Interdisciplinary Research Journal of Management and Social Sciences
ISSN: 2837-9985 | Impact Factor: 6.84
Volume. 09, Number 3; July -September, 2022;
Published By: Scientific and Academic Development Institute (SADI)
8933 Willis Ave Los Angeles, California https://sadipub.com/Journals/index.php/irjmss|
editorial@sadipub.com

WORKING CAPITAL MANAGEMENT AND FINANCIAL PERFORMANCE OF CONSUMER GOODS SECTOR IN NIGERIA: AN EMPIRICAL STUDY

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Abstract: This study analyzes the impact of working capital management on the financial performance of quoted consumer goods sector in Nigeria over a period of 10 years, from 2011 to 2020. Data from nine companies were utilized through the panel regression method to determine the correlation between various working capital components and financial performance. The results of the analysis revealed that working capital management has no significant effect on the financial performance of the selected firms during the study period. The study recommends that organizations should pay more attention to working capital management to ensure it is appropriately balanced between profitability and liquidity. Effective management of inventory turnover, trade receivables collection period, trade payables payment period, and cash conversion cycle are essential aspects of working capital management. The study emphasizes the importance of striking a balance between liquidity and profitability in working capital management to ensure long-term business success.

Keywords: working capital management, inventory turnover, trade receivable, trade payable, cash conversion period, financial performance, profitability, liquidity, panel regression, consumer goods sector, Nigeria

Introduction:

Optimal working capital management is crucial to ensure the financial stability of firms. Despite this fact, many firms have suffered failures and bankruptcy due to improper working capital management. The importance of working capital management cannot be overstated, especially in the consumer goods sector, where firms maintain sizeable inventories, trade receivables, and trade payables. This study focuses on the impact of working capital management on the financial performance of quoted firms in the consumer goods sector in Nigeria. The study aimed to determine the effect of working capital components, such as inventory turnover period, trade receivables collection period, trade payables payment period, and cash conversion cycle on financial performance. The study utilized quarterly financial reports of nine companies in the consumer goods sector for a period of 10 years, from 2011 to 2020. The analysis was conducted using descriptive statistics, correlation, and panel regression methods. The results revealed that working capital

management has no significant effect on the financial performance of the selected firms during the study period. The study highlights the importance of balancing liquidity and profitability in working capital management to ensure long-term business success. Effective working capital management policies should be developed and

implemented, with focus on inventory control systems, payables management policies, and collection of account receivables to enhance liquidity and avoid bad debt. Overall, this study provides insight into the significance of working capital management and its role in ensuring financial stability in the consumer goods sector in Nigeria.

LITERATURE REVIEW Working Capital Management

Working capital management is a process which involves planning, control and decision making on how a business entity will finance its current assets (Brigham & Houston, 2011). Working capital management involves formulation and implementation of policies, development and execution of strategies, and taking every other necessary courses of actions to ensure that there is a right mix of current assets and current liabilities (Li & Han-Wen, 2006). There should be a balance between liquidity and profitability if working capital elements (inventory, cash, receivables & payables) are properly managed (Uremadu, Egbide & Enyi, 2012). In line with the above, Mathuva (2010) asserted that working capital management involves implementation of strategies that will speed up cash collection from debtors, making optimal use of credit facilities from creditors/suppliers, purchasing inventories in right quantity and maintain optimal cash balance. The author claimed that if working capital is efficiently and effectively managed, it will improve organizational performance. According to Raheman and Nasr (2007), operational and financial efficiency of a business organization mostly depends on how working capital is being managed. Efficiency in working capital management ensures that cash is available in right quantity to settle expenses incurred for the purpose of the business and liquidate short term obligations. If working capital is properly managed, it can lead to increase in profitability (Kamau & Ayuo, 2014).

Inventory Turnover Period and Financial Performance

Within the context of business, inventories include raw materials, work in progress and finished goods. Inventory turnover period is the length of time it will take a firm to convert its inventory of raw materials into finished goods or the length of time it will take a seller to convert inventory of finished goods into sales. For any business that is dealing in physical items/products other than services, there is need for efficiency in inventories management to guarantee its survival and profitability. In business organization, there must be strategies that will ensure optimal inventory level every time. This is necessary in order to avoid cases of excessive inventory and shortage of inventory. When the inventory level is too high unnecessarily, it can lead to deterioration and pilferage, if not properly preserved and secured respectively. However, its shortage can lead to loss of sales. Inventory management system must be designed and implemented in such a way that will allow the organization to purchase every type of inventory in the right quantity, at the right time, at the cheapest price and minimize the level of waste in the use of the inventory. In businesses, there are different systems that can be used to manage inventories, including inventory level system, economic order quantity model, periodic review system, two bin system, ABC system, just in time system among others. Chen et al. (2005) affirmed that business organizations with unnecessarily excessive inventory level usually have a very low returns from their inventories. Meanwhile, unnecessarily low inventory level is more likely to generate average returns for the business.

According to Eroglu and Hofer (2011), maintaining a moderate level of inventory is the most effective method of inventory management. Keeping inventories unnecessarily high is a waste of resources, and it must be avoided or reduced to the barest minimum. Nyakundi et al. (2016) investigated how working capital management affects financial performance among small and medium scale enterprises in Kenya. The study adopted mixed method research design, and the data obtained for the study were analyzed using regression analysis to establish the relationship between the variables of the study. Statistical findings showed that inventory management has direct effect on financial performance of the sampled firms. Akmal, Bushra, Muhammad, Shumaila, Abdul and Tariq (2020) empirically tested the relationship between working capital management and firm's performance. The study used secondary data and the data were analyzed using inferential statistics. Empirical findings revealed that inventory management is positively related to firm's performance. Based on this, the hypothesis below was formulated and tested to achieve the objective of the study.

H_{01}: Inventory turnover period does not have any significant effect on financial performance of selected listed manufacturing firms in Nigeria.

Trade Receivables Collection Period and Financial Performance

ACP is the length of time it takes a firm to collect or receive payments from its debtors or customers. In order to achieve operational efficiency, in both service and non-service firms, management must ensure that there are effective strategies and procedures that will facilitate cash collection from credit customers as early as possible. The shorter the receivable collection period, the better it is for the organization. When cash is received on time from customers, it will enable the organization to meet other business needs that require immediate settlement. If trade receivables are not efficiently managed, there are tendencies for bad debt to occur. Granting trade credit to customers may be necessary for market penetration, and to win a large market share, depending on the nature of the product being dealt with or the industry where the firm is operating. Effective management of trade receivables is more likely to impact positively on business performance. Trade receivable collection period determines the length of time it requires a business organization to collect cash from credit customers, on average basis. This can be assessed using number of days, weeks, and months. The common practice among many businesses is that credit customers are usually allowed to settle their bills within one month (Mekonen, 2011).

In Nigeria, Madugba and Ogbonnaya (2016) statistically tested how working capital management influences firm's performance. For the purpose of the study, the data used were obtained from the annual reports of the sampled firms. These data were analyzed using inferential statistics, and it was empirically observed that financial performance of the sampled firms is substantially influenced by effective receivable management. Contrarily, the study conducted by Akmal, Bushra, Muhammad, Shumaila, Abdul and Tariq (2020) revealed a negative relationship between trade receivable management and financial performance among studied firms in Pakistan. Based on this, the hypothesis below was formulated and tested to achieve the objective of the study.

H_{02}: Trade receivable collection period does not have any significant impact on financial performance of selected listed manufacturing firms in Nigeria.

Trade Payables Payment Period and Financial Performance

Trade payable is the amount of money that a business is owing its suppliers for goods purchased on credit. It is the most common short term credit facility enjoyed by many businesses, and when available, it should be utilized to the fullest. However, a business organization must be cautious when using trade credit as a means of finance. If it is not properly managed, it can lead to liquidity problem. When payment for goods purchased

on credit is unnecessarily delayed, it may damage the reputable of a business and impair its credit worthiness. As a direct consequence, poor credit rating can make it so difficult for businesses to get more trade credit from their regular suppliers and receive resistance from potential suppliers. Trade payable payment period is the velocity or frequency by which a business settles or liquidates its short term obligation with the suppliers (Afeef, 2011). The length of the period can be determined by averaging trade payables over credit sales in days or weeks or months. It is calculated by dividing account payable by purchase and multiplying with 365 days. Actually some authors like Mathuva (2010) argued that the longer the lengthy of the time, the better for the businesses. Contrarily, in my opinion, it may not be so in practice. If the period is too lengthy by unnecessarily delaying payment for goods purchased on credit, the suppliers may not be willing to extend more credit to such debtor. In turn, the normal business activities of the debtor may be badly affected, if it heavily relies on trade credit, and lead to poor profitability.

In Pakistan, the empirical study conducted by Akmal, Bushra, Muhammad, Shumaila, Abdul and Tariq (2020) revealed that trade payables management is more likely to directly affect firm's performance. Besides, in the work of Madugba and Ogbonnaya (2016), statistical evidence obtained by the researchers showed that efficiency in payables management, to some extent, can lead to increase in business financial performance. Based on this, the hypothesis below was formulated and tested to achieve the objective of the study.

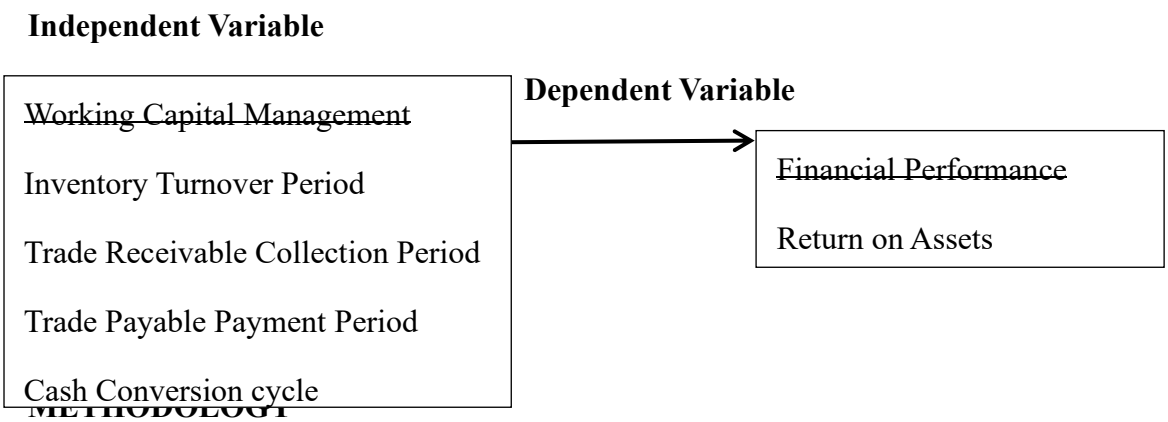
H_{03}: Trade payable payment period does not have any significant impact on financial performance of selected listed manufacturing firms in Nigeria. **Cash Conversion Cycle**

Cash conversion cycle is the length of time it takes a business to pay its suppliers for goods purchased and receive cash from its customers for goods sold. Cash conversion cycle plays a pivotal role in the determination of working capital requirement of a business. The shorter the cycle, the smaller the amount of working capital required, and vice versa. The length of time between when cash is paid to suppliers and when cash is collected from customers is determined by a lot of factors. The cycle is majorly affected by the rate of inventory turnover, receivable collection period and payable payment period. Business entity must ensure that those three areas of working capital are properly managed, in order not to make its cash conversion cycle to be too lengthy. If the length of time is too long, it can threaten the liquidity of the firm. This, however, can hamper the normal activities of the business and impact negatively on the performance of the firm. Besley and Brigham (2005) opined that cash conversion cycle is the distance between receivables collection time and payables payment time, on average basis. It is mostly ascertained in manufacturing firms by adding up raw material turnover time, work-in-progress turnover time, finished goods turnover time and receivables collection time, and deducting payables payment time from the sum.

In Cyprus, Maria and Petros (2010) investigated how firm's performance is influenced by working capital management. The empirical results obtained, using regression analysis, showed that firm's financial performance is influenced by cash conversion cycle among the sampled firms. In the same way, Akmal, Bushra, Muhammad, Shumaila, Abdul and Tariq (2020) found a significant direct association between firm's performance and cash conversion cycle in a quantitative study conducted in Pakistan. Also, Joshua and Nurudeen (2022) studied how working capital management affects business performance in Nigeria. The empirical study revealed that return on asset, return on sales and return on investment are significantly and positively influenced by cash conversion cycle. In deviation to the above results, Mike (2014) statistically observed a negative relationship between firm's financial performance and cash conversion cycle in a study conducted in Nigeria. Based on this, the hypothesis below was formulated and tested to achieve the objective of the study.

H_{04}: Cash conversion cycle does not have any significant impact on financial performance of selected listed manufacturing firms in Nigeria. **Conceptual Framework**

The conceptual framework shows that working capital management measures (independent variables) affect firm's financial performance (dependent variables). When working capital management measures are put in place, they affect the efficiency of working capital and this in turn improves financial performance as measured by return on assets.



METHODOLOGY

Research Design

The study adopted and uses ex post facto research design because the data required for the study are already in existence.

Population of the Study

The population for this study consisted of all listed consumer goods sector in Nigeria, as at December 2020. The number of listed firms in this category was twenty one (21) as at December 2020. The reason for the selection of this sector is due to the nature of their products. All the firms in this sector are dealing in physical products and they usually maintain a sizable level of inventories, trade receivables, and trade payables.

Sample and Sampling Techniques

For the purpose of the study, the researcher sampled only nine firms from the population with complete audited annual reports for the selected period. Also, the researchers ensured that the selected firms have been listed by 2011 and remained listed till 2020. However, nine firms were selected for the study using convenience sampling technique.

Method of Data Collection

The study used secondary data which were obtained from the audited annual reports of the listed consumer goods sector to be selected from the population of the study.

Measurement of Variables Table 3.1 Measurement of Variable

Variables	Acronym	Measurements	Sources
Dependent Variable:			
Return on Assets	ROA	Profit after tax divided by total assets	Pais and Gama (2015)
Independent Variable:			
Inventory Turnover Period	ITP	Cost of goods sold / average inventory	Deloof (2003)

Trade Receivable Collection Period	TRCP	Account receivables x 365days/net sales	Deloof (2003)
Trade Payable Payment Period	TPPP	Trade payables/credit purchases x 365days	Deloof (2003)
Cash Conversion cycle	CCC	[(account receivable x 365days/sales)+ (account payable x 365days/purchases) – (inventory x365days/cost of sales)]	Deloof (2003)

Model Specification

The study used the statistical model below to analyze how working capital management affects financial performance of listed manufacturing firms in consumer sector in Nigeria.

$ROA=\beta_0+\beta_1ITP+\beta_2TRCP+\beta_3TPPP+\beta_4CCC++_M$

Where: ROA= return on asset; β=beta; β0-β4= Coefficient of independent variables; ITP=Inventory turnover period; TRCP=Trade receivable collection period; TPPP=Trade payable payment period; CCC= Cash conversion cycle

Method of Data Analysis

Data collected were analyzed using descriptive statistics and inferential statistics. The descriptive statistics include minimum values, maximum values, means and standard deviation. Of which, inferential statistics include correlation and regression analysis. The study also conducted some preliminary analyses before regression analysis which include normality tests, stationary test and other tests that are considered to be necessary for secondary data analysis.

RESULTS AND DISCUSSION Table 4.1 Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
ROA	100	33.32495	17.43534	2.246374	84.89091
ITP	100	5.019044	1.18269	2.836074	7.742945
TRCP	100	65.66386	42.12899	9.115633	231.8826
TPPP	100	96.69708	83.28758	8.326436	319.9439
CCC	100	93.4993	55.82222	2.055436	256.8543

NOTE: *ROA=Return on Asset (in percentage), ITP= Inventory Turnover Period (in ratio), TRCP= Trade receivable collection period (in days), TPPP= Trade payable payment period (in days), CCC= Cash conversion cycle (in days).*

Sources: *Author's Computation, (2022)*

Table 4.1 showed descriptive statistics of return on asset, inventory turnover, trade receivable collection period, trade payable payment period, cash conversion cycle for the period and firms engaged in the study. Result indicated that mean of return on asset stood at 33.3249%, with standard deviation of 17.43534% as well as minimum and maximum value of 2.246374% and 84.89091% respectively. Average values of inventory turnover, trade receivable collection period, trade payable payment period, cash conversion cycle stood at

5.019044 days, 65.66386 days, 96.69708 days and 93.4993 days, with standard deviation of 1.18269 days, 42.12899 days, 83.28758 days and 55.82222 days respectively. Also, the average value of return on asset stood at 33.32495 with standard deviation of 17.43534. This, however, revealed that the data for all the variables were close around the mean. Result also showed minimum and maximum values of 2.836074 days and 7.742945 days for inventory turnover, 9.115633 days and 231.8826 days for trade receivable collection period, 8.326436 days and 319.9439 days for trade payable payment period, 2.055436 days and 256.8543 days for cash conversion cycle, 2.246374 and 84.89091 for return on asset as well.

Correlation Analysis Table 4.2 Correlation Matrix

	ROA	ITP	TRCP	TPPP	CCC
ROA	1.0000				
IT	0.3169	1.0000			
TRCP	-0.1034	-0.0851	1.0000		
TPPP	-0.0313	-0.0313	-0.0633	1.0000	
CCC	-0.0799	-0.0545	0.5586	0.1827	1.0000

Sources: *Author's Computation, (2022)*

Table 4.2 reported correlation between pair of variables used in the study. The result showed that return on asset has direct association with inventory turnover but inverse relationship with trade receivable collection period, trade payable payment period, cash conversion cycle and firm size given the correlation coefficients of 0.3169 for ROA and IT, -0.1034 for ROA and TRCP, -0.0313 for ROA and TPPP, -0.0799 for ROA and CCC as well as -0.2291 for ROA. This indicated that return on asset moves in the same direction with inventory turnover, but it moves in opposite direction to trade receivable collection period, trade payable payment period, cash convention cycle and firm size. Result also revealed correlation coefficients of 0.0851 for IT and TRCP, -0.0313 for IT and TPPP, -0.0545 for IT and CCC as well as 0.2291 for IT which showed that inventory turnover has inverse association with trade receivable collection period, trade payable payment period and cash conversion cycle, but direct relationship with firm size. Result in table 4.2 further indicated that coefficients of -0.0633 for TRCP and TPPP, 0.5586 for TRCP and CCC as well as 0.0925 for TRCP which showed that trade receivable collection period has direct connection with firm size and cash conversion cycle but indirect association with trade payable payment period. Lastly, result revealed that trade payable payment period has positive connection with cash conversion cycle and that firm size has inverse relationship with trade payable payment period and cash conversion cycle given the correlation coefficients of 0.1827 for TPPP and CCC, -0.2106 for TPPP and CCC.

Fixed Effect Panel Analysis Table 4.3.1 Fixed Effects Estimates (Cross Sectional)

Series: *ROA IT TRCP TPPP CCC*

Variable	**Coefficient**	**Standard Error**	**T-Test Values**	**Probability**
C	5.967807	1.375282	4.34	0.000
ITP	.4135344	.4502716	0.92	0.361
TRCP	-.094673	.0830775	-1.14	0.258
TPPP	-.0089808	.0568525	-0.16	0.875
CCC	-.0647654	.0562461	-1.15	0.253

Firms Effects				
PZ CUSSON	-1.694953	.192712	-8.80	0.000
GUINNESS	-.3642928	.2024321	-1.80	0.075
NIG BREW	-.2926235	.2228562	-1.31	0.193
DANG SUGAR	-.3909787	.2124769	-1.84	0.069
NASCON	-.2066004	.2591521	-0.80	0.428
DANG FLOUR	-.9721884	.1921942	-5.06	0.000
FLOUR MILL	-1.03716	.1992552	-5.21	0.000
NESTLE	-.2786955	.2889569	-0.96	0.338
VITAFOAM	-.432012	.2688036	-1.61	0.112

R-square=0.6838 Adjusted R-square= 0.6317 F-statistics=13.13 Prob(F-stat)=0.0000

Note: *Reference firm is Unilever Plc*

Sources: *Author's Computation, (2022)*

Table 4.3.1 presented the fixed effect estimates of the selected quoted firms over the period engaged in the study. Result revealed coefficient and probability of 0.4135344 and 0.361 ($p > 0.05$) for IT, which indicated that inventory turnover has positive insignificant effect on return on asset. Result also showed coefficients and probability of -0.094673 and 0.258 ($p > 0.05$) for TRCP, -0.0089808 and 0.875 ($p > 0.05$) for TPPP, -0.0647654 and 0.253 ($p > 0.05$) for CCC which implied that trade receivable collection period, trade payable payment period, cash conversion cycle have negative and insignificant effect on return on asset. Deviation intercept term stood at -1.694953 and 0.000 ($p < 0.05$), -0.3642928 and 0.075 ($p > 0.05$), 0.2926235 and 0.193 ($p > 0.05$), -0.3909787 and 0.069 ($p > 0.05$), -0.2066004 and 0.428 ($p > 0.05$), -0.9721884 and 0.000 ($p < 0.05$), 1.03716 and 0.000 ($p < 0.05$), -0.2786955 and 0.338 ($p > 0.05$), -0.432012 and 0.112 ($p > 0.05$) for PZ Cusson, Guinness, Nigerian Brewery, Dangote Sugar, Nascon, Dangote Flour, Flour Mill of Nigeria, Nestle and Vitafoam respectively. Reported R-square statistics in the table above stood at 0.6838 which showed that about 68.38% systematic variations in return on asset can be explained by variations in inventory turnover period, trade receivable collection period, trade payable payment period and cash conversion cycle.

Random Effect Analysis Table 4.3.2 Random Effect Estimation

Series: *ROA IT TRCP TPPP CCC*

Variable	**Coefficient**	**Standard Error**	**Z-Test Values**	**Probability**
C	5.313913	1.319645	4.03	0.000
ITP	.5252275	.4028056	1.30	0.192
TRCP	-.0934772	.0809104	-1.16	0.248
TPPP	-.0134169	.0551036	-0.24	0.808
CCC	-.0611824	.0550033	-1.11	0.266

R-square=0.5589Wald chi2(5)= 11.50Prob> chi2 =0.0423

Table 4.3.2 presented the fixed effect estimates of the selected quoted firms over the period engaged in the study. Result revealed coefficient and probability of 0.5252275 and 0.192 ($p > 0.05$) for IT, which indicated that inventory turnover has positive insignificant effect on return on asset. Result also showed coefficients and

probability of -0.0934772 and 0.248 (p > 0.05) for TRCP, -0.0134169 and 0.808 (p > 0.05) for TPPP, as well as -0.0611824 and 0.266 (p > 0.05) for CCC which implied that trade receivable collection period, trade payable payment period, and cash conversion cycle have negative and insignificant effect on return on asset. Result in addition revealed coefficient and probability of -0.1819238 which indicated that firm size exerts negative significant effect on return on asset. Reported R-square statistics in the table above stood at 0.5589 which showed that about 55.89% systematic variation in return on asset as measure of financial performance, can be explained by variation in working capital management measures when firm heterogeneity is incorporated into model as error term.

Post Estimation Test Table 4.3.3 Hausman Test

Null hypothesis	**Chi-square stat**	**Probability**
Difference in coefficient not systematic	0.63	0.9865

Source: *Author's Computation, (2022)*

Table 4.3.3 revealed a chi-square value of 0.63 alongside a probability value of 0.9865. The result showed that there is no enough evidence to reject the null hypothesis that differences in coefficients of fixed effect estimator and random effect estimation is not systematic. Therefore given the fact that the difference between fixed effect estimates and random effect estimates is significant, the most consistent and efficient estimation for the investigation conducted in the study is the random effect estimate presented in the table above. **Table 4.3.4 Other Post Estimation Test**

Wald test		
Null hypothesis	**Statistics**	**Probability**
Panel homoscedasticity	2.5189	0.5679
Pesaran test		
Null hypothesis	**Statistics**	**Probability**
No cross sectional dependence	-1.507	0.1318
Wooldridge test		
Null hypothesis	**Statistics**	**Probability**
No AR(1) panel autocorrelation	0.3694	0.5583

Source:*Author's Computation, (2022)*

Result presented in table 4.3.4 showed that there is no evidence to reject null hypothesis on panel homoscedasticity, null hypothesis of no cross sectional dependence and null hypothesis of no AR (1) panel autocorrelation, given the reported probability statistics of 0.5679 > 0.05 for Wald test, 0.1318> 0.05 for Pesaran test, and 0.5583> 0.05 for Wooldridge test. Hence it can be established in the study that assumptions of equal variance of residual terms and absence of serial autocorrelation for the estimated panel-based model are fulfilled.

CONCLUSION

The working capital management and financial performance of quoted firms in the consumer goods sector in Nigeria was investigated in this study. In order to construct a quality framework, this study analyzed numerous literatures in terms of conceptual, theoretical, and empirical literatures. Working capital management, in all of its dimensions (inventory management, trade payable management, trade receivable management, and cash conversion cycle), has an insignificant effect on financial performance, as measured by return on asset, it is necessary to conclude that working capital management has an insignificant effect on corporate performance in Nigeria. As a result, working capital management is insufficient to explain the financial performance of publicly traded firms in the consumer goods sector in Nigeria.

RECOMMENDATION

In line with the findings and conclusion of the study, the following recommendations were made:

i. Firms should set the level of economic order quantity to ensure sufficient inventory is ordered at minimal costs and establish an inventory control system to assist in efficient management of inventory
ii. Firms should regularly review payables management policies to ensure that they align with suppliers expectations in order to enhance credit worthiness and trust
iii. Firms need to design and implement adequately, policies that would shorten collection period and enhance collection of account receivables in order to ensure increase their liquidity position, and avoid cases of bad debt.

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