificance observed in this study may be due to sectoral differences or differing operational efficiencies among firms.

The current ratio exhibited a positive yet insignificant effect on profitability, indicating that elevated liquidity levels do not necessarily lead to enhanced returns. The findings did not align with those of Emmanuella et al. (2022), which indicated a positive and significant relationship between CR and profitability. The findings suggest that although liquidity and turnover are significant elements of working capital management, they may not independently influence profitability in Nigerian listed firms.

The cash conversion cycle demonstrated a statistically significant negative impact on profitability. Firms that take longer to convert inventory and receivables into cash generally exhibit lower returns on capital employed. This result contradicts the findings of Emmanuella et al. (2022) and Mohammed (2015), which indicated no significant relationship between CCC and profitability as measured by ROA. However, it is consistent with the results of Pham, Nguyen, and Nguyen (2020) and Akindele and Odusina (2015), which showed that CCC was negatively but insignificantly related to profitability. The findings highlight the significance of effectively managing operating cycles by reducing delays in inventory turnover and receivable collection, while extending payable periods when feasible to improve profitability.

Furthermore, the study discovered that firm age had a positive and significant impact on profitability, implying that older businesses are more likely to do well due to their knowledge, established processes, and stronger market positioning. In contrast, the number of employees was not a significant predictor of profitability, implying that business size in terms of personnel does not have a direct impact on financial outcomes unless it is combined with operational efficiency.

### Conclusion

Effective working capital management is essential for profitability and operational efficiency in today's competitive and capital-constrained corporate climate. It determines a firm's ability to invest, grow, and create shareholder value as well as short-term responsibilities. Long-term survival and performance require efficient working capital management, especially in emerging countries like Nigeria where external money is scarce. Working capital turnover and current ratio had positive but statistically negligible effects on profitability, whereas the cash conversion cycle had a significant negative influence. These findings suggest that liquidity and turnover are key working capital management components, but they may not drive profitability in Nigerian listed enterprises. It also emphasises the importance of managing the cash operating cycle in corporate performance. Effective inventory and receivables management made firms with shorter cash conversion cycles more profitable. Profitability was positively and significantly correlated with business age, demonstrating that maturity and experience improve financial performance. In contrast, firm size measured by employees did not affect profitability. The study emphasises the strategic importance of working capital management, particularly the efficiency of the cash conversion cycle, in Nigerian listed corporations' profitability. To enhance cash flow and returns on capital, enterprises should optimise operating cycles rather than traditional liquidity methods. The study's findings and conclusions suggest the following recommendations: Companies should prioritise the optimisation of their cash conversion cycle durations. Minimising the duration required to convert inventory and receivables into cash allows firms to lower financing costs and improve profitability; Managers must implement strategic liquidity management practices to optimise the utilisation of current assets in generating returns. The current ratio does not significantly influence profitability; however, firms must sustain an optimal liquidity level to fulfil short-term obligations while avoiding excessive idle resources.

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Appendix 1

Company	Sector	Year	Opening Inventory	Closing Inventory	COGS	Number Of Employees	Average Inventory	Average Working Capital	Capital Employed	Days Inventory Outstanding (DIO)	Days sales Outstanding (DSO)	Days Payable Outstanding (DPO)	Return On Capital Employed	Working Capital Turnover	Current Ratio	Cash Conversion Cycle	Company Age
AUSTIN LAZ & COMPANY PLC	INDUSTRIAL GOODS	2019	40490000	25830000	236482000	0	33160000	42320000	1527025000	51	39	11	-0.0552	4.86	7.2	80	37
AUSTIN LAZ & COMPANY PLC	INDUSTRIAL GOODS	2020	25830000	25830000	0	0	25830000	42320000	1384886000	0	0	0	-0.1026	0	7.2	0	38
AUSTIN LAZ & COMPANY PLC	INDUSTRIAL GOODS	2021	25830000	25830000	0	0	25830000	42320000	1340318000	0	0	0	-0.0333	0	7.2	0	39
AUSTIN LAZ & COMPANY PLC	INDUSTRIAL GOODS	2022	25830000	25830000	0	0	25830000	42320000	129575000	0	0	0	-0.0344	0	7.2	0	40
AUSTIN LAZ & COMPANY PLC	INDUSTRIAL GOODS	2023	25830000	25830000	0	0	25830000	42320000	129575000	0	0	0	-0.0344	0	7.2	0	41
AUSTIN LAZ & COMPANY PLC	INDUSTRIAL GOODS	2024	25830000	29074000	1159845000	0	27452000	11189000	1387237000	9	5	12	0.0042	117.63	1.28	2	42
BERGER PAINTS PLC	INDUSTRIAL GOODS	2019	606712000	812048000	192048000	179	709380000	285584000	3578424000	135	34	153	0.149	10.25	1.19	16	60
BERGER PAINTS PLC	INDUSTRIAL GOODS	2020	812048000	702294000	2418504000	153	757171000	430184000	3643005000	114	30	106	0.0579	7.29	1.32	38	61
BERGER PAINTS PLC	INDUSTRIAL GOODS	2021	702294000	1166616000	3382076000	133	934455000	607329000	3671608000	101	22	99	0.0485	6.48	1.42	24	62
BERGER PAINTS PLC	INDUSTRIAL GOODS	2022	1166616000	1366787000	4326316000	127	1266701500	955215000	3838332000	107	14	103	0.0926	5.22	1.57	17	63
BERGER PAINTS PLC	INDUSTRIAL GOODS	2023	1366787000	214826000	5214061000	130	790806500	165662000	4554102000	55	14	99	0.1756	3.78	1.81	-29	64
BERGER PAINTS PLC	INDUSTRIAL GOODS	2024	214826000	3302139000	6919726000	137	2725199500	1716601000	4699588000	144	13	97	0.2411	4.81	1.61	60	65
BETA GLASS PLC.	INDUSTRIAL GOODS	2019	623974000	6544848000	21601254000	687	6392294000	1542593000	37047712000	108	170	154	0.2163	1.91	2.03	125	45
BETA GLASS PLC.	INDUSTRIAL GOODS	2020	6544848000	7454229000	19733028000	679	6999538500	1698703000	39151335000	129	181	151	0.1306	1.51	2.15	160	46

BETA GLASS PLC.	INDUSTRIAL GOODS	2021	745422900	9179179000	27729399000	727	8316704000	23141361000	45712381000	109	153	156	0.1627	1.6	2.33	106	47
BETA GLASS PLC.	INDUSTRIAL GOODS	2022	9179179000	9617231000	43830778000	745	9398205000	25398579000	49801955000	78	176	116	0.1404	2.14	1.97	138	48
BETA GLASS PLC.	INDUSTRIAL GOODS	2023	9617231000	17743383000	50518011000	793	13680307000	22034612000	55833477000	99	165	168	0.1692	2.85	1.43	96	49
BETA GLASS PLC.	INDUSTRIAL GOODS	2024	17743383000	22960484000	86822472000	802	20351933500	33389139000	69411723000	86	201	135	0.2867	3.52	1.51	151	50
CAP PLC	INDUSTRIAL GOODS	2019	884115000	1360622000	1086087000	214	1122368500	2591020000	3434929000	377	95	585	0.2136	0.82	1.68	-113	54
CAP PLC	INDUSTRIAL GOODS	2020	1360622000	9670650000	4992905000	202	11638435000	3051980000	3910346000	85	19	161	0.4618	2.86	1.66	-57	55
CAP PLC	INDUSTRIAL GOODS	2021	9670650000	5484222000	9649521000	253	32256435000	2742085000	4583471000	122	14	214	0.3769	5.18	1.36	-78	56
CAP PLC	INDUSTRIAL GOODS	2022	5484222000	5100796000	11594947000	253	5292509000	45581170000	6936147000	167	16	105	0.4966	4.21	1.7	78	57
CAP PLC	INDUSTRIAL GOODS	2023	5100796000	5019523000	14878476000	264	50601595000	59041010000	8466760000	124	14	102	0.4463	4.05	1.85	37	58
CAP PLC	INDUSTRIAL GOODS	2024	5019523000	6648523000	21596084000	299	58340230000	81050960000	11766470000	99	12	77	0.5154	4.49	2.02	33	59
CUTIX PLC.	INDUSTRIAL GOODS	2019	1317958000	1579698000	3789320000	249	1448828000	9484200000	1828845000	140	17	14	0.3715	5.73	1.92	142	37
CUTIX PLC.	INDUSTRIAL GOODS	2020	1579698000	1782972000	3583531000	249	16813350000	14518070000	23141550000	171	54	27	0.253	3.46	2.11	198	38
CUTIX PLC.	INDUSTRIAL GOODS	2021	1782972000	2400683000	5004162000	236	20918275000	1438542000	2492941000	153	66	41	0.364	4.69	1.62	178	39
CUTIX PLC.	INDUSTRIAL GOODS	2022	2400683000	2718392000	5744432000	245	25595375000	1902794000	2977344000	163	54	44	0.3902	4.13	1.9	173	40
CUTIX PLC.	INDUSTRIAL GOODS	2023	2718392000	2954063000	6946005000	258	28362275000	2353740000	3464638000	149	62	34	0.3445	3.92	2.01	177	41
CUTIX PLC.	INDUSTRIAL GOODS	2024	2954063000	3505656000	9059079000	244	32298595000	3256498000	4545530000	130	64	39	0.3585	3.74	2.22	156	42
DANGOTE CEMENT PLC	INDUSTRIAL GOODS	2019	5982000000	6773600000	1.81009E+11	16245	63778000000	84150000000	1.41341E+12	129	7	262	0.2232	72.52	1.02	-126	27

DANGOTE CEMENT PLC	INDUSTRIAL GOODS	2020	67736000000	54545000000	2.25744E+11	16199	61140500000	15435000000	1.57745E+12	99	8	227	0.2731	46.64	1.03	-120	28
DANGOTE CEMENT PLC	INDUSTRIAL GOODS	2021	54545000000	88421000000	3.45225E+11	16700	71483000000	49804000000	1.74444E+12	76	6	227	0.3064	19.95	1.06	-145	29
DANGOTE CEMENT PLC	INDUSTRIAL GOODS	2022	88421000000	1.32704E+11	4.55122E+11	19112	1.10563E+11	1.54209E+11	1.88262E+12	89	5	124	0.2895	7.82	1.2	-30	30
DANGOTE CEMENT PLC	INDUSTRIAL GOODS	2023	1.32704E+11	1.87799E+11	6.23159E+11	19517	1.60252E+11	88642000000	1.94323E+12	94	9	127	0.2896	14.64	1.08	-24	31
DANGOTE CEMENT PLC	INDUSTRIAL GOODS	2024	1.87799E+11	3.22792E+11	9.88041E+11	21649	2.55296E+11	-2.31489E+11	3.44822E+12	94	6	155	0.3411	-9.47	0.87	-55	32
EKOCORP PLC.	HEALTHCARE	2019	50367000	12122000	1099937000	385	31244500	-1434885000	447444000	10	119	514	-0.0629	-0.87	0.23	-384	28
EKOCORP PLC.	HEALTHCARE	2020	12122000	25948000	832140000	296	19035000	-187911000	417086600	8	105	805	-0.0828	-0.52	0.15	-692	29
EKOCORP PLC.	HEALTHCARE	2021					0	0	0	0	0	0	0	0	0	0	30
EKOCORP PLC.	HEALTHCARE	2022					0	0	0	0	0	0	0	0	0	0	31
EKOCORP PLC.	HEALTHCARE	2023					0	0	0	0	0	0	0	0	0	0	32
EKOCORP PLC.	HEALTHCARE	2024					0	0	0	0	0	0	0	0	0	0	33
FIDSON HEALTHCARE PLC	HEALTHCARE	2019	2875133000	3375439000	8186458000	397	3125286000	1030140000	14246757000	139	85	62	0.0404	13.65	1.17	162	24
FIDSON HEALTHCARE PLC	HEALTHCARE	2020	3375439000	6780766000	9694516000	405	50781025000	3464899000	17693679000	191	55	82	0.1002	5.27	1.36	164	25
FIDSON HEALTHCARE PLC	HEALTHCARE	2021	6780766000	11154535000	15757782000	478	89676505000	6508720000	22133749000	208	35	103	0.2131	4.74	1.59	140	26
FIDSON HEALTHCARE PLC	HEALTHCARE	2022	11154535000	14606786000	23452464000	593	12880660500	4806573000	24970556000	200	38	109	0.2315	8.45	1.27	129	27

FIDSON HEALTHCARE PLC	HEALTHCARE	2023	14606786000	16356949000	31979445000	650	15481867500	5431400000	29137544000	177	41	104	0.2031	9.77	1.17	114	28
FIDSON HEALTHCARE PLC	HEALTHCARE	2024	16356949000	24182294000	49084616000	674	20269621500	8626147000	34042487000	151	27	77	0.2262	9.76	1.22	101	29
GREIF NIGERIA PLC	INDUSTRIAL GOODS	2019	63874000	8350000	269359000	3	36112000	-242782000	-213397000	49	410	523	1.4599	-0.37	0.37	-65	79
GREIF NIGERIA PLC	INDUSTRIAL GOODS	2020	8350000	0	0	2	4175000	137091000	137091000	0	0	0	2.907	0	1.74	0	80
GREIF NIGERIA PLC	INDUSTRIAL GOODS	2021	0	0	0	2	0	105683000	105683000	0	0	0	-0.2972	0	1.78	0	81
GREIF NIGERIA PLC	INDUSTRIAL GOODS	2022					0	0	0	0	0	0	0	0	0	0	82
GREIF NIGERIA PLC	INDUSTRIAL GOODS	2023					0	0	0	0	0	0	0	0	0	0	83
GREIF NIGERIA PLC	INDUSTRIAL GOODS	2024					0	0	0	0	0	0	0	0	0	0	84
JULIUS BERGER NIG. PLC.	CONSTRUCTION /REAL ESTATE	2019	11304296000	17858004000	1.97868E+11	12183	14581150000	72391777000	2.12813E+11	27	147	89	0.0474	3.36	2.21	85	49
JULIUS BERGER NIG. PLC.	CONSTRUCTION /REAL ESTATE	2020	17858004000	15340561000	1.89667E+11	12221	16599282500	49847723000	2.09278E+11	32	146	72	0.0386	4.72	1.61	106	50
JULIUS BERGER NIG. PLC.	CONSTRUCTION /REAL ESTATE	2021	15340561000	33992281000	2.6084E+11	13358	24666421000	1.57716E+11	3.43045E+11	35	189	121	0.0315	2.01	2.41	102	51
JULIUS BERGER NIG. PLC.	CONSTRUCTION /REAL ESTATE	2022	33992281000	40808014000	3.61325E+11	14043	37400147500	-94775634200	3.8285E+11	38	90	88	0.032	-4.49	0	40	52
JULIUS BERGER NIG. PLC.	CONSTRUCTION /REAL ESTATE	2023	40808014000	57840021000	3.6391E+11	11716	49324017500	2.53998E+11	5.10539E+11	49	84	77	0.0263	1.66	3.58	57	53

JULIUS BERGER NIG. PLC.	CONSTRUCTION /REAL ESTATE	2024	57840021000	84409815000	4.42962E+11	9419	71124918000	3.66112E+11	7.71783E+11	59	142	90	0.0179	1.35	3.86	111	54
LAFARGE AFRICA PLC.	INDUSTRIAL GOODS	2019	28921467000	25679521000	1.32508E+11	1328	27300494000	-11732271000	4.10866E+11	75	40	200	0.0592	-16.06	0.87	-85	60
LAFARGE AFRICA PLC.	INDUSTRIAL GOODS	2020	25679521000	22466615000	1.39055E+11	1379	24073068000	-25474680000	3.8081E+11	63	47	201	0.0901	-7.95	0.8	-90	61
LAFARGE AFRICA PLC.	INDUSTRIAL GOODS	2021	22466615000	36656494000	1.25135E+11	1351	29561554500	14016327000	4.00198E+11	86	45	318	0.159	18.71	1.1	-187	62
LAFARGE AFRICA PLC.	INDUSTRIAL GOODS	2022	36656494000	41896205000	1.51382E+11	1343	39276349500	39356204000	4.3925E+11	95	46	219	0.1629	8.66	1.23	-78	63
LAFARGE AFRICA PLC.	INDUSTRIAL GOODS	2023	41896205000	41380869000	1.76027E+11	1467	41638537000	43953739000	4.77121E+11	86	48	235	0.16	8.48	1.21	-100	64
LAFARGE AFRICA PLC.	INDUSTRIAL GOODS	2024	41380869000	84945706000	3.13201E+11	1455	63163287500	28121363000	5.86458E+11	74	40	221	0.2585	23.15	1.07	-108	65
MAY & BAKER NIGERIA PLC.	HEALTHCARE	2019	1463949000	1443968000	4975876000	325	14539585000	1423736000	6942628000	107	82	140	0.1289	5.4	1.56	49	75
MAY & BAKER NIGERIA PLC.	HEALTHCARE	2020	1443968000	2345677000	5414413000	337	18948225000	5286399000	10555465000	128	52	84	0.1125	1.69	2.4	95	76
MAY & BAKER NIGERIA PLC.	HEALTHCARE	2021	2345677000	3351580000	6823985000	355	28486285000	6243132000	11431428000	152	33	86	0.108	1.77	2.06	100	77
MAY & BAKER NIGERIA PLC.	HEALTHCARE	2022	3351580000	5228008000	10099256000	352	42897940000	5421594000	11732335000	155	25	74	0.1745	2.51	1.88	107	78
MAY & BAKER NIGERIA PLC.	HEALTHCARE	2023	5228008000	6430497000	12590269000	364	58292525000	4597661000	11255738000	169	18	88	0.1088	4	1.54	99	79
MAY & BAKER NIGERIA PLC.	HEALTHCARE	2024				396	0	0	0	0	0	0	0	0	0	0	80
MEYER PLC.	INDUSTRIAL GOODS	2019	131044000	107599000	70824000	91	119321500	474522000	755594000	61	105	1521	-0.0094	2.33	1.16	-1355	59
MEYER PLC.	INDUSTRIAL GOODS	2020	107599000	95150000	46908500	63	101374500	135070600	174276500	79	61	467	0.9347	0.61	2.06	-327	60
MEYER PLC.	INDUSTRIAL GOODS	2021	95150000	89854000	72573300	91	92502000	68608100	102984700	47	51	247	0.0585	1.63	1.72	-149	61

MEYER PLC.	INDUSTRIAL GOODS	2022	89854000	134392000	1016189000	109	1121230000	1115984000	1438895000	40	32	161	-0.012	1.29	3.38	-90	62
MEYER PLC.	INDUSTRIAL GOODS	2023	134392000	1941150000	1377369000	69	1642535000	1327897000	1668372000	44	59	165	0.2103	1.71	2.76	-62	63
MEYER PLC.	INDUSTRIAL GOODS	2024	1941150000	3793920000	2083089000	74	2867535000	14731530000	18246750000	50	59	147	0.2508	2.12	2.49	-38	64
MORISON INDUSTRIES PLC.	HEALTHCARE	2019	1007060000	7609200000	7472500000	19	8839900000	-10403300000	20951500000	432	242	1119	-0.4978	-0.83	0.56	-445	64
MORISON INDUSTRIES PLC.	HEALTHCARE	2020	7609200000	39869000000	10926700000	33	57980500000	-188781000000	102000000000	194	164	761	-1.0483	-0.65	0.34	-404	65
MORISON INDUSTRIES PLC.	HEALTHCARE	2021	39869000000	473230000000	110638000000	29	435960000000	-2552540000000	1251441000000	144	143	800	-0.0747	-0.55	0.3	-513	66
MORISON INDUSTRIES PLC.	HEALTHCARE	2022	473230000000	3548300000000	1313550000000	27	4140300000000	-32544500000000	11439600000000	115	115	794	-0.093	-0.48	0.23	-565	67
MORISON INDUSTRIES PLC.	HEALTHCARE	2023	3548300000000	34512000000000	11994000000000	30	34997500000000	-391735000000000	104523400000000	107	94	984	-0.0935	-0.37	0.18	-783	68
MORISON INDUSTRIES PLC.	HEALTHCARE	2024					0	0	0	0	0	0	0	0	0	0	69
NEIMETH INTERNATIONAL PHARMACEUTICALS PLC	HEALTHCARE	2019	683456000000	7727570000000	11755810000000	166	72810650000000	560837000000000	1318715000000000	226	140	145	0.2309	4.23	1.39	221	62
NEIMETH INTERNATIONAL PHARMACEUTICALS PLC	HEALTHCARE	2020	77275700000000	1439156000000000	1329701000000000	196	11059565000000000	29704200000000000	422049600000000000	304	132	190	0.0705	0.96	2.34	246	63
NEIMETH INTERNATIONAL	HEALTHCARE	2021	1439156000000000	146442100000000000	160145800000000000	202	1451788500000000000	27081000000000000000	415519400000000000000	331	153	181	0.0879	1.13	2.28	303	64

AL PHARMACEUTICALS PLC																	
NEIMETH INTERNATIONAL PHARMACEUTICALS PLC	HEALTHCARE	2022	1464421000	1719150000	2323543000	202	1591785500	-75250000	2881633000	250	139	199	-0.1347	-484.94	1	190	65
NEIMETH INTERNATIONAL PHARMACEUTICALS PLC	HEALTHCARE	2023	1719150000	2065281000	1475521000	202	1892215500	-1731676000	1966249000	468	139	636	-1.4024	-1.28	0.75	-28	66
NEIMETH INTERNATIONAL PHARMACEUTICALS PLC	HEALTHCARE	2024	2065281000	1868341000	2527394000	196	1966811000	-4110086000	2142713000	284	132	628	-0.3988	-1.09	0.58	-213	67
NOTORE CHEMICAL INDUSTRIAL GOODS PLC	INDUSTRIAL GOODS	2019	3226108000	6127981000	17503784000	548	4677044500	-37705117000	1.46639E+11	98	98	472	-0.0695	-0.57	0.25	-277	14
NOTORE CHEMICAL INDUSTRIAL GOODS PLC	INDUSTRIAL GOODS	2020	6127981000	5950222000	21678653000	491	6039101500	-30639401000	1.68028E+11	102	220	552	-0.0827	-0.61	0.42	-230	15
NOTORE CHEMICAL INDUSTRIAL GOODS PLC	INDUSTRIAL GOODS	2021	5950222000	9289549000	28783081000	466	7619885500	-81836118000	1.37877E+11	97	63	644	-0.1395	-0.31	0.19	-484	16
NOTORE CHEMICAL INDUSTRIAL GOODS PLC	INDUSTRIAL GOODS	2022	9289549000	9688013000	29401606000	547	9488781000	-71415196000	1.91656E+11	118	32	441	-0.082	-0.45	0.19	-290	17
NOTORE CHEMICAL INDUSTRIAL GOODS PLC	INDUSTRIAL GOODS	2023	9688013000	8175718000	33642177000	441	8931865500	-1.29471E+11	2.11602E+11	97	54	636	-0.5396	-0.17	0.09	-485	18
NOTORE CHEMICAL INDUSTRIAL GOODS PLC	INDUSTRIAL GOODS	2024					0	0	0	0	0	0	0	0	0	0	19

PHARMA-DEKO PLC.	HEALTHCARE	2019	255224000	293330000	312617000	103	274277000	-175573000	155836000	320	88	48	-0.1726	-2.76	0.73	360	50
PHARMA-DEKO PLC.	HEALTHCARE	2020	293330000	174102000	404963000	63	233716000	-659373000	1004338000	211	16	21	-0.3227	-0.7	0.35	206	51
PHARMA-DEKO PLC.	HEALTHCARE	2021	174102000	182383000	410193000	70	178242500	-667071000	1389401000	159	8	12	-0.0493	-0.75	0.29	155	52
PHARMA-DEKO PLC.	HEALTHCARE	2022					0	0	0	0	0	0	0	0	0	0	53
PHARMA-DEKO PLC.	HEALTHCARE	2023					0	0	0	0	0	0	0	0	0	0	54
PHARMA-DEKO PLC.	HEALTHCARE	2024					0	0	0	0	0	0	0	0	0	0	55
PREMIER PAINTS PLC.	INDUSTRIAL GOODS	2019	18096000	13871000	102552000	22	15983500	-359143000	-137707000	57	3	690	0.2157	-0.37	0.05	-630	37
PREMIER PAINTS PLC.	INDUSTRIAL GOODS	2020	13871000	7758	71935000	20	6939379	-378714000	-168116000	35	6	1051	0.1795	-0.24	0.02	-1010	38
PREMIER PAINTS PLC.	INDUSTRIAL GOODS	2021					0	0	0	0	0	0	0	0	0	0	39
PREMIER PAINTS PLC.	INDUSTRIAL GOODS	2022					0	0	0	0	0	0	0	0	0	0	40
PREMIER PAINTS PLC.	INDUSTRIAL GOODS	2023					0	0	0	0	0	0	0	0	0	0	41
PREMIER PAINTS PLC.	INDUSTRIAL GOODS	2024					0	0	0	0	0	0	0	0	0	0	42
SFS REAL ESTATE INVESTMENT TRUST	CONSTRUCTION /REAL ESTATE	2019	0	0	62048000	0	0	-288565000	2376446000	0	0	1672	0.0682	-0.78	0.16	-1672	49
SFS REAL ESTATE	CONSTRUCTION /REAL ESTATE	2020	0	0	69187000	0	0	-293215000	2405584000	0	0	1987	0.0728	-0.83	0.32	-1987	50

INVESTMENT TRUST																	
SFS REAL ESTATE INVESTMENT TRUST	CONSTRUCTION /REAL ESTATE	2021	0	0	72106000	0	0	-102544000	2404101000	0	1	1885	0.0668	-2.27	0.78	-1885	51
SFS REAL ESTATE INVESTMENT TRUST	CONSTRUCTION /REAL ESTATE	2022	0	0	61164000	0	0	624679000	2445069000	0	0	2482	0.0763	0.4	2.22	-2482	52
SFS REAL ESTATE INVESTMENT TRUST	CONSTRUCTION /REAL ESTATE	2023	0	0	77914000	0	0	624623000	2593573000	0	0	2736	0.1224	0.63	1.88	-2736	53
SFS REAL ESTATE INVESTMENT TRUST	CONSTRUCTION /REAL ESTATE	2024	0	0	77822000	0	0	801870000	2780664000	0	0	2689	0.1716	0.69	2.16	-2688	54
TRIPPLE GEE AND COMPANY PLC.	INDUSTRIAL GOODS	2019	285835000	333606000	580932000	89	309720500	540667000	1507346000	195	53	114	0.0234	1.45	3.27	133	39
TRIPPLE GEE AND COMPANY PLC.	INDUSTRIAL GOODS	2020	333606000	355194000	1002297000	89	344400000	390793000	1484503000	125	39	91	0.0372	3.38	2.02	73	40
TRIPPLE GEE AND COMPANY PLC.	INDUSTRIAL GOODS	2021	355194000	353294000	1586032000	104	354244000	630213000	1945211000	82	36	133	0.0661	3.18	1.81	-16	41
TRIPPLE GEE AND COMPANY PLC.	INDUSTRIAL GOODS	2022	353294000	811342000	1055905000	110	582318000	-245900000	267132000	201	87	343	0.0367	-61.26	0.99	-55	42
TRIPPLE GEE AND COMPANY PLC.	INDUSTRIAL GOODS	2023	811342000	549294000	2448734000	121	680318000	898160000	4107824000	101	91	95	0.0443	35.37	1.06	98	43

COMPANY PLC.																	
TRIPPLE GEE AND COMPANY PLC.	INDUSTRIAL GOODS	2024	54929400	131948500	139209400	107	934389500	-68183000	372857500	245	58	412	0.0048	-32.31	0.97	-109	44
UH REAL ESTATE INVESTMENT TRUST	CONSTRUCTION /REAL ESTATE	2019	0	0	186807000	0	0	-92241000	982805300	0	66	1951	0.0372	-5.99	0.92	-1885	10
UH REAL ESTATE INVESTMENT TRUST	CONSTRUCTION /REAL ESTATE	2020	0	0	179099000	0	0	-47738000	988432100	0	41	1922	0.0396	-11.96	0.96	-1881	11
UH REAL ESTATE INVESTMENT TRUST	CONSTRUCTION /REAL ESTATE	2021	0	0	178228000	0	0	-19122000	991293700	0	63	2558	0.0401	-30.13	0.99	-2495	12
UH REAL ESTATE INVESTMENT TRUST	CONSTRUCTION /REAL ESTATE	2022	0	0	220162000	0	0	178296000	999835500	0	59	2285	0.044	3.7	1.12	-2227	13
UH REAL ESTATE INVESTMENT TRUST	CONSTRUCTION /REAL ESTATE	2023	0	0	207470000	0	0	203202000	10242286000	0	42	2556	0.0661	4.35	1.12	-2514	14
UH REAL ESTATE INVESTMENT TRUST	CONSTRUCTION /REAL ESTATE	2024	0	0	220503000	0	0	726768000	10695495000	0	30	2604	0.0989	1.76	1.38	-2575	15
UPDC PLC	CONSTRUCTION /REAL ESTATE	2019	829038100	572112600	303574300	258	7005753500	-2931219000	662376500	842	1915	496	-1.9461	-0.74	0.86	2261	22
UPDC PLC	CONSTRUCTION /REAL ESTATE	2020	572112600	427090600	172070000	267	4996016000	1075760000	13526639000	1060	2422	1088	-0.07	0.15	2.59	2393	23

UPDC PLC	CONSTRUCTION /REAL ESTATE	2021	4270906000	4468168000	604918000	106	4369537000	402756000	6514805000	2637	1744	2578	-1.3053	0.13	1.91	1802	24
UPDC PLC	CONSTRUCTION /REAL ESTATE	2022	4468168000	3927220000	3030515000	210	4197694000	3132571000	5417084000	506	370	642	0.0596	1.24	1.58	234	25
UPDC PLC	CONSTRUCTION /REAL ESTATE	2023	3927220000	3148590000	1619274000	221	3537905000	3392679000	6060324000	797	307	1334	0.0523	0.71	1.56	-229	26
UPDC PLC	CONSTRUCTION /REAL ESTATE	2024	3148590000	1079068000	3191829000	282	2113829000	2009928000	4480109000	242	215	672	0.0717	2.19	1.33	-215	27
UPDC REAL ESTATE INVESTMENT TRUST	CONSTRUCTION /REAL ESTATE	2019	0	0	550948000	0	0	3498501000	30552478000	0	275	76	-0.0147	0.03	6.13	199	6
UPDC REAL ESTATE INVESTMENT TRUST	CONSTRUCTION /REAL ESTATE	2020	0	0	486019000	0	0	4276019000	30910490000	0	35	466	0.0625	0.57	4.86	-431	7
UPDC REAL ESTATE INVESTMENT TRUST	CONSTRUCTION /REAL ESTATE	2021	0	0	703186000	0	0	3353561000	24929030000	0	-3	330	-0.1797	-1.13	4.76	-333	8
UPDC REAL ESTATE INVESTMENT TRUST	CONSTRUCTION /REAL ESTATE	2022	0	0	485930000	0	0	2987364000	26122531000	0	9	85	0.0642	0.72	5.59	-76	9
UPDC REAL ESTATE INVESTMENT TRUST	CONSTRUCTION /REAL ESTATE	2023	0	0	566345000	0	0	3199168000	28951807000	0	3	84	0.1313	1.37	6.33	-81	10
UPDC REAL ESTATE INVESTMENT TRUST	CONSTRUCTION /REAL ESTATE	2024	0	0	771268000	0	0	4941708000	32528751000	0	5	72	0.1444	1.11	6.51	-68	11
AVA INFRASTRUCTURE FUND	CONSTRUCTION /REAL ESTATE	2019					0	0	0	0	0	0	0	0	0	0	5

AVA INFRASTRUCTURE FUND	CONSTRUCTION /REAL ESTATE	2020					0	0	0	0	0	0	0	0	0	0	6
AVA INFRASTRUCTURE FUND	CONSTRUCTION /REAL ESTATE	2021					0	0	0	0	0	0	0	0	0	0	7
AVA INFRASTRUCTURE FUND	CONSTRUCTION /REAL ESTATE	2022					0	0	0	0	0	0	0	0	0	0	8
AVA INFRASTRUCTURE FUND	CONSTRUCTION /REAL ESTATE	2023					0	0	0	0	0	0	0	0	0	0	9
AVA INFRASTRUCTURE FUND	CONSTRUCTION /REAL ESTATE	2024					0	0	0	0	0	0	0	0	0	0	10
SMART PRODUCTS NIGERIA PLC	CONSTRUCTION /REAL ESTATE	2019	0	0	41852378	3	0	-24923651	89763449	0	401	256	0.089	-2	0.69	146	53
SMART PRODUCTS NIGERIA PLC	CONSTRUCTION /REAL ESTATE	2020	0	0	39739071	3	0	-28994852	93416580	0	381	274	0.1037	-1.7	0.64	107	54
SMART PRODUCTS NIGERIA PLC	CONSTRUCTION /REAL ESTATE	2021	0	0	45714805	3	0	-29352897	96727806	0	272	243	0.0944	-1.87	0.66	29	55
SMART PRODUCTS NIGERIA PLC	CONSTRUCTION /REAL ESTATE	2022	0	0	44116683	2	0	-37601223	99579301	0	168	248	0.0833	-1.39	0.61	-80	56
SMART PRODUCTS NIGERIA PLC	CONSTRUCTION /REAL ESTATE	2023	0	0	49327674	2	0	-20596491	126310195	0	99	351	0.0577	-2.75	0.75	-252	57
SMART PRODUCTS NIGERIA PLC	CONSTRUCTION /REAL ESTATE	2024					0	0	0	0	0	0	0	0	0	0	58

