DOI: https://doi.org/10.61841/2veg5n58 Publication URL: https://nnpub.org/index.php/BMA/article/view/1966

WORKING CAPITAL MANAGEMENT STRATEGIES OF NIGERIAN MANUFACTURING FIRMS AND THE EFFECTS ON CORPORATE PERFORMANCE

Nonye Edomobi[1], Ofoegbulam Thaddeus Ebiringa (Prof)[2] and Uzoamaka Gloria Chris-Ejiogu (PhD)[3]

[1]Department of Financial Management Technology, Federal University of Technology Owerri, Imo State, Nigeria
[2]Department of Entrepreneurship and Innovation, Federal University of Technology Owerri, Imo State, Nigeria
[3]Department of Supply Chain Management, Federal University of Technology Owerri, Imo State, Nigeria

Corresponding Author:
krisik25@gmail.com

Abstract

The study examined the working capital management strategies of Nigerian Manufacturing Firms and effect on Corporate Performance. Working capital management was decomposed into five variables being account receivable management (ARM), account payable management (APM), inventory management (INVM), cash conversion cycle (CCC) and cash conversion efficiency (CCE) which serve as the explanatory variables of the study while Corporate Performance was proxied by Return on Assets (ROA). The data for the study were collected from the Financial Statementand Annual Accounts of the selected firms covering a data panel framework of 20 years period (2000 to 2020) and nine (9) firms specifically were selected. The analysis was based on the ARDL regression technique and was used to estimate the regression model while the probability values of the ARDL regression estimates were used to test the hypotheses at 0.05 level of significance. The result showed that: Account receivable management strategy have long run and no short run effect on return on asset of quoted manufacturing firms in Nigeria; Account payable management strategy have long run and no short run effect on return on asset of quoted manufacturing firms in Nigeria; Inventory management strategyhave long and short run effect on return on asset of quoted manufacturing firms in Nigeria; Cash conversion cycle strategy have long and short run effect on return on asset of quoted manufacturing firms in Nigeria; and Cashconversion efficiency strategy have no long and short run effect on return on asset of quoted manufacturing firms in Nigeria. Further analysis revealed that account receivable, account payable inventory management and cash conversion efficiency had causal effects on return on assets. However, there is no causal relationship between cash conversion cycle strategy and return on asset of quoted manufacturing firms in Nigeria. The study thus concluded that working capital management strategies have significant effect on the financial performance of firms, and that the degree of effect differs by period, type of strategy and financial performance indicator. It was recommended among others that management of firms should firms increase the supplies to customers and allow credit to its customers, and firms should also explore the use of short-term credit in financing their business. The study contributed to knowledge by employing long run panel technique in investigating the working capital and firm performance nexus in Nigeria.

Keywords: *Return on Asset, Cash Conversion Cycle, Account Receivable Management, Account Payable Management, Working Capital Management.*

INTRODUCTION

The term working capital refers to the quantum of fund required to maintain day-to-day expenditure on operational activities of a business enterprise. It is actually required to run the wheels of the business enterprise. Working capital management objective is to maximize the profits, which results into reducing the risk of not being able to satisfy the maturing short-term debts. The efficacy of working capital management depends on the balance between liquidity and profitability. A firm's high liquidity risk results in high profitability. The issue here is that in managing working capital, afirm must take into consideration all the items in both debit and credit sides of an account and try to balance the risk and return (Pinku & Paroma, 2018).

Acceptance of effective and efficient management understanding in terms of management of working capital would provide a positive contribution to the performance of a company. An effective management of working capital will benefit not only the enterprise but also improve the country's economy. In this context, manufacturing firms, considered as the backbone of dynamic and immersive elements of economy are very important since they contribute to the development of a country's economy through their flexible structures and harmonizing to changing conditions (Izadi- Niya & Taaki, 2010). This importance has been perceived even better in developed or developing countries especially in acountry like Nigeria which has always faced economic crisis, from time to time. Wang, Akbar & Akbar (2020) claimed that an effective working capital would increase the value of a firm. Similarly, Pinku &Paroma (2018), pointed out in their study that a strong relationship exists between management of working capital and performance of a company. In
respect of manufacturing firms, Anand & Grupta (2002), emphasized in their study that the importance of management of working capital in terms of financial performance in industries should be increased.

Statement of problem

The desire of every firm is to remain a going concern. The success of a firm is largely dependent on the effectiveness of working capital resource management to enhance performance. Efficient management of working capital is fundamentally important to the success of a firm and in meeting the overall corporate strategy of being profitable and creating wealth for shareholders. The trade-off between profit and liquidity is a dilemma to managers as low inventories and receivables is detrimental to profitability and high provisions for payables affects firm's ability to meet obligations and hence negative to credit worthiness. Many firms with high rate of returns had been seen crashing because of inadequacy of working capital. More so, operations of some factories had been either temporarily or completelysuspended due to dearth of funds to meet financial obligations as and when due because they were not liquid (Anand & Gupta, 2002). The ability of managers to operate at optimum working capital levels that enhance profitability and at the same time leaves the firm with reasonable liquid funds to meet obligations is apt for a high exigency-prone operational sectors like the manufacturing sector.

When the working capital is effectively and efficiently managed in the sense that the capital is being tied up in stock and the cash is idle without proper investment plan, it leads to low productivity there by reducing profitability. Despite the aforementioned disadvantages, there are still numerous advantages of working capital management strategies which this research work tends to investigate and make necessary recommendations.

Objectives of the study

The main objective of the study is to examine the effect of working capital management strategies on the performance of manufacturing firms in Nigeria. The specific objectives are to:

i. Examine the effect of account receivable management on the financial performance of manufacturing firms in Nigeria.
ii. Determine the effect of account payable management on the financial performance of manufacturing firms in Nigeria.
iii. Assess the effect of inventory management on the financial performance of manufacturing firms in Nigeria.
iv. Examine the effect of cash conversion cycle on the financial performance of manufacturing firms in Nigeria.
v. Examine the effect of cash conversion efficiency on the financial performance of manufacturing firms inNigeria.

The hypothesis of the study is in line with the specific objectives of the study as earlier stated.

2.0 LITERATURE REVIEW

Working capital

Businesses have day-to-day running costs that arises from their operations. Working capital emanates refers to the resources a firm has at its disposal to carry out its day-to-day operation (Asiedu, Adegbedzi, Oduro & Iddrisu, 2020). It comprises of the assets in the current assets and the current liabilities (Simon, Sawandi, & Abdul-Hamid, 2019). The current asserts consist of accounts receivable, inventories, cash and short-term marketable securities; whereas the current liabilities are the accounts payable, bank overdrafts, other short-term loans and outstanding tax, dividend and interest obligations.

Working capital management
All the financial decisions of the management on short-term use of funds falls under the working capital management paradigm. It encompasses the compulsory managerial judgment in pursuing the paradigmatic whereby counterbalance between risk and return (Ling, Ali & Ming, 2019). Kaur (2010) defined working capital management to include all the managerial decisions and actions that are primarily concerned with influencing the size and effectiveness of working capital. This implies an appropriate investment decision in cash, inventory, receivables as well as the level and combination of short-term financing (Nobanee, et al, 2011).

Working capital management strategies
The common working capital management strategies are the average collection period, the inventory turnover average payment period and cash conversion cycle (Vartak & Hotchandani, 2019). Yegon, Kiprono and Willy (2014) introduced the Net Trading Cycle as another working capital management strategy. Another nomenclature for the Net Trade Cycle was used by Simon, Sawandi and Abdul-Hamid (2018) as the Cash conversion efficiency (CCE). On the strength of this,the present study appreciates five working capital management strategies to include Accounts receivable Management, Accounts payable management, Inventory management, Cash conversion cycle, Cash conversion efficiency (also known as the Net trade cycle).

Accounts receivable management
Accounts Receivable Management involves the time it takes for customers to settle debts. The metric, expressed as the debt collection period, is calculated by dividing average accounts receivable by net sales and multiplying the result by the average days in a year. Significantly, shorter collection periods are associated with enhanced financial performance. Consequently, strategic focus should center on devising approaches to shorten debtor collection periods, thereby improving both liquidity and overall profitability (Vartak & Hotchandani, 2019; Ling, et al 2019).

Accounts payable management
Accounts Payable Management pertains to short-term commitments for purchases or services not yet settled. The metric, known as the average payment period, measures the days a company takes to pay its creditors. It holds significance in influencing working capital, where an increase improves overallworking capital. In strategic terms, integrating profitability metrics into management strategies is crucial, and careful consideration of credit terms from suppliers is advised (Kusuma & Bachtiar, 2018).

Inventory management
Inventory Management is characterized by the frequency of selling the entire inventory during an accounting period. The metric, the inventory turnover ratio, serves as an indicator of effective inventory management. Significantly, a low turnover ratio may suggest overstocking, while a high ratio indicates efficient management. Strategically, the focus should be on optimizing the inventory holding strategy based on sales and receivables, considering factors such as holding and opportunity costs (Nobanee, et al., 2011).

Cash conversion cycle
The Cash Conversion Cycle represents the time between a firm's payment forpayables and collections for receivables. Calculated as the sum of inventory days, accounts receivable days, and the subtraction of accounts payable days, a shorter cycle is associated with improved liquidity and profitability. The strategic focus here involves balancing liberal credit policies for profitability with the imperative need for liquidity (Simon, et al, 2018).

Cash conversion efficiency
Cash Conversion Efficiency is synonymous with the net trade cycle and emphasizes the cash flow generated from operating activities related to sales. A high efficiency in cash conversion signifies effective cash collection. From a strategic perspective, the aim is to achieve higher cash conversion efficiency, ensuring liquidity for day-to-day operations and aligning with the critical principle that "cash is king" (Linderhof, 2014).

Firm performance
The term, “Firm performance” is used to connote the extent to which the overall target of a firm had been accomplished (Eshan, 2017). Akinleye & Adeboboye (2019) defined firm performance as the act of “creating revenue for owners of business from the assets of such business”. Thus, the essence of firm performance is to enable the management evaluate both the profitability and financial position of the organization. Profitability is generally defined as “an organization’s ability to earn financial profit or gain” (Tauringana & Afrifa, 2013). The success and growth of any business substantiallydepend on its profitability (Onwumere, Ibe & Ugbam, 2012). Here, one can deduce that the long-term survival of a firmis very much dependent on its profitability. A firm’s net profit is the difference between the revenue and all its operating expenses (Oladipupo & Okafor, 2013).

In this study, firm performance is proxied by Return on Assets (ROA). Return on Assets which is computed as the firms’ after-tax profit over total assets. Flamini, Valentina, McDonald and Liliana (2009) indicate how effectively a firm manages its assets to generate income (Davydenko, 2011). ROA according to Flamini, et al (2009) may be biased due to off-balance-sheet activities where ROA is overstated in the evaluation of firm profitability, but believe such activities are negligible. Nonetheless, it has

always been a very good and preferred measure of profitability.

THEORETICAL REVIEW

Theories of firm performance agency performance

The agency theory, introduced by Stephen, Ross, and Barry Mitnick in 1972, explores relationships and self-interest in firms. It outlines the dynamics between principals (owners) and agents (managers), emphasizing the delegation of control. Applied to working capital management, it becomes relevant for financial managers, acting as agents to owners, making crucial decisions on a firm's short-term assets and liabilities. This framework aids in designing governance and control, allowing management to assess a firm's strengths and weaknesses. An agency relationship involves engaging someone to perform tasks, often delegating decision-making authority (Palombini & Nakaruma, 2012).

Resource-based theory (rbt)

The Resource-Based Theory (RBT) originated from Penrose (1959) and Barney's (1991) postulations, emphasizing the role of internal resources in firm expansion. Penrose highlights management's experience and knowledge, while Barney introduces the VRIN criteria for sustainable competitive advantage. Assets, capabilities, and knowledge controlled by a firm are considered resources (Barney, 1991). Unique resources are crucial for competitive advantage (Wach, 2020).RBT categorizes firm-specific resources as the foundation for competencies and competitive advantage, distinguishing between tangible and intangible resources. Inimitable intangible resources, marked by uniqueness, causal ambiguity, and social complexity, significantly impact a firm's success and ensure a competitive advantage for superior profits (Kamasak, 2017; Samuel & Mole, 2018; Coyne, 1986). The theory focuses on how a firm's internal resources contribute to sustained competitive advantage, often substituting Porter's five-force model. Effective abilities within a firm yield a competitive advantage, adding value, introducing new products, or expanding market share. Competitive advantage occurs under conditions of resource heterogeneity and immobility, with VRIN or VRIO resources enabling firms to outperform rivals (Madhani, 2010; Adnan et al., 2018). RBT posits that a firm's resources are primary determinants of itsperformance, contributing to sustainable competitive advantage. Effective working capital management becomes a function of capabilities, influencing financial performance and overall efficiency (Kahveci, 2011). The adoption of Working Capital Management strategies plays a pivotal role in a firm's performance.

Conservative approach

Conservative approaches of working capital management prioritize maintaining higher levels of working capital to ensure a safety net for unforeseen events. This involves holding larger inventories and keeping surplus cash on hand. While it safeguards the company against sudden financial shocks, it may also tie up capital that could otherwise be invested in growth opportunities. In the conservative approach of working capital management, firms would prioritise stability and preparedness for unforeseen events. Thus, they tends to maintain a slightly higher level of inventory than immediate demand requires and ensure that they have products in stock to meet customer needs, even during supply chain disruptions; maintains a balanced approach to receivables collection by giving incentive for early payments from customers through discounts; and then pays suppliers on time while negotiating favourable terms where possible to maintain good relationships. The conservative approach is suitable for firms in a volatile and seasonal industry, ensure that the firms have sufficient inventory to meet customer demands and navigate unexpected disruptions.

Empirical review

Vartak & Hotchandani (2019) emphasized Working Capital Management's pivotal role in firm profitability. Studying BSE-listed firms, they developed four models incorporating CCC, AC, IT, and AP, with moderating variables. Using 10 years of panel data, their analysis revealed significant negative impacts of average collection period, cash conversion cycle, and inventory turnover on ROA, while accounts payable had a positive and insignificant effect.

Mabandla & Makoni (2019) investigated the working capital and financial performance relationship in 12 South African food and beverage companies from 2007 to 2016. Using proxies ICP, ACP, and APP, alongside controlled variables, theyapplied various regression techniques. Results revealed positive relationships of ICP and APP with profitability, while ACP exhibited a negative association. The study employed pooled OLS, LSDV, FE, RE, GMM, and GLS regression models to analyze the data comprehensively.

Yakubu, Alhassan &Fuseini (2017) examined the impact of working capital management on the performance of non- financial firms in Ghana. Data from five firms for six years spanning 2010-2015 were analysed using the Random effect model. Firm performance were measured by Return on Assets (ROA) while the independent variables were Average Collection Period (ACP), Average Payment Period (APP), Inventory Turnover (IN), Cash Conversion Cycle (CCC). Current Ratio (CR), with firm size as control variables. Estimation from the Pooled Ordinary Least Square (OLS), Random effect, and Fixed effect estimation techniques revealed that APP and CR have a positive relationship with firm performance, while ACP, IN, CCC and size have a negative relationship with firm performance. However, only ACP, APP, CCC and CR had a significant impact on firm performance.

Siraj, Mubeen & Sarwat (2019) studied the impact of working capital management on 280 non-financial firms in Pakistan over 17 years. They assessed inventory, receivable, and payable management's effects on profitability and growth (ROA, ROE, asset

growth, and sales growth rates) through four models. Control variables included liquidity, leverage, and size. Analyses using pooled, fixed, and random effects models revealed negative and significant effects of receivables management on profitability and growth, positive effects of payment management on ROE, and inventory's impact mainly on growth. The study emphasizes working capital management's substantial influence on financialperformance.

Simon, Sawandi & Abdul-Hamid (2018) re-evaluated the link between working capital management (WCM) and firm performance in Nigeria due to insufficient empirical studies on the topic. Studying 75 non-financial firms listed on the Nigerian Stock Exchange from 2007 to 2015, they developed two models using return on asset (ROA) and Tobin's Q as performance proxies. Five WCM measures (ARM, APM, INVM, CCC, and CCE) and control variables (firm size, sales growth, and financial debt ratio) were incorporated. Quartile regression analyses revealed inconsistent relationships, with varying associations across different quantiles, highlighting the nuanced impact of WCM on firm performance in Nigeria.

Abubakar, Umaru & Olumuyiwa (2020) examined the impact of working capital management on financial performance of selected quoted firms in Nigeria. A sample of 10 firms were purposively selected from quoted firms on the Nigerian stock exchange for a period of 11 years from 2009 to 2019. The proxy for working capital management were cash conversion period, debt equity ratio and inventory conversion period while the proxy for financial performance was Return on Equity (ROE). Results from Ordinary Least Square regression revealed that Cash Conversion Cycle showed a positive significant impact on financial performance of selected quoted firms in Nigeria while Debt Equity Ratio and Inventory Conversion Period have no significant impact on financial performance of selected quoted firms in Nigeria.

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

Akomeah & Frimpong (2020) in attempt to investigate effect of working capital management on profitability of listed manufacturing companies in Ghana, used data collected from seven (7) listed manufacturing firms in Ghana for a period of ten years (2005-2014). The profitability as response variable was measured in terms of gross operating profit. The working capital determined by Accounts Receivables Period, Inventory Conversion Period, Accounts Payables Period and Cash Conversion Cycle are used as independent variables. Moreover, current ratio used as liquidity indicator and
firm size measured by logarithm of sales are used as control variables. Data was analyzed using the Fixed-Effects model of the Panel data regression. The regression results showed that inventory conversion period (ICP) and account receivables period (ARP) had a statistically significant negative effect on profitability whereas account payables period (APP) days had insignificant positive effects on the profitability. The study, on the other hand revealed that cash conversion cycle (CCC), firm size (LOS) and current ratio (CR) had a significant positive effect on profitability.

Moreover, Nguyen, Pham & Nguyen (2020) studied the effect of working capital management on the firms' profitability using 119 non-financial listed companies on Vietnam stock market over a period of 9 years from 2010 to 2018. Ordinary least squares (OLS) and fixed effects model (FEM) were employed to address econometric issues and to improve the accuracy of the regression coefficients. The empirical results showed negative and significant impacts of the working capital management, measured by cash conversion cycle (CCC) and three components of the CCC including accounts receivable turnover in days (ARD), inventory turnover in days (INVD), and accounts payable turnover in days (APD) on the firms' profitability measured by Tobin's Q and return on assets (ROA). It implies that firms can increase profitability by keeping the optimization of the working capital management measured by the CCC, which includes shortening the time to collect money from clients, accelerating inventory flow and holding the low payment time to creditors. Besides, the profitability of firms was impacted by the sale growth rate, firm size, leverage, and age.

Asiedu, Adegbedzi, Oduro & Iddrisu (2020) investigated the working capital management on Return on Equity (net income (EAITP)/Equity) of listed manufacturing firms on the Ghana Stock Exchange (GSE). A panel data of thirteen
(13) listed manufacturing firms on the Ghana Stock Exchange (GSE) for periods 2010 to 2019 was used for the study. Data which were the audited annual financial reports were accessed from Ghana Stock Exchange Fact Book and the web portals of the firms. Pearson's Product-Moment Correlation and Ordinary Least Square (OLS) multiple regression techniques were employed to establish the relationship and effect of working capital management on Return on Equity respectively. Results showed that INV, AR, and CCC had a negative and significant effect on ROE, whereas AP has negative but insignificant effect on ROE.

3.0 METHODOLOGY

Research design
The ex-post-facto research design was adopted to investigate the effect of working capital management (WCM) strategies on performance amongst the manufacturing firms in Nigeria.

Population of study
The target population was the 28 manufacturing firms in the consumer goods sectors of the quoted firms in the Nigeria Exchange Group, as at October, 2021. The study excluded other sectors that may not be completely involved in manufacturing concerns like agriculture, conglomerates, healthcare, ICT, and natural resources sectors in Nigeria. The firms completed out of the picture as manufacturing firms are the oil and gas, construction/real estate, services, financial services and utilities. Table 1 below showed the number of listed firms in Nigeria from where the firms with manufacturing concerns are derived.

Table 1: Listed of quoted firms in Nigeria.

SN	Sectors quoted on NSE	Total Number of Companies	Selected as Manufacturing sector
4	Consumer Goods	28	28
	Total	28	28

Sources: Author's computation, *Extracts from the list of quoted firms in Nigeria

Sample size and sampling technique
A sample of 9 quoted manufacturing firms are selected for the study. Criteria for inclusion of these firms into the sample are as follows:

1. They must be firms in among the firms in the consumers goods and industrial goods sectors, quoted on the Nigerian Exchange Group.
2. They must have been rendering annual financial reports to the public from 2000 to2020.
3. The data for the computation of variables of the study must be available in financial reports of the selected firms.

The sample formed about 17% of the quoted manufacturing firms in Nigeria. The sample size is justified by the claim that a good sample covers at least 10%-30% of the representative population (Mugenda & Mugenda, 2003).

Sources for data collection
The data was collected from secondary sources. The main source of all the data will be from the Financial Statement and Annual Reports of the selected firms. A period of Twenty (20) years was used spanning 2000 to 2020, being the most current period for data availability. The data set is a panel framework consisting of a set of time series (2000 to 2020) of firms selected from the population of manufacturing firms quoted on the Nigeria Exchange Group.

Description of variables and measurement
The definitions of the variables to be used in this study are in line with the concepts in previous studies. The variables are grouped into three: dependent, independent and control. The independent and control will be used as explanatory variables to the dependent variable in this study.

Dependent variables
The dependent variable is the proxy for firm performance. Two proxies will be used to examine firm performance. These are Return on Asset (ROA) as proxy for profitability. The choice of the dependent variables is guided by previous studiesreviewed on chapter two. Specifically, the philosophy behind the use of return on asset (ROA) and Earnings per share (EPS) as proxies for firm performance indicators were derived from Tarek and Rafik (2020) and Simon, et al (2018). While ROA is a measure of profitability and management efficient use of assets, EPS captured the shareholder's expectations on firm valuation. Return on Asset (ROA): The ROA was considered as the dependent variable which is viewed as a measure of management's efficiency in utilizing all the assets under its control. It will be used as proxy for firm profitability which is the ratio of earnings after taxes and total assets. According to the conceptual reviews on firm performance, ROA has been adjudged by many researchers as a better measure for profitability.

Independent variables
From the studies of Yegon, Kiprono and Willy (2014), Simon, et al (2018), Ahmad, Malik, Nadeem, and Hamad, (2014) and Vartak and Hotchandani (2019) five working capital management strategies are identified for this study which are account receivable management (ARM), account payment Management (APM), Inventory management (INVM), cash conversion cycle (CCC), and cash conversion efficiency (CCE). These are used as the independent variables for each specific objectives of this study. Being the core variables of this study, the conceptual review for each of them were done in chapter two.

Control/moderating variables
Various firms have different sizes, extent of operating capacity and growth as well as corporate policies. These logical factors, other than WCM strategies, are expected to impact the firm execution (Vartak & Hotchandani, 2019). This is the rationale behind the presentation of some controlled variables. These factors will be treated in comparative design as the logical factors. These factors are:

Current Asset to Total Asset Ratio (CATAR): It demonstrates the extent of current assets in the total Assets. This isrelied upon to have an impact on the profitability of the firm. CATAR measures the Current Assets to Total Assets Ratio and is used to check the investing policy of working capital management.

Current Liability to Total Assets ratio (CLTAR). According to Padachi (2006), this proportion is utilized to quantify the level of forceful financing approach, with a high proportion being moderately increasingly forceful. CLTAR measured asthe Current Liabilities to Total Assets Ratio is used to check the financing policy of working capital management.

MODEL SPECIFICATION

The model for objective 1 is adapted from the studies of Hoang (2015), Tariq, et al (2013), and Simon, et al (2018). Hoang and Tariq, et al were carried out in Ghana and Pakistan, respectively but they both used ARM, APM, INVM,CCC and CCE. Their models are similar as shown below:

ROA = f (CCC, NTC, ACP, AIP, APP)
Where:
ROA = Return on Assets,
CCC = Cash Conversion Cycle,
NTC = Net Trade Cycle (also known as Cash Conversion Efficiency)
ACP = Average Collection Period (also known as Accounts Receivable Management)AIP = Average Inventory Period (similar to Inventory Management)
APP = Average Payment Period (same as Accounts Payable Management)
This study replicated the models in Nigeria by factoring in the investment and financing policies of the firms. The Current Assets to Total Assets Ratio (CATAR) and Current Liabilities to Total Assets Ratio (CLTAR) captures the investment and financing policies respectively for all the non-financial firms in Nigeria. The adapted model for this studyemployed the five variables of WCM and controlled it for CATAR and CLTAR. The present model of this study is:

ROA = f (ARM, APM, INVM, CCC,CCE, CATAR, CLTAR)
The functional notation can be written as equation as follows:

$$ROA_{it} = \alpha_0 + \alpha_1 ARM_{it} + \alpha_2 APM_{it} + \alpha_3 INVM_{it} + \alpha_4 CCC_{it} + \alpha_5 CCE_{it} + \alpha_6 CATAR_{it} + \alpha_7 CLTAR_{it} + \mu_{it}$$

Where,
ROA = Return on Asset as the dependent variableARM = Accounts Receivable Management
APM = Accounts Payable ManagementINVM = Inventory Management
CCC = Cash Conversion Cycle, andCCE = Cash Conversion Efficiency,
CATAR = Firm investment policy captured as Current Assets to Total Assets Ratio
CLTAR = Firm financing policy represented with Current Liabilities to Total Assets Ratioμ = Random error term
α = Constant
i= the notation to present number of firms in the modelt = the time period of the time series
α1 - 7, = are the coefficients of the regression equation.

A priori expectations

It is expected that WCM has negative relationship with the corporate profitability. If we reduce number of days in account receivables, inventory, Cash Conversion Cycle (CCC) and cash conversion efficiency (CCE), it will enhance the firm's profitability. However, for EPS Accounts payable days has positive effect while other WCM have negative effects on firm value. The A priori expectations were assigned in line with Arachchi, Perera and Vijayakumaran, (2017) and the theoretical studies reviewed in literature. The outcome is shown on Table 3:

Method of data analyses

The models was estimated using Auto-regressive Distributive Lag (ARDL) technique of data analysis while the Structural Vector Auto-regression (SVAR) Model will be used to determine the effect of working capital management strategies on the corporate performance of manufacturing firms in Nigeria. The research hypotheses and questions will form the basis on which the result of the analysis will be presented.

Unit root test

The results of the ordinary least square estimation might be spurious if the variables were non-stationary. Unit root test of stationarity for each of the variables adopting the Levin, Lin & Chu (LLC) specification will be used to ascertain the stationarity of the data. This technique is suitable for test of stationarity in panel data set, unlike the ADF, PP and KPSS that are suitable in tie series only data set.

Co-integration test

If all the variables are not found stationary at levels (i.e. they exhibit unit roots), we proceed further to carry out a co- integration test. The co-integration relationship between the variables will be ascertained by Auto-Regressive Distributed Lag (ARDL)

bound as against the conventional technique of Johansen co-integration. The choice of the Auto-Regressive Distributed Lag (ARDL) approach against the traditional Johansen co-integration framework is that ARDL is structuredin such a way that it takes into consideration the different order of integration of time series data.

Granger causality test
The granger causality technique gives an idea of the predicting power of a variable. When working capital components help in the prediction of corporate performance, corporate performance is said to be Granger caused by working capital management strategies. Alternatively, corporate performance is said to be Granger caused by working capital management strategies when the coefficients on the lagged of working capital management strategies are statistically significant.

Ardl error correction model
This can be used when the result of a co-integration test for a particular model reveals that more than one co-integrating vector exists among the variables of interest. An Error Correction Model is designed for use with non-stationary series that are known to be co-integrated. The ECM has co-integration relations built into the specification so that it restricts thelong-run behaviour of the endogenous variables to converge to their co-integrating relationships while allowing for short-run adjustment dynamics. The use of the methodology of Co-integration and ECM add more quality, flexibility and versatility to the econometric modelling of dynamic systems and the integration of short-run dynamics with the long-run equilibrium.

Regression results interpretation
The Adjusted R-Squared, F-Statistic and Durbin Watson test will be the statistical criteria to interpret the result of the models that will be estimated. Furthermore, the coefficient of the respective variables also explained the nature of relationship between the dependent and the independent variables.

Adjusted r-square (r^2)
The adjusted coefficient of determination indicates how well data points fit a statistical model – sometimes simply a line or curve. It is a statistic used in the context of statistical models whose main purpose is either the prediction of future outcomes or the testing of hypotheses, on the basis of other related information. It provides a measure of how well observed outcomes are replicated by the model, as the proportion of total variation of outcomes explained by the model. An R^2 of 1 indicates that the regression line perfectly fits the data.

F-statistic
F-statistic tests the hypothesis that all coefficients (except the intercept) are equal to zero. This statistic has F (k–1,n–k) distribution under the null hypothesis and normality assumption, and its p-value indicates probability that the hypothesis is indeed true. Conventionally, p-values smaller than 0.05 is an evidence of rejection of hypothesis of joint significanceof explanatory variables.
DURBIN WATSON STATISTIC:
The Durbin-Watson test is the conventional tool to check for autocorrelation in the model. In a situation where is the Durbin-Watson detects the presence of autocorrelation in the model, the serial correlation LM test was utilized to correct the autocorrelation issue observed.

4.0 DATA PRESENTATION, ANALYSES, AND INTERPRETATIONDATA PRESENTATION

Analysis of descriptive statistics
The descriptive statistics including the mean, standard deviation, Maximum, minimum, Skewness and Kurtosis, as wellas the Jacque Bera for the individual variables analyzed. They are shown on Table 2.

Table 2: Summary of Descriptive Variables in the Study

	ROA	ARM	APM	INVM	CCC	CCE	CATAR	CLTAR
Mean	28.82622	21.67714	61.73410	38.41687	13.66910	8.887447	0.606631	0.631011
Median	6.890000	17.65000	45.00000	22.11000	10.93000	7.170000	0.560000	0.430000
Maximum	1943.000	74.14000	223.4300	750.0100	691.6900	46.04000	1.980000	23.00000
Minimum	-12.3600	0.300000	0.080000	1.160000	-101.840	-19.0500	0.230000	0.011000
Std. Dev.	200.7991	17.81781	51.75618	65.96970	74.68610	8.396064	0.298555	2.325568
Skewness	9.440118	0.899850	1.327547	7.528018	4.486375	1.598911	2.494612	9.489689
Kurtosis	90.24972	2.931953	4.034759	75.43028	38.25086	8.290486	10.37800	91.54775
Jarque-Bera	61427.53	25.54296	63.60865	43098.53	10419.67	299.3533	618.0918	64582.25

Prob	0.000000	0.000003	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Sum	5332.850	4096.980	11606.01	7260.789	2583.460	1670.840	113.4400	119.2610
Observations	185	189	188	189	189	188	187	189

Source: E-views Estimation

The descriptive statistics of the variables are shown on Table 2. The mean values show the average distribution of the variables. Variables with low standard deviation suggests that the mean clustered around the mean while high standard deviation implies wide variation from the mean. The variables for ARM, APM, CCE, and CATAR display standard deviation lower than the mean values. However, ROA, INVM, and CLTAR, have mean values greater than the standard deviation. This is suggestive that variables for return on asset (ROA), INVM, and CLTAR, have wide variation that may implies lack of normal distribution. However, other variables appear to cluster around the mean and suggest normal distribution of the variables.
Nonetheless, the Jarque-Bera statistics examines the normality of the individual variables of the study. The null hypothesis is that the variables are normally distributed. Thus, we reject the hypotheses for variables with p-value less than 0.05 level of significance, otherwise we cannot reject. The p-values for all the variables are less than 0.05, thus we reject the null hypothesis and conclude that most of the variables are not normally distributed. This implies that the variables in the models do not follow similar trends in all the firms included in this study.

Unit root analysis

The unit root analysis was performed to determine the stationarity of the variables. The Levin, Lin & Chu (LLC) which a panel unit root technique that assumes common unit root process was employed. The decision rule is to reject stationarity if the computed statistics is less than 5% critical value, otherwise, accept stationarity when computed is greater than 5% criteria value.

Table 3: Summary of Unit Root Test for Stationarity

Variables	At Level1(0)	At First Difference 1(1)	Order of Integration
Return on Asset (ROA)	-284.688 (0.0000)		1(0)
Account Receivables Management (ARM)	-06442 (0.2597)	-3.7570 (0.0001)	1(I)
Account Payable Management (APM)	-0.6442 (0.2597)	-3.7570 (0.0001)	1(I)
Inventory Management (INVM)	0.9760 (0.8355)	-4.7958 (0.0000)	1(I)
Cash Conversion Cycle (CCC)	-2.9488 (0.0016)		1(0)
Cash Conversion Efficiency (CCE)	-0.7501 (0.2266)	-7.09322 (0.0000)	1(1)
CATAR	-5.7407 (0.0000)		1(0)
CLTAR	-4.0528 (0.0000)		1(0)

Sources: Extracts E-views Estimation

The results on Table 3 show that there is a mixture of stationarity levels among the variables. ROA, CCC, CATAR, and CLTAR, are stationary at level 1(0), while other variable including ARM, APM, INVM, and CCE are not stationary at level 1(0) and become stationary in their first differences 1(1). The result of the unit root analysis show that at least one variable will be stationary at 1(0) and 1(1) in each of the models for the study. Thus, the models for the study are said to have a combination of both 1(0) and 1(1).

Model estimation

The results of the models estimation was based on panel ARDL technique that captured both the long and short runnature of the data of the study.

ESTIMATION OF EFFECT OF WORKING CAPITAL MANAGEMENT STRATEGIES ON FIRMS PROFITABILITY

Table 4: Panel ARDL Result of Working Capital Management on Return on Assets Nexus

Dependent Variable: D(ROA)Method: ARDL
Sample: 2001 - 2020

Dynamic regressors (1 lag, automatic): ARM APM INVM CCC CCE CATARCLTAR
Fixed regressors: C

Number of models evalulated: 1
Selected Model: ARDL(1, 1, 1, 1, 1, 1, 1, 1)
Note: final equation sample is larger than selection sample

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
Long Run Equation				
ARM	-2.075441	1.153328	-2.234560	0.0035
APM	0.070979	0.118225	0.600374	0.5497
INVM	1.146760	0.555429	2.064640	0.0417
CCC	0.224841	0.122424	2.836578	0.0005
CCE	-2.898157	1.333831	-2.172806	0.0323
CATAR	68.90668	29.80517	2.311904	0.0230
CLTAR	71.83275	31.30431	2.294660	0.0240
Short Run Equation				
COINTEQ01	-0.208938	0.129481	-1.613660	0.1100
D(ARM)	1.710481	1.365046	1.253057	0.2133
D(APM)	1.715487	1.568605	1.093638	0.2769
D(INVM)	-3.852706	2.656978	-1.450033	0.1504
D(CCC)	0.863395	0.769889	1.121454	0.2650
D(CCE)	0.093930	0.747512	0.125656	0.9003
D(CATAR)	204.2285	211.3341	0.966377	0.3364
D(CLTAR)	-136.0905	153.5368	-0.886371	0.3777
C	15.05950	11.26226	1.337165	0.1844
Log likelihood -548.3028				

*Note: p-values and any subsequent tests do not account for model selection.

The result on Table 4 is the panel ARDL analysis that examined that effect of working capital management strategies on return on asset (ROA). The long model comprise ARM, APM, INVM, CE and CCE and control variables. The result of the ARM is -2.0754 with t-stat of -2.2345 and p.value of 0.0035. The coefficient indicate that account receivable management (ARM) have a negative relationship with the dependent variable (ROA). The p.value is less than 0.05 whichmeans that ARM had a significant effect on return on asset (ROA). For APM, the coefficient is 0.0709 with a t-statistics of 0.6003 and p.value (0.5497). The coefficient showed a positive relationship, but the p.value is not statistically significant. This means that account payable management as no significant effect on the return on asset of manufacturingfirms in Nigeria.

The inventory management (INVM) has a long run coefficient of 1.1467 which connotes positive relationship. The t- statistics and the corresponding p.value is 2.0646 (0.0417). Since the p.value is less than 0.05 level of significance, the study posit that INVM has a positive and significant effect on return on asset of quoted manufacturing firms in Nigeria. The cash conversion cycle (CCC) has a coefficient of 0.2248, with a t-statistics and p.value of 2.8365 (0.0005). This means that CCC has a positive effect on return on asset. A unit increase in CCC is expected to lead growth in the firm profitability. Lastly, the coefficient of CCE (-2.8981) showed that cash conversion efficiency has a negative relationship with ROA. The t-statistics (-2.1728) and p.value (0.0323). The results showed that CCE has a significant negative effect on ROA. On the other hand, the short run equation result show a ECM (COINTEQ01) coefficient of -2.0754 with a p.value 0.1100. The coefficient is rightly signed with a negative value. This suggests that deviations from normalcy is expected to return to equilibrium. However, the p.value is greater than 0.05 level of significance which means that thereis no short run dynamism in the model. More so, all the variables in the short run equation have p-values greater than
0.05. This indicate that the model have no short run effect and hence working capital management do not have a short run effect on return on asset in the study industry.

Table 5: Granger Causality test for Working Capital Management Strategies and Manufacturing FirmPerformance Indicators

	Null Hypotheses	Obs	F-stats	P-value	Decision
Obj 1	ARM does not granger cause ROA	159	9.557	0.0001	Uni-directional
	ROA does not granger cause ARM		0.4038	0.6655	causalityfrom ARM --> ROA
Obj 2	APM does not granger cause ROA	156	9.2006	0.0000	Uni-directional
	ROA does not granger cause APM		0.7022	0.4971	causality from APM --> ROA
Obj 3	INVM does not granger cause ROA	158	2.9909	0.0532	Uni-directional
	ROA does not granger cause INVM		0.2598	0.7715	causality from

					INVM--> ROA
Obj 4	CCC does not granger cause ROA	159	0.0440	0.9570	No causality
	ROA does not granger cause CCC		0.2848	0.7525	
Obj 5	CCE does not granger cause ROA	156	5.7160	0.0000	Uni-directional
	ROA does not granger cause CCE		0.3941	0.6750	causality from CCE --> ROA

Causal relationship between account receivable management and firm performance indicators (roa and eps)
The model 1 address the causal effect of ARM on firm performance indicators. The pairwise granger causality between ARM and ROA has p.value less than 0.05 for ARM□ROA (p = 0.0001); and p.value greater than 0.05 for ROA □ARM (p = 0.6655). Thus we rejected the null hypothesis for granger causality from ARM to ROA; but we cannot reject the nullhypothesis from ROA to ARM. This means that there is uni-directional causal relationship between account receivable management and return on asset. The study posits that account receivable management strategy granger cause return on asset of quoted manufacturing firms in Nigeria.

Causal relationship between account receivable management and firm performance indicators (roa and eps)
The causality of model 2 is analyzed using the Pairwise granger causality. The result for causality are: APM□ROA (p = 0.0000) and ROA □ARM (p = 0.4971). The p.value is less than 0.05 for APM□ROA and greater than 0.05 for ROA□APM. Thus the study rejected the null hypothesis for granger causality from APM to ROA; but we cannot reject the null hypothesis from ROA to APM. This means that there is uni-directional causal relationship between account payable management and return on asset. The study posits that account payable management strategy granger cause return on asset of quoted manufacturing firms in Nigeria.

Causal relationship between inventory management and firm performanceindicators (roa and eps)
The causality of inventory management (INVM) and firm performance. The result for pairwise granger causality explains two-way causality between the variables.

Causal relationship between cash conversion cycle and firm performanceindicators (roa)
The pairwise granger causality analysis was used for the interpretation. The analyses are for granger causality of cash conversion cycle and ROA nexus.

Causal relationship between cash conversion efficiency and firm performanceindicators (roa and eps)
The result address the causal effect of cash conversion efficiency (CCE) on firm performance indicators. The pairwise granger causality between CCE and ROA has p.value less than 0.05 for CCE□ROA (p = 0.0000); and p.value greater than 0.05 for ROA □CCE (p = 0.6750). Thus we rejected the null hypothesis for granger causality from CCE to ROA; but wecannot reject the null hypothesis from ROA to CCE. This means that there is uni-directional causal relationship between cash conversion efficiency (CCE) and return on asset (ROA). The study posit that CCE strategy granger cause return on asset of quoted manufacturing firms in Nigeria.

Hypotheses testing
The test of hypothesis is based on long and short run effects, and granger causality test. The hypothesis testing for long run effect is tested using the Wald test; while the short run is determined by the ECM.

Decision rules: The hypothesis is based on 5% level of significance: thus, we reject the null hypothesis, if the p.value is less than 0.05.

Hypothesis one
Account receivable management has no significant effect on the financial performance of manufacturing firms.The Panel ARDL result on Table 4 is as follows:

Long run equation:
ROA Model: Coefficient = -2.0754; T-stat = -2.2345; p.value of 0.0035.
The coefficient for ROA model have negative coefficient, p-values less than 0.05 level of significance. Thus the study rejected the null hypothesis for long run relationship.

Short run equation
ROA Model: coefficient = 1.7104, T-statistics = 1.2530; P.value= 0.2133
The coefficients show positive sign and the p-value greater than 0.05 for ROA model. Thus, accepting the nullhypothesis for the ROA model.

Decision: Account receivable management strategy have long run and no short run effect on return on asset of quoted manufacturing firms in Nigeria.

Hypothesis two
Account payable management has no significant effect on the financial performance of manufacturing firms.The Panel ARDL results on Table 4 is as follows:

Long run equation:
ROA Model: Coefficient = 0.0709; T-statistics = 0.6003; P.value = 0.5497
The coefficient for ROA model is positive and have p.value greater than 0.05 level of significance. Thus the study cannotreject the null hypothesis for long run relationship.

Short run equation:
ROA Model: coefficient = 1.7154; T-stat = 1.0936; p.value = 0.2133

The coefficients for ROA models show positive signs. The p.value for ROA model is greater than 0.05 level of significance. Thus, we cannot reject the null hypothesis for the ROA models.

Decision:
Account payable management strategy do not have long and short run effects on financial ROA of quoted manufacturingfirms in Nigeria.

Hypothesis three
Inventory management has no significant effect on the financial performance of manufacturing firms.The Panel ARDL results on Table 4 is as follows:

Long run equation:

ROA Model: Coefficient = 1.1467, T-statistics = 2.0646; p.value = 0.0417
The coefficients for ROA model is positive and have p-values greater than 0.05 level of significance. Thus the studycannot reject the null hypothesis for long run relationships.

Short run equation:
ROA Model: coefficient = -3.8527; T-stat = -1.4500; p.value = 0.1504

The coefficients for ROA model show negative sign. The p-value for ROA model is greater than 0.05 level ofsignificance. Thus, we accept the null hypothesis for ROA model.
Decision:
Inventory management strategy does not have long and short run effect on financial ROA of quoted manufacturing firms in Nigeria.

Hypothesis four
Cash conversion cycle has no significant effect on the financial performance of manufacturing firms.The Panel ARDL results on Table 4 is as follows:
Long run equation:
ROA Model: Coefficient = 0.2248; t-statistics = 2.8365; p.value = 0.0005
The coefficient for ROA model is positive with a p-value less than 0.05 level of significance. Thus the study rejected thenull hypothesis for long run relationship.
Short run equation:
ROA Model: coefficient = 0.8633; T-stat = 1.1214; P.value = 0.2650
The coefficient for ROA model show positive sign. The p.value for ROA model is greater than 0.05 level of significance.Thus, we cannot reject the null hypothesis for ROA model.
Decision:
Cash conversion cycle strategy have a long run and no short run effect on return on asset of quoted manufacturing firmsin Nigeria.

Hypothesis five
Cash conversion efficiency has no significant effect on the financial performance of manufacturing firms.The Panel ARDL results on Table 4 is as follows:

Long run equation:
ROA Model: Coefficient = -2.8981; T-stat = -2.1728; P.value = 0.0323
The coefficient for ROA model is negative and have p.value less than 0.05 level of significance. Thus, we reject the null

hypotheses for ROA model.

Short run equation:
ROA Model: coefficient = 0.0939; T-stat = 0.1256; P.value = 0.9003
The coefficient for ROA model show positive sign with p-values greater than 0.05 level of significance. Thus, we cannotreject the null hypothesis for ROA model.
Decision:
Cash conversion efficiency strategy have longrun but no significant short run effect on financial performance indicatorsof quoted manufacturing firms in Nigeria.

Discussion of findings
The discussion of the findings was done along the line of the objectives of the study.

Account receivable management and financial performance nexus
The results from objective one revealed that account receivable management strategy have long run and no short run effect on return on asset of quoted manufacturing firms in Nigeria. The long run coefficient was negative, and this means that account receivables lead to a fall in the value of return on asset of the firms. On the other hand, changes in account receivable will not influence return on asset in the short run. This means that return on shareholders' wealth is not susceptible to account receivable hence defaults and other risks associated with account receivable. Thus, credit purchases and delayed payment does not significant determine annual returns on the firms. The results disagree withmost of the extant studies on account receivables and financial performance nexus in Nigeria and abroad. For instance, the work of Nguyen, et al (2020), Asiedu, et al (2020), Akomeah and Frimpong (2020), Vartak and Hotchandani (2019), Siraj, et al (2019), Simon, Sawandi et al (2018), Yakubu, et al., (2017) posited that account receivable (which is same as average collection period) had a negative and significant effect on various forms of financial performance of firms. Nonetheless, the result of the previous studies was obtained from short period data ranging from five years to twelve. Thepresent study had time series of 20 years and hence the long run effect becomes positive.

Account payable management and financial performance nexus
The result to test of hypothesis two revealed that account payable management strategy do not long and short run effects on financial performance indicators of quoted manufacturing firms in Nigeria. This supposes that an increase in the value of account payable will not lead to any increase return on asset for firms. This study avers that account payable management is not necessarily a management strategy for enhancing firm performance indicators. Further results tend to suggest that account payable management strategy has direct causal effect on the return on asset of quoted manufacturing firms in Nigeria. This means that all account payable management strategies of firms have potential effect on the level of return on asset for firms. Hence, the profitability of the firms must be put into consideration in all APM strategic postures. Extant literature tends to proffer mix findings. The work of Akomeah and Frimpong (2020) and Vartak and Hotchandani (2019) showed positive but insignificant effect on financial performance whereas Siraj, et al (2019), Mabandla and Makoni, (2019) and Yakubu, et al (2017) were of the position that account payable had positive and significant effect on financial performance of firms. This divergence and mixture in empirical findings become more confusing with conflicting results even in the negative proponents. For instance, Nguyen, et al (2020) positive significant negative effect while Asiedu, et al (2020) reported negative but insignificant effect.

Inventory management and financial performance nexus
The result for objective three revealed that inventory management strategy do not have long and short run effect on financial performance indicators of quoted manufacturing firms in Nigeria. This means that inventory management strategy is not a determinant of financial performance of manufacturing firms both in the short and long run. The study further posits that inventory management strategy granger cause return on asset, which implies that possible fall in the ROA of manufacturing could be result of inventory strategy adopted. It can be deduced that various financial performance indicators yield different findings. This is in line with the findings of previous studies. For instance, the work of Siraj, et al (2019) revealed that inventory management has positive effect on return on asset but negative effect on sales. In a similar vein, the work of Nguyen, et al (2020) found that inventory management (that is turnover in days)had negative and significant impacts on the firms' profitability measured by Tobin's Q and return on assets (ROA).

Cash conversion cycle and financial performance nexus
The result of hypothesis four showed that cash conversion cycle strategy long run and no short run effect on return on asset of quoted manufacturing firms in Nigeria. This means that CCC influences long run ROA but not short ROA of firms in Nigeria. The coefficient of the long run effect was positive and this implies that a unit rise in inventory holding will lead to an increase in the firms ROA. This sound inventory management strategy might connote one that maintains optimal stock level that does not reduce expected profit of the firm. The study further revealed that inventory does not have causal relationship with ROA.

This is in line with extant studies in the field. For instance, the work of Nguyen, et al (2020), Asiedu, et al (2020), Vartakand Hotchandani (2019), Al-Mawsheki, et al (2019), Yakubu, et al (2017) found that cash conversion cycle has negative and significant effect on various types of financial performance indicators like return on asset, Tobin's Q, return on equity and

economic value added. On another hand, some other previous studies showed positive and significance effect between cash conversion cycle and financial performance (Abubakar, et al, 2020; Akomeah& Frimpong,2020; and Simon, et al 2018). All these indicators that there are still conflicts in the nature and direction of effect of cashconversion cycle strategy on financial performance of firms in Nigeria.

Cash conversion efficiency andfinancial performance nexus

The result of the hypothesis five of the study showed that cash conversion efficiency strategy has long but no significant short run effect on financial performance indicators of quoted manufacturing firms in Nigeria. The coefficient of the ROA model is positive which implies that suggests that CCE improves the ROA of quoted manufacturing firms in Nigeria. Moreover, the causal analysis revealed that cash conversion efficiency strategy granger cause return on asset of quoted manufacturing firms in Nigeria. This explains that there are conflicting and mix-ups in the nature and direction of the relationship between cash conversion efficiency among firms. This is expatiated in the opposing results from Vijayakumaran (2019) and Simon, et al (2018) wherein the later found positive relationship between cash conversion efficiency and return on assets.

5.0 CONCLUSION AND RECOMMENDATIONS

Conclusion

Working capital management strategies have significant impact on the financial performance of firms. The degree of effect differs by period, type of strategy and financial performance indicator. The return on asset is more likely to cause changes in working capital management strategies than earnings per share. Firms tends to adjust their working capital in line with the expected return on asset, hence return on asset is one of the major drivers of level of working capital of firms.

RECOMMENDATIONS

The results of the study have shown some novel findings. Based on these findings, it has been recommended as follows:

The management of firms should firms should increase the supplies to customers and allow credit to its customers. This will enable the firms to enhance their return on investment and thus stabilize their financial status.

The study also recommend that managers should carry an optimal stock level that will improve firm financial performance.

The study has posited that cash conversion cycle strategy have implications for both long and short run position of the firms on return on asset. This study thus proffer that the management of firms should reduce the number of periods it takes to recover or convert short term assets to liquid cash.

It is expected that firms should spend both less cash and efforts in its cash recovery process. This study recommends that firms pay attention to the process for credit recovery as this impinges on the firm financial performance.

REFERENCES

[1]. Abubakar, Y., Umaru, D., &Olumuyiwa O. O. (2020). Working capital management and financial performance of selected quoted firms in Nigeria. International Journal of Research and Scientific Innovation, VII(IV), 62 – 67.

[2]. Adnan, M., Abdulhamid, T., & Sohail, B. (2018). Predicting firm performance through resource-based framework. European Journal of Business and Management, 10(1), 65 - 76.

[3]. Akinleye G. T. &Adeboboye R. (2019). Assessing working capital management and performance of listed manufacturing firms: Nigeria evidence. Information Management and Business Review, 11(2), 27-34.

[4]. Akomeah J. &Frimpong S. (2020). Working capital management on profitability of listed manufacturing companies in Ghana. International Journal of Finance and Banking Research. 5(2), 29- 35

[5]. Anand, M. &Grupta C.P. (2002). Working capital performance of corporate India: An 29 empirical survey for the year 2000-2001. Management and Accounting Research, 2 (1), 54 – 68.

[6]. Asiedu, M. A., Adegbedzi, D. K., Oduro, R. &Iddrisu, S. (2020). Working capital management effect on return on equity-evidence from listed manufacturing firms on Ghana stock exchange (GSE). International Journal of Finance and Accounting, 5(1-4). 47 – 66.

[7]. Barney, J. (1991). Firm resources and sustained competitive advantage. Journal of Management, 17(1): 99– 120

[8]. Coyne, K. P. (1986). Sustainable competitive advantage is what it is not. Business Horizons, 29(1), 54–61.

[9]. Davydenko, A. (2011). Determinants of bank profitability in Ukraine. Undergraduate Economic Review, 7(1), 54 – 61. Retrieved from http://digitalcommons.iwu.edu/ue r/vol7/iss1/2.

[10]. Eshan, V. (2017). Financial performance- understanding its concept and importance, Simplilearn.

[11]. Flamini, C., Valentina, C., McDonald, G, & Liliana, S. (2009). The determinants of commercial bankprofitability in Sub-Saharan Africa. IMF Working Paper. WP/09/15.

[12]. Izadi-Niya, N, & Taaki, A. (2010). Examining the impact of working capital management on theprofitability of the Tehran listed firms. Financial Accounting Journal, 5(2), 120-139.

[13]. Kahveci, E. (2011). Firm performance and resource-based theory: an application with DEA. International Journal of Contemporary Business Studies, 2(4), 38 - 50

[14]. Kamasak, R. (2017). The contribution of tangible and intangible resources and capabilities to a firm's profitability and market performance. European Journal of Management and Business Economics, 26(2): 252– 275.

[15]. Kaur, J. (2010). Working capital management in India tyre industry. International Research Journal of Finance Economics, 46(2010), 7–15.

[16]. Kusuma, H. & Bachtiar, A. D. (2018). Working capital management and corporate performance: Evidence from Indonesia. Journal of Management and Business Administration. Central Europe, 26(2), 76–88.
[17]. Linderhof, J. H. C. (2014). Does working capital management affect the profitability of public listed firms in the Netherlands? Retrieved from http://essay.utwente.nl/65105/1/Linderhof_MA_MB.pdf.
[18]. Ling, S. S. Ali, A. & Ming, W. W. P. (2019). Working capital management and firm performance: An empirical study for Malaysian public listed companies in property industry. Borneo Journal of Social Science & Humanities, 1 – 15. DOI: https://doi.org/10.35370/bjssh.2019.1.2-06
[19]. Mabandla, N. Z &Makoni, P, L. (2019). Working capital management and financial performance: Evidence from listed food and beverage companies in South Africa. Academy of Accounting and Financial Studies Journal, 23(2), 1 – 10.
[20]. Madhani, P. M. (2010). The resource-based view (RBV) of competitive advantage: An overview. Resource-Based View:Concepts and practices (pp. 3–22).
[21]. Nguyen, A. H., Pham, H. T., & Nguyen, H. T. (2020). Impact of working capital management on firm'sprofitability: Empirical evidence from Vietnam. The Journal of Asian Finance, Economics, and Business, 7(3), 115-125.
[22]. Nobanee, H., Abdullatif, M., & AlHajjar, M. (2011). Cash conversion cycle and firm's performance of Japanese firms. Asian Review of Accounting, 19(2), 147–156.
[23]. Oladipupo, A. O., & Okafor, C. A. (2013). Relative contribution of working capital management practicesto Nigeria. International Journal of Business and Finance Research, 3(2), 11-20.
[24]. Onwumere, J. U. J., Ibe I. G., &Ugbam O. C. (2012). The impact of working capital management practices Investigation. European Journal of Business and Management, 4(15), 192-201
[25]. Penrose, E. (1959). The theory of the growth of the firm. Oxford University Press.
[26]. Pinku, P. &Paroma, M. (2018). Analysis of the effect of working capital management on profitabilityof the firm: Evidence from Indian steel industry. Asia-Pacific Journal of Management Research and Innovation, 14(1–2), 32–38.
[27]. Samuel, A., & Mole, K. (2018). Small business growth andperformance. In R. Blackburn, D. De Clercq& J. Heinonen (Eds.).The SAGE handbook of small business and entrepreneurship.SAGE Publications. http://hdl.handle.net/10454/1732
[28]. Simon, S., Sawandi, N. & Abdul-Hamid, M. A. (2018). A reassessment of the relationship between working capital management and firm performance: evidence from non-financial companies in Nigeria. Investment Management and Financial Innovations, 15(3), 249-266.
[29]. Simon, S., Sawandi, N. & Abdul-Hamid, M. A. (2019). Working capital management and firm performance: The moderating effect of inflation rates. Pertanika Journal of Social Science & Humanities, 27 (1), 235 – 257.
[30]. Siraj, M., Mubeen, M. &Sarwat, S. (2019). Working capital management and firm performance: evidence from non-financial firms in Pakistan. Asian Journal of Empirical Research, 9(2), 27-37.
[31]. Tauringana, V. & Afrifa, G. A. (2013). The relative importance of working capital management and its components to SMEs' profitability. Journal of Small Business and Enterprise Development, 20(3), 453–469.
[32]. Vartak, P. &Hotchandani, V. (2019). Working capital management and firm performance: Evidencefrom Indian listed firm. International Journal of Management, Technology and Engineering, IX (IV), 913 – 925.
[33].Vijayakumaran, R. (2019). Efficiency of working capital management and firm value: Evidence from Chinese listed firms. International Journal of Financial Research, 10(6), 133 – 144.
[34]. Wach, K. (2020). A typology of small business growth modelling: A critical literature review. Entrepreneurial Business and Economics Review, 8(1): 159–184.
[35]. Wang, Z., Akbar, M & Akbar, A. (2020). The interplay between working capital management and a firm's financial performance across the corporate life cycle. Sustainability, 12, 1-16; doi:10.3390/su12041661.
[36]. Yakubu, I. N., Alhassan, M. M. &Fuseini, A. (2017). The impact of working capital management on corporate performance: Evidence from listed non-financial firms in Ghana. European Journal of Accounting, Auditing and Finance Research, 5(3), 68-75.
[37]. Yegon, C. K., Kiprono, K. J &Willy, C. (2014). Working capital management and corporate financial performance: Evidence from panel data analysis of selected quoted tea companies in Kenya. Research Journal ofFinance and Accounting, 5(5), 53 – 62.