Working Capital Management and Performance of Selected Firms Quoted on Nigeria Stock Exchange

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Keywords

Average collection period, Average payment period, Cash conversion cycle, Firm's growth, Firms' performance, Firm profitability, Working capital management

Abstract

The continuous existence and performance of a firm depends on the efficiency of its working capital. This paper therefore examined the effect of working capital management on firm performance. This work focused on healthcare and consumer goods sector which has not been adequately researched on by past literatures. Ten companies from the health and food and beverages sectors listed on NSE were selected. Secondary data were used and obtained from the annual financial reports of the selected companies from 2012– 2019. Panel data analysis and Haussmann tests were used to examine the effect of working capital management on firm performance. Findings revealed that average collection period has positive significant effects on firm performance while firm size has negative but significant effect on firm performance. The study concludes that firms would be adversely affected if it takes them longer period to retrieve payments due from their customers. This study recommended that firms in the consumer goods and healthcare sectors should put in place measures and strategies that would ensure prompt payment from their customers

1.0 Introduction

The continuous existence and performance of a firm depends on the efficiency of its working capital due to its significant effect on the profitability and liquidity of firms. Working capital of a firm has been recognized as an essential aspect in financial management (Zahra &Jari, 2012) and that is why proper management of working management is necessary to achieve value maximization objective. The major goal of working capital management is to ensure that a firm generates sufficient positive working capital (particularly cash) from ongoing business activities to continually fund both debt payments and operating expenses (Martine, 2003). Also, Afza and Nazir (2008) affirmed that the key objective of effective working capital is to maximize the wealth of share-holders. This is the reason efficient and effective working capital management is of utmost importance to organizations, the size and nature of business notwithstanding. Guthmann (2008) termed working capital management as the life-blood and nerve centre of an organization.

Working capital plays a prominent role in running the daily business operations of an organization and its performance. Managing working capital efficiently addresses various areas of a business, like payment and collection of cash, timely ordering of inventory, and sales management. Put differently and as affirmed by Jagongo and Makori (2013), the goal of the management of working capital is to promote a satisfying liquidity, profitability and shareholders' value. All of these areas contribute towards better financial performance, which in turns accelerates the growth of a firm. It also prevents firms from borrowing to finance their short-term obligations. Profitability and growth both are reflections of the situation of a firm's operations (Mohsin, Muhammad &Salman, 2019).

Due to different economic conditions, technological changes, and various business practices, decisions in regard to Working Capital management and its components also tends to differ. Low corporate performance is generally observed in low economic state or in recession. In economic downturn, requirements of efficient Working Capital increase also have its impact on operational profitability (Enqvist*et al.,* 2014). How a firm manages its working capital can have direct impact on its liquidity and profitability (Shin and Soenen, 1998). According to Mekonnen, (2011) improper management of working capital components can make the company find it difficult to run a smooth operation. Excess current assets as a percentage of total assets may have negative effect on the financial performance and profitability of the firm while low level current assets may result in low level of liquidity and stock outs, leading to challenges in the firm's operations (Belt, 1979).

Presently, Nigeria companies are operating under unfavorable conditions like lack of access to funds, poor facilities, security problems, poor energy supply and high interest rates on banks loans. These and many others affect the growth of companies in Nigeria (Oni, 2011), especially in the non financial sector. Companies in the non financial sector invest largely in working capital assets due to their mode of operation; the sustainability of these companies depends to a large extent on the proper management and financing of working capital (Kehinde, 2011). Also, Manufacturer Association of Nigeria (MAN) (2012) affirmed that manufacturing firms' contribution to Nigeria's GDP is on the decline due to improper management of the working capital. This makes it necessary to examine the effect of working capital management on growth and profitability of firms in Nigeria.

1.1 Statements of the Problem

Globally, working capital is the most important tools that an organization must properly manage because it determines organizational survival (David, 2010; Owolabi&Alu, 2012; Karaduman, 2011). However, the global economic recession has had negative effect on the profitability of companies Nigeria inclusive while the unfriendly operating environment in the country has not helped companies to make profit, thus posing a huge threat to their survival and continue existence. Working capital management plays a good role in ensuring that a company continues to grow and it is germane to a company's sustainability. According to (Eya, 2016; NorEdi&Noriza, 2010), business can collapse without working capital, Enyi (2011) also affirmed that a business is only as strong as its unencumbered capital base and as liquid as its working capital volume.

Efficient working capital management is extremely important for firms in the manufacturing sector because most of their assets are current assets. A lot of companies are finding it difficult to operate due to inadequate working capital. Managers of most firms have not been able to identify the appropriate working capital driver (s) and level of working capital. This could have been the reason for collapse of companies in the manufacturing sector. Most literatures on this study area focused on sectors of the manufacturing industry in Nigeria. it thus becomes imperative to examine the effect of working capital management on performance of companies in the health and food sectors.

1.2 Research Questions

The research questions for this study are

    i.   What is the effect of working capital components on profitability of firm?

    ii.   What is the effect of working capital components on growth of firms?

1.3 Objectives of the Study

The general objective of the research is to examine the effect of working capital management on firm's performance. The specific objectives are to:

    i.   examine the effect of working capital components on profitability of firms

    ii.   examine the effect of working capital components on growth of firms

1.4   Research Hypotheses

Based on the objectives of the study the following hypotheses were formulated and were stated in null forms:

H01: Working capital components have no significant effect on the profitability of firms

H02: Working capital components have no significant effect on the growth of firms

2.0   Literature Review

2.1.1   Working Capital and Working Capital Management

Working capital refers to the capital required for purchasing raw materials and meeting daily expenditures in an organization. However there are different definitions of working capital. According to Brigham and Houston (2011), working capital is how temporary and permanent current assets of a firm are financed. Li and Han-Wen (2006) postulated that working capital management is the application of strategies and policies to utilize the current assets and liabilities of a firm to ensure that optimum working capital level is maintained. Haitham and Maryam (2005) opined that working capital is the capital invested in current assets, which are assets that can be converted into cash within a short time and cash received is re-invested. Working capital comprises cash and its equivalents, receivables, funds locked up in materials, work-in-progress and finished goods. It is an essential tool for measuring the financial position of a firm. Gross working capital refers to a firm's total current assets. Net working capital is the difference between current assets and current liabilities. A positive net working capital is when current assets exceed current liabilities while a negative net working capital is when current liabilities exceed current assets i.e. there is a working capital deficit.

Working capital management methods consist of aggressive and conservative approaches. In a conservative approach, investments are more in short-term, and comparatively less in long-term; while in an aggressive policy, there is low investment in short-term and more investments in long-term. Through aggressive investment approach, firms may generate more profits; but on the contrary it faces a risk of not fulfilling short-term debts and insufficient funds for routine operations. For conservative working capital financing policy, current obligations are against most parts of long-term obligations. Uremadu,Egbide and Enyi (2012) affirmed that working capital management should balance liquidity and profitability of a firm mainly through the use of cash management, inventory management and creditor management techniques. According to Mathuva (2010) the most important components of working capital management include management of trade receivables and payables, holding investible funds/cash and maintaining a certain level of inventories. He believed that optimizing these working capital components determine to a large extent the performance of an organization.

2.1.2 Cash Conversion Cycle (CCC)

CCC is the period of time a company takes to convert its resources into cash flows. It is the measurement of time cash is tied up in the production and sales processes before it is converted into cash through sales. According to Besley and Brigham (2005), cash conversion cycle is the length of time from

paying for the purchase of raw materials to manufacture a product until the collection of account receivable associated with the sale of the product. It is calculated by adding inventory days and average collection period and subtracting average payment period. The length of CCC is an important tool to measure the efficiency of working capital management.

2.1.3 Average Payment Period (APP)

APP refers to time it takes a firm to pay its suppliers or creditors. Afza and Nazir (2008) defined average collection period as the average number of days between the date that a credit sale is made, and the date that the money is received from the customer. Afeef (2011) opined that APP is the short term liquidity measure that explains the rate at which company paid off its suppliers. It is calculated by dividing account payable by purchase and multiplying with 365 days.

2.1.4 Return on Assets

Return on assets (ROA) is an indicator of how profitable a company is relative to its total assets. ROA gives a manager, investor, or analyst an idea as to how efficient a company's management is at using its assets to generate earnings. Return on assets is displayed as a percentage; the higher the ROA the better.

2.1.5 Average Collection Period (ACP)

ACP is the length of time it takes a firm to collect or receive payments from its debtors or customers. Mekonen (2011) postulated that ACP measures the average number of days it takes a business to collect payments for credit sales. Most companies allow their customer to buy goods and pay later, typically within 30 days. These types of account are considered accounts receivable and are assets owned by the business or it is owed. It is calculated by dividing account receivables by net sales and multiplied by 365 days. It can also be calculated by dividing the average account receivables balance by average credit sales per day.

2.1.6 Return on Sales

Return on sales (ROS) is a ratio used to evaluate a company's operational efficiency. This measure provides insight into how much profit is being produced per dollar of sales. An increasing ROS indicates that a company is growing more efficiently, while a decreasing ROS could signal impending financial troubles. ROS is very closely related to a firm's operating profit margin.

2.1.7 Inventory Turnover in Days (ITID)

Inventory is an important aspect of a business. Firm uses inventory turnover to check their performance over a period of time and relative to other firms within the same industry. According to Womack and Jones (2003), inventory turnover is how fast a firm sells its products within a certain period of time. It refers to an annual rate of turnover.It is calculated as inventory divided by cost of goods sold multiplied by 365 days. According to Goldman and Nagel (2005), inventory turnover ratio is an efficiency ratio that shows how effectively inventory is managed by comparing cost of goods sold with average inventory for a period.

2.1.8 Current Assets and Current Liabilities

Current assets are assets whose useful economic life is not more than one year. They exist for only a limited time before they are transformed into other types of assets. That is, the composition of currents assets is constantly changing. It can also be called circulating assets. Current assets include trade receivables, short-term investments, inventories of raw materials, work-in-progress and finished goods, and cash. The level of current assets is a important factor in a company's liquidity position (Juliano& William, 2014). Current liabilities are liabilities which fall due within one year i.e. payments that are expected to be made within an accounting year. Current liabilities include trade payables, overdrafts and short-term loans.

2.2 Empirical Review

Moshin et al (2019) analyzed the effects of Working Capital management i.e. inventory management, receivable management and payable management, on the performance of the non-financial firms in Pakistan. Results suggest that inventory management does influence the firms' growth and Payable management significantly, hence affecting the firms' profitability. However, only receivable management influences both profitability and growth. Ahmad et al (2014) examined the impact of working capital on the corporate performance in the cement, chemical and engineering sectors of Pakistan. The results show that average collection period, firm size, cash conversion cycle and operating cycle are positively while leverage, average payment period and average age of inventory are negatively

related to the return on equity. The results indicate that working capital management influences the firms' profitability.

Zahra and Jari (2012) evaluated the relationship between working capital management and corporate performance on 56 companies quoted on Tehran Stock Exchange. Results show that there are positive relationship between working capital management (NLB) and corporate performance. Okoye et al (2019) investigated the impact of working capital management on the performance of selected companies listed on the Nigerian Stock Exchange using panel data for forty (40) firms from the consumer and industrial goods sectors of the economy. The study produced evidence of significant positive impact of cash conversion cycle, average payment period, and inventory conversion period on firm performance. There is also evidence of non significant negative impact of average conversion period on the performance of the selected firms.

Falope and Ajilore (2009) examined the impact of working capital management on corporate profitability of non-financial service companies quoted on the Nigerian Stock Exchange (NSE). The study examined fifty companies using data over the period 1996-2005. Results showed that a negative relationship between net operating profit (dependent variable) and the independent variables (average payment period, cash conversion cycle, average collection period and inventory turnover). The result also shows that firm size does not affect the financial performance. Eya (2016) study examined the impact of working capital management on firm performance using Nestle Food Nigeria plc as a case study. The study was anchored on Behavioural Finance Theory, Economic Order Quantity (EOQ) Model and Theory of Capital Movement. Secondary data was used for the study and it was obtained from the financial statement of Nestle Nigeria Plc for the period of 2004-2013. The study made use of Ordinary Least Squares (OLS) regression after the data was subjected to unit root test and found to be stationary at levels and are integrated of order zero [I(0)]. The findings revealed that a positive relationship exist between Current Ratio (CUR), Quick Ratio (QUR) and Return on Asset (ROA) and the relationship is statistically significant.

Yakubu, Alhassan and Fuseini (2017) studied the impact of working capital management on corporate performance of non-financial firms in Ghana. Their study revealed that average payment period and current ratio have a positive relationship with firm performance while average collection period, inventory turnover, cash conversion cycle, and firm size have a negative relationship with firm performance. However, only average collection period, average payment period, cash conversion cycle, and current ratio are found to have a significant impact on firm performance. Makori and Jagongo (2013) examined the effect of working capital management on the profitability of selected firms from the manufacturing and industrial goods sectors in Kenya from 2003-2012. The result showed number of days account receivable are outstanding and cash conversion cycle have negative impact on corporate profitability while number of days' inventory and accounts payable have positive impact on profitability.

3.0 Methodology

3.1 Study Area
The study area covered companies that are quoted on the Nigeria Stock Exchange. Data from the financial statements of the companies were used.

3.2 Population
Population for the study comprised all companies from the healthcare and consumer good sectorslisted on the Nigeria Stock Exchange. The healthcare sector has 11 companies while the consumer goods sector has 20 companies.

3.3 Sampling Technique and Sampling Size
Five companies were purposively selected from each of the sectors used for this study. This makes it a total of ten companies used as sample size for the study.

3.4 Sources of Data and Method of Data Collection
Only secondary data was used for this research. The secondary data was obtained from the annual financial reports of the sampled companies.

3.5 Description and Measurements of Variables

Independent variables used in this study are Average Collection Period (ACP), Inventory Turnover in Days (ITID), Average Collection Period (APP), and Cash Conversion Cycle (CCC) while the dependent variables are Return on Assets (ROA) and Sales Growth (SG). The control variable is the firm size. How the variables were measured is shown in the table below:

Variable	Measurements
Return on Assets (ROA)	Profit before tax/Total Assets
Average Collection Period (ACP)	Account Receivables/Net sales*365
Inventory Turnover in Days (ITID)	Inventory/Cost of Sales *365
Average Payment Period (APP)	Account Payable/Cost of Sales *365
Cash Conversion Cycle (CCC)	ACP + ITID - APP
Sales Growth (SG)	(Salest – Salest-1)/Salest-1
Firm Size (FS)	Ln(Total Assets)

3.6 Model Specification

The model specified for this study used return on assets (ROA) and sales growth (SG) as proxy for the dependent variables and ACP, CCC, APP and ITID as proxy for independent variables.

$Y = a + bx$ …………………………Regression Equation

Where:

Y = Dependent Variable (Performance)

a = Constant

b = Coefficient

x = Independent Variable (Working Capital Components)

The regression model is stated below:

$PERF = α + ß1ACP + ß2ITID + ß3APP + ß4CCC + ß5FS + μ$ …….....…….…….…..…equation 1

$ROA = α + ß1ACP + ß2ITID + ß3APP + ß4CCC + ß5FS + μ$ …….…..………....…equation 2

$SG = α + ß1ACP + ß2PITID + ß3APP + ß4CCC + ß5FS + μ$ ……….…………....…equation 3

Where:

PERF = Performance

ROA = Return on Assets

SG = Sales Growth

ACP = Average Collection Period

ITID = Inventory Turnover in Days

APP = Average Payments Period

CCC = Cash Conversion Cycle

FS = Firm Size

4.0 Results and Discussions

This section contains the results of the analysis and discussion of data collected from secondary source. Annual financial reports of ten manufacturing companies listed in the Nigeria Stock Exchange in the food and health sectors were used. The data collected and extracted were analyzed with both inferential and descriptive statistical tools and interpreted.

4.1 Effect of Working Capital Components on Profitability

To examine the effect of working capital components on profitability of firms, panel data was used. Haussmann test was carried out to determine which one to choose between fixed effect model and random effect model. The result of the Haussmann test presented in table 4.1 below is Prob>chi2 = 0.0000 which is lower than 0.05 level of significance. This implies that fixed effect model was chosen and the analysis of the results was based on fixed effect model. The result of the fixed effect model was presented in table 4.2 below. From the result it was observed that average collection period (ACP) at $0.010 < p = 0.05$ has a positive significant effect on profitability of the firm. This implies that if it takes

firms in the healthcare and consumer goods sectors longer period to retrieve due payments from their customers, it would affect their working capital, hence reducing their profits making. This result contradicts the findings of Makori and Jagongo (2013) which show that ACP has negative impact on profitability of firms. Average payment period (APP) at 0.530>p=0.05 has negative and insignificant effect on profitability. This implies that though firms in the healthcare and consumer goods sectors pay their debts on time, it doesn't affect their profit making. This is in variance with the results of Okoye *et al* (2019) which show positive effect of APP on ROA but corroborated the work of Falope and Ajilore (2009). Inventory turnover in days (ITID) at 0.316>p=0.05 has negative and insignificant effect on profitability, The finding is in line with the results of Falope and Ajilore (2009) . Cash conversion cycle (CCC) at 0.891>p=0.05 has negative and insignificant effect on profitability. This result corroborated the findings of Makori and Jagongo (2013). Also, firm size (FS) at 0.009<p=0.05 has negative but significant effects on return on asset (ROA). This is in variance with the results of Ahmad et al (2014) which show positive effect of firm size on profitability.

Table 4.1:Haussmann Test of Working Capital Components and Profitability

	(b) fixed	(B) random	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
logacp	-.6356205	-.5975716	-.0380488	.1061659
logapp	.1196962	.2921404	-.1724443	.1242422
logitid	-.3259819	.1378807	-.4638626	.1668135
logccc	.0223043	.090807	-.0685028	.0765004
logfs	-6.2188	-1.095259	-5.123541	1.661573

b = consistent under Ho and Ha; obtained from xtreg
B = inconsistent under Ha, efficient under Ho; obtained from xtreg
Test: Ho: difference in coefficients not systematic
$chi2(5) = (b-B)'[(V\_b-V\_B)^{(-1)}](b-B)$
= 41.15
Prob>chi2 = 0.0000

Table 4.2:Fixed Effect of Working Capital Component and Profitability

corr(u_i, Xb) = -0.4721   Prob > F   =   0.0197

logroa	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
logacp	-.6356205	.2406667	-2.64	0.010	-1.116265	-.1549759
logapp	.1196962	.1895991	0.63	0.530	-.2589594	.4983518
logitid	-.3259819	.3222812	-1.01	0.316	-.9696218	.3176581
logccc	.0223043	.1620584	0.14	0.891	-.3013487	.3459572
logfs	-6.2188	2.321163	-2.68	0.009	-10.85448	-1.583117
_cons	12.92191	5.80969	2.22	0.030	1.319159	24.52466
sigma_u	.70814646					
sigma_e	.91516497					
rho	.37451235	(fraction of variance due to u_i)				

F test that all u_i=0: F(9, 65) = 2.65   Prob > F = 0.0112

4.2   Effect of Working Capital Components on Firm Growth

To examine the effect of working capital components on profitability of firms, panel data analysis was used. Haussmann test was carried out to determine which one to choose between fixed effect model and random effect model. The result of the Haussmann test presented in table 4.3 below is Prob>chi2 =0.9236 which is greater than 0.05 level of significance. This implies that random effect was chosen and the analysis of the results was based on random effect model. The result of the random effect was presented in table 4.4 below. From the result it was observed that average collection period (ACP) at $0.033<p=0.05$ has a positive significant effect on firm growth (FG). This means that firm performance will be affected adversely if firms take longer period to retrieve payments due from their customers. This is in line with the results of Ahmad et al (2014). Average payment period (APP) at $0.5240>p=0.05$ has negative and no significant effects on FG. This implies that firms settle their debts on time but it doesn't affect their capital or profit, thus no effect on firm growth. This is in agreement with the results of Ahmad et al (2014). Likewise, inventory turnover in days (ITID) at $0.549>p=0.05$ has negative but no significant effect on FG. This implies that if inventory turnover takes longer period, firms would not have enough working capital to finance their activities, thus affecting firm growth. This corroborated the finding of Yakubu *et al* (2017). Also, cash conversion cycle (CCC) at $0.180>p=0.05$ have negative and no significant effects on FG. This means that it takes shorter period for firms to converts its resources (raw materials, work-in-progress and finished goods) into cash flows. This is in agreement with the findings of Okoye et al (2019). This implies that firm performance would be benhanced if firm can convert their resources to cash within short periods. Firm size (FS) at $0.054<p=0.05$ has a negative but significant effects on FG.

Table 4.3:Haussmann Test of Working Capital Components and Firm Growth

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    ---- Coefficients ----
        |     (b)              (B)              (b-B)          sqrt(diag(V_b-V_B))
        |    fixed            random           Difference      S.E.
------------+----------------------------------------------------------------------------
   logacp |   .4425434        .4550631         -.0125197        .174637
   logapp |  -.1918804       -.0871632         -.1047172        .1685092
  logitid |  -.1886396       -.1615522         -.0270873        .2520351
   logccc |  -.1767313       -.1898866          .0131553        .120047
    logfs |  -1.596681       -2.953045         1.356365         2.169434
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        b = consistent under Ho and Ha; obtained from xtreg
        B = inconsistent under Ha, efficient under Ho; obtained from xtreg

     Test: Ho: difference in coefficients not systematic

     chi2(5) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                 =   1.41
     Prob>chi2 =   0.9236

Table 4.4:Random Effect of Working Capital Component and Firm Growth

logsg	Coef.	Std. Err.	z	P>|z|	[95% Conf. Interval]	
logacp	.4550631	.2131973	2.13	0.033	.037204	.8729222
logapp	-.0871632	.1369054	-0.64	0.524	-.355493	.1811665
logitid	-.1615522	.2695865	-0.60	0.549	-.689932	.3668275
logccc	-.1898866	.1415179	-1.34	0.180	-.4672566	.0874835
logfs	-2.953045	1.535769	-1.92	0.054	-5.963096	.0570061
_cons	8.403543	4.175492	2.01	0.044	.2197298	16.58736
sigma_u	0					
sigma_e	1.0479745					
rho	0	(fraction of variance due to u_i)				

Summary

This study examined the effect of working capital on firms' performance. A total of ten firms listed on the Nigeria Stock Exchange were selected from the healthcare and consumer goods sectors of the manufacturing industry. Secondary data was used and obtained from the annual financial reports of the selected companies for a period of eight years (2012 - 2019). Panel data analysis was employed to examine the objectives. The result of the study showed that average collection period (ACP) has positive and significant effect on firm performance while firm size has negative but significant effect on firm performance in the healthcare and consumer goods sectors. Further results shows that average payment period, inventory turnover in days, cash conversion cycle have negative and insignificant effects on firm performance in the healthcare and consumer goods sectors.

Conclusion

Based on the findings this study, it is concluded that the positive significant effect of average collection period on profitability and firm growth will have adverse effect on firm performance in the healthcare and consumer goods sector if firms take longer period to retrieve payments due from customers. Also, firm size has negative but significant effect on profitability and firm growth

Recommendation

This study recommended that firms in the consumer goods and healthcare sectors should put in place measures and strategies that would ensure prompt payment from their customers. Also firm should find ways of managing their working capital such as cash, receivables and inventories efficiently to increase the profitability of the firm.

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