

EFFECTS OF WORKING CAPITAL MANAGEMENT ON THE FINANCIAL PERFORMANCE OF THE PHARMACEUTICAL FIRMS IN NIGERIA

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Abstract

Working capital management is a very sensitive aspect of financial management, its management is important to the survival of any business. The objective of this study is to examine the effect of working capital management on the financial performance of pharmaceutical firms in Nigeria. The study covers a period of eight years 2006 to 2013. Data for the study were collected through secondary sources using annual financial reports and bulletins of Nigeria stock exchange of the various firms covering the period under study. Working capital management was measured using account receivables, account payables, inventory and cash conversion cycle, while return on asset proxy financial performance using multiple regression technique. The study found that both account receivables and inventory were significantly and positively related with financial performance while account payable was found to be significantly but negatively related to financial performance and cash conversion cycle was found to be statistically insignificantly related to financial performance. The study concluded that both account receivables and inventory have significant, strong and positive influence on the financial performance of listed pharmaceutical firms in Nigeria, while account receivables has significant but negative influence on the financial performance of pharmaceutical firms. In view of the above, it is recommended that the management should increase their receivables collection period, reduce their account payable period, invest more in inventory and employ aggressive policies that will decrease cash conversion cycle as all these will have an overall positive effect on the financial performance of pharmaceutical firms in Nigeria.

Keywords: *Receivables, Payables, Cash Conversion Circle, Inventory, Return on Asset*

INTRODUCTION

Working capital management is part of the financing considerations that a finance manager of a corporation needs to determine, besides capital structure and capital budgeting (Ross, Westerfield and Jordan, 2010). In view that each company emphasized on maximizing profitability that can be generated from their business operation, many studies had been conducted on working capital management and firms profitability, which the results varies based on the study undertaken. In this study, working capital management components are analysed on their effect towards the firm's profitability in Nigeria pharmaceutical sector. Working capital consists of current assets and current liabilities and the first one includes capital tied up in cash, short-term financial investments, inventories, account receivables and other current assets (Brealey, Myers & Allen, 2006, p. 813). Current liabilities include short-term loans, the debts to suppliers as account payables, accrued income taxes, and interest payments on long-term debts, dividend and other current liabilities (Pass & Pike, 2007). The concept of working capital management addresses companies' managing of their short-term capital and the goal with the management of working capital is to promote a satisfying liquidity, profitability and shareholders value (Jeng-Ren, Li & Han-Wen, 2006). Meanwhile, in determining the firm's profitability, the finance manager also need to take into account the firm's working capital management, which basically means managing the firm's current assets and current liabilities at satisfactory level (Dong and Su, 2010; Gill, Biger and Mathur, 2010). Generally, in a balance sheet, current assets consist of raw materials, work in progress, finished goods or inventories, account receivables, cash and bank balances which are short term in nature that are used for production and sales; which are able to be converted to cash within the year. On the other hand, current liabilities refer to obligations that need to be paid within the year or not beyond the business operating cycle, whichever is earlier (Ross, Westerfield and Jaffe, 2005). Generally, current liabilities comprise of accounts payable, accrued wages, taxes and other expenses payable and short-term debt. Hence, it is vital in managing the working capital efficiently as it is able to increase the firm's profitability and shareholder value (Smith, 1980; Deloof, 2003, Dong and Su, 2010). Furthermore, the benefits of having an efficient working capital management are the firms ability to meet its short term obligations and maintain adequate liquidity position in order to continue operation of the firms (Eljelly, 2004).

Harward and Upton (1961), "profitability is the 'the ability of a given investment to earn a return from its use.'" However, the term 'Profitability' is not synonymous to the term 'Efficiency'. Profitability is an index of efficiency; and is regarded as a measure of efficiency and management guide to greater efficiency. Though, profitability is an important yardstick for measuring the efficiency, the extent of profitability cannot be taken as a final proof of efficiency.

Nigeria's dominant position in Africa as the most populous and with one of the largest and fastest growing economies in Africa, coupled with its high incidence of diseases makes the country a vibrant pharmaceutical market. With respect to the pharmaceutical companies in Nigeria, adequate health care delivery still remains a major challenge for a population of over 140 million, drug consumption is still relatively low, a factor that contributes to the pharmaceutical market being described as one of the smallest among the West African region (Lead capital limited, 2008). The pharmaceutical industry in Nigeria is not as gloomy as it might appear. The ever increasing demand for drugs and medical care will continue to remain an advantage to domestic producers as well as an opportunity for growth and development of the sector. Hence the immediate need for the researcher to analyze the effects of working capital management on the financial performance of the listed pharmaceutical firms in Nigeria.

Insufficient evidences on the firm's performance and working capital management with reference to pharmaceutical firms in Nigeria provide a strong motivation for evaluating their relationship. Therefore the current study focused on evaluating the effects of working capital management on the financial performance of pharmaceutical firms listed on Nigeria Stock Exchange.

Statement of the Problem

The management of working capital is synonymous to the management of short-term liquidity. Brigham and Houston (2003) mentioned that about 60 percent of a typical financial manager's time is devoted to working capital management. Hence, the crucial part of managing working capital is maintaining the required liquidity in day-to-day operation to ensure firms smooth running and to meet its obligation (Eljelly, 2004). Maintaining optimal level of working capital is the central aspect of the problem as it is strongly related to the trade-off between risk and return. However, it is difficult to point out as to how much working capital is needed by a particular business organization. An organization, which is not willing to take more financial risks, can go for more short-term liquidity. It is very essential to analyze and find out problems and its solutions to make efficient use of funds for minimizing the risk of loss to attain profit objective. Inadequate investment in working capital threatens the solvency of enterprise as well as affects its growth.

The effects of working capital management on profitability have been a focus of substantial amount of empirical research for many years (Shin and Soenen, 1998; Deloof, 2003; Lazaridis and Tryfonidis, 2006; Filbeck and Krueger, 2005). These studies have concentrated on large firms operating in well-developed money and capital markets of developed economies. Findings from these studies are difficult to generalize for relatively small sized pharmaceutical

firms in Nigeria that operate within a rather rudimentary financial market where firms mostly rely heavily on owner financing, trade credit and short-term bank loans to finance their needed investment in working capital (Chittenden *et al.*, 1998; Sacurato, 1994). Some few related studies on this area conducted in Nigeria include Auwal(2010), wrote on working capital management and performance of food and beverages industry in Nigeria and Onyemaobi (2014), wrote on the impact of cash management on the firms' financial performance of selected manufacturing firms in Nigeria.

Specific research studies exclusively on the Effect of working capital management on the financial performance of pharmaceutical firms in developing countries especially in poor Sub-Saharan Africa (SSA) countries remained altogether less explored area of empirical research. These we argue are serious shortcomings of existing literature.

In spite of the touted impact efficient working capital management may have on business survival and growth, not much has been done in the area of the provision of empirical evidence in support of the claims of working capital management on the financial performance of pharmaceutical companies quoted in Nigerian stock exchange. Given this paucity of empirical studies, it is hoped that this study will fill a gap and provide useful support for understanding the determinants of financial performance of pharmaceutical firms quoted in Nigerian stock exchange.

Objectives of the Study

The main objective of the study is to examine the effect of working capital management on the financial performance of listed pharmaceutical firms in Nigeria.

Specific objectives of the study are:

- i. To investigate the effect of receivables collection management on the financial performance of listed pharmaceutical firms in Nigeria.
- ii. To examine the effect of inventory management on the financial performance of listed pharmaceutical firms in Nigeria.
- iii. To determine the effect of accounts payable management on the financial performance of listed pharmaceutical firms in Nigeria.
- iv. To identify the effect of cash conversion circle on the financial performance of listed pharmaceutical firms in Nigeria.

Research Hypotheses

In line with the objectives of the study, the following hypotheses have been formulated in null form:

- H₀₁ Receivables collection management has no significant effect on the financial performance of listed pharmaceutical firms in Nigeria.
- H₀₂: Inventory management has no significant effect on the financial performance of listed pharmaceutical firms in Nigeria.
- H₀₃ Accounts payable management has no significant effect on the financial performance of listed pharmaceutical firms in Nigeria.
- H₀₄ Cash conversion circle has no significant effect on the financial performance of listed pharmaceutical firms in Nigeria.

LITERATURE REVIEW

Concept of Working Capital

Working Capital represents the current assets of a firm which is the portion of financial resources of business that changes from one type of resources to another during the day-to-day execution of business (Gitman, 2003). Current assets comprise cash, prepaid expenses, short-term investments, accounts receivable, inventory and other current assets. Net working capital can be measured by deducting current liabilities of a firm from its current assets. If the value of current assets is less than that of current liabilities then net working capital would have a negative value showing a deficit working capital. When a business entity takes the decisions regarding its current assets and current liabilities then it can be termed as working capital management. The management of working capital can be defined as an accounting approach that emphasize on maintaining proper levels of both current assets and current liabilities. It provides enough cash to meet the short-term obligations of a firm. Working capital management has to do with the administration of all aspects of current assets, namely cash, marketable securities, stock and current liabilities. It is the functional area of finance that covers all the current accounts of the firm. It is concerned with the adequacy of current assets as well as the level of risk posed by current liabilities. Working capital management is an aspect of financial managements that seeks proper policies for managing current assets, liabilities and practically for maximizing the benefits from managing working capital. The basic purpose of managing working capital is controlling of current financial resources of a firm in such a way that a balance is created between profitability of the firm and risk associated with that profitability (Ricci & Vito, 2000). Every business requires working capital for its survival. Working capital is a vital part of business investment which is essential for continuous business operations. It is required by a

firm to maintain its liquidity, solvency and profitability (Mukhopadhyay, 2004). The importance of managing working capital of a business efficiently cannot be denied (Filbeck & Krueger, 2005). Working Capital management explicitly impacts both the profitability and level of desired liquidity of a business (Raheman & Nasr, 2007). If a firm will invest heavily in working capital i.e. more than its needs, then the profits which can be generated by investing these resources in fixed or long term assets will be diminished. Moreover, the firm will have to incur the cost of storing inventory for longer periods as well as the cost of handling excessive inventory (Arnold, 2008).

Concept of Profitability

Profit is an excess of revenues over associated expenses for an activity over a period of time. Terms with similar meanings include 'earnings', 'income', and 'margin'. Lord Keynes remarked that 'Profit is the engine that drives the business enterprise'. Every business should earn sufficient profits to survive and grow over a long period of time. It is the index to the economic progress, improved national income and rising standard of living. No doubt, profit is the legitimate object, but it should not be over emphasised. Management should try to maximise its profit keeping in mind the welfare of the society. Thus, profit is not just the reward to owners but it is also related with the interest of other segments of the society. Profit is the yardstick for judging not just the economic, but the managerial efficiency and social objectives also.

Profitability means ability to make profit from all the business activities of an organization, company, firm, or an enterprise. It shows how efficiently the management can make profit by using all the resources available in the market. According to Harward and Upton (1961), profitability is the ability of a given investment to earn a return from its use. However, the term 'Profitability' is not synonymous to the term 'Efficiency'. Profitability is an index of efficiency; and is regarded as a measure of efficiency and management guide to greater efficiency. Though, profitability is an important yardstick for measuring the efficiency, the extent of profitability cannot be taken as a final proof of efficiency. Sometimes satisfactory profits can mark inefficiency and conversely, a proper degree of efficiency can be accompanied by an absence of profit. The net profit figure simply reveals a satisfactory balance between the values receive and value given. The change in operational efficiency is merely one of the factors on which profitability of an enterprise largely depends. Moreover, there are many other factors besides efficiency, which affect the profitability.

Sometimes, the terms 'Profit' and 'Profitability' are used interchangeably. But in real sense, there is a difference between the two. Profit is an absolute term, whereas, the profitability is a relative concept. However, they are closely related and mutually interdependent, having distinct roles in business. Profit refers to the net income earned by the enterprise during the

specified period of time, while profitability refers to the operating efficiency of the enterprise. It is the ability of the enterprise to make profit on sales. It is the ability of enterprise to get sufficient return on the capital and employees used in the business operation.

Weston and Brigham (1977) rightly noted that to the financial management profit is the test of efficiency and a measure of control, to the owners a measure of the worth of their investment, to the creditors the margin of safety, to the government a measure of taxable capacity and a basis of legislative action and to the country profit is an index of economic progress, national income generated and the rise in the standard of living, while profitability is an outcome of profit. Firms having same amount of profit may vary in terms of profitability. That is why Kulshrestha (1972) has rightly stated that Profit in two separate business concern may be identical, yet, many a times, it usually happens that their profitability varies when measured in terms of size of investment.

Review of Empirical Studies

Many researches were conducted in the area of working capital management and profitability, the result of which shows divergent conclusions. Few of the empirical work in this area are highlighted as follows; Raheman and Nasr (2007) performed an analysis on 94 firms listed at KSE, based on a time span of 6 years from 1999 to 2004. They have taken different working capital ratios such as Net Operating Profitability, Debt ratio, current assets to total assets ratio, cash conversion cycle, average collection period, inventory turnover, average payment period, current ratio and natural logarithm of sales. They suggested that profitability and working capital management are negatively related to each other. Afza and Nazir (2008) reviewed their previous study to estimate the impact of different types of working capital management policies on financial performance of firms in different sectors. For this they used a sample of 263 non-financial firms belonging to 17 different sectors listed at KSE from 1998 to 2003. The secondary data was collected from the financial reports of selected companies and also from the publications of State Bank of Pakistan. There are two types of working capital management policies namely aggressive working capital management policy and conservative working capital management policy. In aggressive working capital management policy a firm places less amount of capital in current assets to earn more profit from fixed assets, whereas in conservative working capital management policy firms use more capital as current assets. For the measurement of the degree of aggressiveness they used current liabilities to total assets ratio (CLTAR) and current assets to total assets ratios (CATAR). To locate the impact of these policies on the performance of firms they used Return on Equity (ROE) and Return on Assets

(ROA). Results were found by using regression analysis. They found an inverse relationship between degree of aggressiveness of these policies and profitability.

To test the relationship between working capital management and corporate profitability, Deloof (2003) used a sample of 1,009 large Belgian non-financial firms for a period of 1992-1996. By using correlation and regression tests, he found significant negative relationship between gross operating income and the number of days accounts receivable, inventories, and accounts payable of Belgian firms. Based on the study results, he suggests that managers can increase corporate profitability by reducing the number of day's accounts receivable and inventories. De Chazal (1998) revealed that 60% enterprises suffer from cash flow problems. Narasimhan and Murty (2001) stress on the need for many industries to improve their return on capital employed by focusing on some critical areas such as cost containment, reducing investment in working capital and improving working capital efficiency. Ghosh and Maji (2003) attempted to examine the efficiency of working capital management of Indian cement companies during 1992 - 93 to 2001 - 2002. They calculated three index values; performance index, utilization index, and overall efficiency index to measure the efficiency of working capital management, instead of using some common working capital management ratios. By using regression analysis and industry norms as a target efficiency level of individual firms, Ghosh and Maji (2003) tested the 43 speed of achieving that target level of efficiency by individual firms during the period of study and found that some of the sample firms successfully improved efficiency during these years.

Samiloglu and Demirgunes (2008) study was aims to investigate the effect of working capital management on firm profitability. In line with this aim, a sample of 5, 843 Turkish listed manufacturing companies in Istanbul Stock Exchange (ISE) for the period of 1998- 2007 are analyzed under a multiple regression model. Empirical results show that, for the mentioned sample and period, accounts receivables period, inventory period and leverage significantly and negatively affect profitability of Turkish manufacturing firms, while firm growth (in sales) significantly and positively affect firms profitability. However, it is also concluded that cash conversion cycle, size and fixed financial assets have no statistically significant effects on firm profitability of Turkish manufacturing firms for the period of 1998-2007.

Afza and Nazir (2009) was made an attempt in order to investigate the traditional relationship between working capital management policies and a firm's profitability for a sample of 204 non-financial firms listed on Karachi Stock Exchange (KSE) for the period 1998-2005. The survey study found significant different among their working capital requirements and financing policies across different industries. Moreover, regression result found a negative relationship between the profitability of firms and degree of aggressiveness of working capital

investment and financing policies. They suggested that managers could increase value if they adopt a conservative approach towards working capital investment and working capital financing policies.

Falope and Ajilore (2009) used a sample of 50 Nigerian quoted non-financial firms for the period 1996 -2005. Their study utilized panel data econometrics in a pooled regression, where time-series and cross-sectional observations were combined and estimated. They found a significant negative relationship between net operating profitability and the average collection period, inventory turnover in days, average payment period and cash conversion cycle for a sample of fifty Nigerian firms listed on the Nigerian Stock Exchange. Furthermore, they found no significant variations in the effects of working capital management between large and small firms.

Mathuva (2009) examined the influence of working capital management components on corporate profitability by using a sample of 30 firms listed on the Nairobi Stock Exchange (NSE) for the periods 1993 to 2008. He used Pearson and Spearman's correlations, the pooled ordinary least square (OLS), and the fixed effects regression models to conduct data analysis. The key findings of his study were that: i) there exists a highly significant

negative relationship between the time it takes for firms to collect cash from their customers (accounts collection period) and profitability, ii) there exists a highly significant positive relationship between the period taken to convert inventories into sales (the inventory conversion period) and profitability, and iii) there exists a highly significant positive relationship between the time it takes the firm to pay its creditors (average payment period) and Profitability.

Amarjit et. al. (2010) investigated the relationship between the working capital management and the firms' profitability for a sample of 88 American manufacturing companies listed on the New York Stock Exchange for the period of 3 years from 2005-2007. They were primarily sought to extend Lazaridis and Tryfonidis's (2006) findings by testing with the same hypothesis. They found statistically significant relationship between the cash conversion cycle and profitability, measured through gross operating profit. The study concluded that managers can create profits for their companies by handling correctly the cash conversion cycle and by keeping accounts receivables at an optimal level.

METHODOLOGY

Research Design

The research design used for the study is the ex-post facto research design because of the cause and effect relationship to be derived from the regression. Regression is used to test the influence of working capital on performance of listed Pharmaceutical Firms in Nigeria. The

research method adopted is the descriptive research method as it helps describes a particular phenomenon in the study. The dependent variable of the study is Financial performance and the independent variables are account payables, cash conversion circle, account receivables, inventory conversion period, cash to sales ratio, and cash to current liability ratio.

Population of the Study

The population of this study consists of all the six (6) Pharmaceutical Firms that are listed on the Nigerian Stock Exchange (NSE) as recorded in the NSE Fact Book of 2013. A census was conducted. This was because the study considered all Pharmaceutical Firms which were listed on the Nigeria Stock Exchange as at 2013. They are listed in the table below:

Table 1: Sample Pharmaceutical Firms

S/No.	FIRMS	DATA PERIOD	OBSERVATION
1	Evans Medical PLC	2006 – 2013	8
2	Fidson Healthcare PLC	2006 – 2013	8
3	Glaxo Smithkline Consumer PLC	2006 – 2013	8
4	May and Baker Nigeria PLC	2006 – 2013	8
5.	Neimeth International Pharma PLC	2006 – 2013	8
6	Pharma-Deko PLC	2006 – 2013	8
Total Observations			48

Measurement of Variables

To study the effect of working capital management on the financial performance of pharmaceutical firms, the financial performance which is the dependent variable was measured using return on assets (ROA), while working capital management being the independent variables was measured using account payables, cash conversion circle, account receivables, inventory conversion period, cash to sales ratio, and cash to current liability ratio. . Its main component is calculated as shown in the table below.

The efficiency ratios, namely accounts receivable, inventory,accounts payable, cash to sales and cash to current liabilities have been computed, using the formulas as listed in table 2 below. The Cash Conversion Cycle (CCC) is used as a comprehensive measure of working capital as it shows the time lag between expenditure for the purchases of raw materials and the collection of sales of finished goods. The longer the cycle, the larger the funds blocked in working capital.

Table 2: Measurement of Variables

S/N	Variable	Measurement
1	Performance (Dependent)	Gross Profit/ Total Assets
2	Accounts receivable	(Accounts Receivable × 365) / Sales
3	Accounts payable	(Accounts Payable × 365) /Cost of Goods Sold
4	Inventory	(Inventory × 365) /Cost of Goods Sold
5	Cash conversion cycle	Receivables Period + Inventory Period– Payables Period
6	Cash to sales (CTS)	Cash / sales
7	Cash to current liability (CTCL)	Cash / current liabilities

Source: Developed by the Researcher based on literature

Model Specification

The model used performance as dependent variable and six independent variables, which include Account Receivable (ACP), Account Payable Management (ACP), Inventory (INV), Cash to Sales Ratio (CTS), Cash to Current Liabilities (CTCL) and Cash Conversion Cycle (CCC).

$$\text{PERF(ROA)} = \alpha_0 + \beta_1\text{ACR} + \beta_2\text{ACP} + \beta_3\text{INV} + \beta_4\text{CCC} + \beta_5\text{CTS} + \beta_6\text{CTCL} + e$$

Method of Data Analysis

Panel Fixed effect and Random effect model were conducted to test the model of the study. Longitudinal panel data used to account for individual heterogeneity of the sample firms. Simple regression was used in determining the level of working capital management influence on performance of listed Pharmaceutical Firms in Nigeria. Fixed and Random effect Regression model were estimated using Stata 10 as a tool of analysis.

Various tests were conducted, ranging from multicollinearity test, normality test, heteroscedasticity test, hausman specification test and langrange multiplier test. The choice of these were based on the fact that both the techniques or tools were more informative (i.e. more variability, less collinearity, more degrees of freedom), as estimates were more efficient under it. Also they allowed the study of individual dynamics (e.g. separating cohort effects). While these techniques or tools give information on the time-ordering of events, they also allowed for control of individual unobserved heterogeneity

ANALYSIS AND DISCUSSION

Descriptive Statistics

The sample descriptive was first presented in Table 3 where the minimum, maximum, mean, standard deviation, skewness and kurtosis of the data for the variables used in the study were described.

Table 3: Descriptive Statistics of the Variables Using STATA 10

Variables	Min	Max	Mean	Std. Dev.	Skewness	Kurtosis	N
Perf	0.01	5.92	0.568	0.943	4.259	23.387	48
Acr	16	446	134.7	84.57	1.607	6.198	48
Acp	5	351	126.95	95.380	0.476	2.028	48
Inv	25	782	240.23	204.55	1.249	3.338	48
Ccc	15	805	258.95	209.26	1.074	3.056	48
Cts	0.21	142.3	12.914	23.205	3.996	21.604	48
Ctcl	0.19	310.1	33.357	52.698	3.348	17.102	48

The most prominent among the result in the descriptive statistics was the higher standard deviations of performance (0.943), Cash to sales (23.205) and cash to current liabilities (52.698) relative to the standard deviation of other independent variables used in the study. The high standard deviation of performance, cash to sales and cash to current liabilities indicates that our sample firms were of varying performances and ratios.

Table 3 shows that on average, during the period of the study, the account receivable period have a mean value of 134 days, Account payable period have an average of 126 days, and also the Inventory recorded an average value of 240 while cash conversion cycle mean stood at 258 days. This indicates that the receivable period is longer than the payable period in listed Pharmaceutical sector. The average cash to sales for the listed Pharmaceutical firms in Nigeria was about 12.91. Amongst the Independent variables, the cash conversion cycle had the highest standard deviation signifying its low contribution to performance in listed Pharmaceutical firms in Nigeria.

Finally, the skewness and kurtosis statistics revealed that the data obtained for all the variables including dependent and independents were not abnormal. Then, the study is considered valid when it is based on valid data or information, and this information is considered valid if obtained from the data quality. Therefore, the result from the normality test signified the normality of the data and further substantiated the validity of the regression result.

Correlation Analysis

Table 4 displays the correlation values between dependent and the independent variables and also the relationship between the independent variables themselves. The values were gotten from the Pearson correlation of two-tailed significance. It shows the correlation matrix with the top values displaying the Pearson correlation coefficient between all pairs of variables and the asterisk beside the Pearson correlation coefficient showing the two-tail significance of these coefficients. Therefore, looking at the pattern of correlation between the regressor and the regressand, it is observed that two of the variables (Account receivable period and Performance & Inventory and Performance) correlate perfectly, while two of them (Account payable period and Cash conversion cycle) are not too correlated with performance. On the other hand, the relationships between most of the explanatory variable are less minimal and could be neglected.

Table 4: Correlation Matrix of the Dependent and Independent Variables

	Perf	Acr	Acp	Inv	Ccc	Cts	Ctcl
Perf	1						
Acr	.4665*	1					
Acp	.1039	.1090	1				
Inv	.3756*	.5335*	.3909*	1			
Ccc	.2610	.7070*	.0918	.8628*	1		
Cts	.1426	-.1104	.2951*	.0602	-.1047	1	
Ctcl	-.0266	.1792	.1344	-.0046	.0767	0.2750	1

*. Correlation is significant at 0.01 level (2-tailed)

**. Correlation is significant at 0.05 level (2-tailed)

Table 4 indicates that performance was 47%, and 38% positively correlated with Account receivable period and Inventory, while performance and cash conversion cycle is 26% related, 14% positive relationship was recorded for cash to sales and performance. The relationship between account payable period and performance and cash to current liabilities and performance was very weak. The relationship between the independent variables themselves were found to be insignificantly related except few of them that were significantly related, though this may not be enough to conclude that multicollinearity exist among the independent variables of the study until the variance inflation factor and tolerance values are far and above the limits expected. Therefore, the tolerance value and the variance inflation factor (VIF) are two advanced measures of assessing multicollinearity between the explanatory variables. The variance inflation factor and tolerance are computed using Stata and were found to be consistently smaller than ten and one respectively, indicating absence of multicollinearity (Neter, Kutner, Nachtsheim, & Wasserman, 1996; Cassey & Anderson, 1999; Tobachnick & Fidell,

1996). This shows the appropriateness of fitting the study model with four independent variables and two control variables.

Regression Analysis

This session presents the regression result of the dependent variable (Perf) and the independent variables of the study (Account receivable, Account payable, Inventory, cash conversion cycle and also the control variables which are cash to sales and cash to current liabilities). The presentation was followed with the analysis of the association between the dependent variable and each individual independent variable and also the cumulative analysis was also captured.

Table 5: Summary of Regression Result

Variables	Coefficient	Z-Statistics	P-values
Acr	0.0087999	4.59	0.000
Acp	-0.003696	-2.39	0.017
Inv	0.0055504	3.75	0.000
Ccc	-0.005804	-3.72	0.307
Cts	0.0053553	1.02	0.978
Ctcl	-0.0496885	0.03	0.841
R ² Within			0.4445
R ² Between			0.5305
R ² Overall			0.4644
Wald Chi ²			35.55
Wald-Significance			0.0000

The cumulative R² between (0.5305) which is the multiple coefficient of determination gave the proportion of the total variation in the dependent variable explained by the independent variable jointly. Hence, it signified that 53% of the total variation in performance of listed Pharmaceutical firms in Nigeria was caused by Account receivable, Account payable, Inventory, Cash conversion cycle, Cash to sales and Cash to current liabilities.

The Wald chi² of 35.55 which was significant at one percent indicates that the Performance and Working capital management model was fit. This indicates that the independent variables are properly selected, combined and used. It implies that for any change in Working capital management of listed Pharmaceutical firms in Nigeria; their performance will be directly affected. The value of Wald Chi² which is statistically significant at a level of 0.000

means that there is a 99.9 percent probability that the relationship among the variables was not due to mere chance.

Hypothesis Testing

This section presents the analysis carried out in order to test the hypotheses stated in chapter one. Also, robustness checks were conducted to examine the outputs under varying circumstances. The robustness test gave greater reliability and credibility to the overall findings of the study. The regression result used for the hypotheses test is presented in Table 6.

Table 6: Variable Coefficients

Variables	Z-Values	P. Values	Tolerance/VIF
Account Receivable	4.59	0.000	0.441353 / 2.27
Account Payable	-2.39	0.017	0.532346 / 1.88
Inventory	3.75	0.000	0.126872 / 7.88
Cash conversion cycle	-3.72	0.309	0.108749 / 9.20
Cash to Sales	1.02	0.978	0.784871 / 1.27
Cash to current liabilities	0.03	0.841	0.800353 / 1.25

Table 6 shows that two of the variables are positive (Account receivable and Inventory), while two were negative (Account payable and cash conversion cycle). Two of the independent variables were significant at 1% and one at 5% level except for Cash conversion cycle and the control variable that were insignificant in influencing performance. This revealed that all the Working capital management variables used in the study explained the attitude of performance of listed Pharmaceutical firms in Nigeria to a large extent except for cash conversion cycle. The results for each hypothesis testing are presented below:

H₀₁: Account receivable has no significant impact on the financial Performance of listed Pharmaceutical firms in Nigeria

Account receivable was found to be significant and positively associated with the performance at 1% level of significant indicating that larger account receivable period increase the performance of listed Pharmaceutical firms in Nigeria. Therefore, account receivable has significantly affected the performance.

In view of the above result reported in respect of account receivable showing that the variable is statistically significant in influencing the performance, there is therefore, sufficient evidence of rejecting null hypothesis one of the study.

H₀₂: Account payable has no significant influence on performance of listed Pharmaceutical firms in Nigeria

Account payable was found to be negatively significant at 5% level, which means that it is associated with the performance of listed Pharmaceutical firms in Nigeria. Therefore, account payable has significantly affected the performance.

In line with the above result reported as regards account payable, it shows that the variable was statistically significant in influencing the performance, and this therefore, provides evidence of rejecting null hypothesis 2 of the study.

H₀₃: Inventory has no significant effect on performance of listed Pharmaceutical firms in Nigeria

Inventory was found to be statistically significant in influencing the performance of listed Pharmaceutical firms in Nigeria. This means that it is significantly associated with Performance of listed Pharmaceutical firms in Nigeria. Therefore, Inventory has significantly affected the Performance.

Owing to the above outcome reported as regards Inventory showing that the variable was statistically significant in influencing the Performance, thus providing an evidence of rejecting null hypothesis three of the study.

H₀₄: Cash conversion cycle has no significant contribution on performance of listed Pharmaceutical firms in Nigeria

Cash conversion cycle was found to be negatively significant at neither 1%, 5% or 10% level, which means that it is not strongly associated with the performance of listed Pharmaceutical firms in Nigeria. Therefore, Cash conversion cycle has not significantly affected performance of the firms.

With respect to the result displayed above as regards cash conversion cycle showing that the variable was statistically insignificant in enhancing performance, there is enough evidence of failing to reject the null hypothesis four of the study.

CONCLUSIONS

From the regression result of the study, it shows that working capital management has really and strongly impacted on the financial performance of Listed Pharmaceutical Firms in Nigeria, it is therefore concluded that the working capital management in the Pharmaceutical sector within the period of the study has helped to improve their performance except cash conversion circle which has no significant impact on performance.

Also, the study concluded that both account receivable and inventory has significantly, strongly and positively influenced the performance of Listed Pharmaceutical Firms in Nigeria, while the accountable payable was concluded to have significant, strong and negative impact on the performance of pharmaceutical firms in Nigeria.

However, the cash to sales and cash to current liabilities used as control variables in this study was concluded not to have any significant influence on the financial performance of Listed Pharmaceutical Firms in Nigeria. Therefore cash to sales and cash to current liabilities were not a major determinant factor of the pharmaceutical firm's performance.

RECOMMENDATIONS

The recommendation of this study are made based on variety of people/organizations that are involved directly or indirectly with working capital management and performance processes in Listed Pharmaceutical Firms in Nigeria. Therefore, Management of the pharmaceutical firms should ensure as much as possible that:

- i. They increase the account receivable period for their customers as the regression result of the study has empirically proved that the higher the account receivable period, the more the financial performance of listed Pharmaceutical firms will increase. As a result of this, the Listed Pharmaceutical Firms should increase their debt collection period because it will have a positive impact on their performance.
- ii. The management should decrease the account payable period because, the result revealed that the higher the credit payment period, the lower the financial performance of Listed Pharmaceutical Firms in Nigeria. Therefore the Listed Pharmaceutical Firms in Nigeria should try and maintain an adequate period of settling their suppliers in order to avoid negative effect on the firm's performance.
- iii. The management of the Pharmaceutical firms should invest more on inventory so that at any point in time that their customers needed any goods or item, they won't be out of stock. If an adequate level of stock is maintained at all time, this will go a long way in enhancing the financial performance of the Pharmaceutical firms in Nigeria.
- iv. Pharmaceutical firms should develop policies to decrease cash conversion cycle, since this will increases performance, and this is a criterion for assessing the performance of the management in achieving optimal working capital and liquidity.

LIMITATIONS AND SCOPE FOR FURTHER STUDIES

The study limits itself to the information in the annual report and accounts of listed pharmaceutical firms for the period under review due to the nature of the research. The

dependent variable of the study is performance and the independent variables are account payables, cash conversion circle, account receivables, inventory conversion period, cash to sales ratio, and cash to current liability ratio. Like any other research, the result of the study is subjected to some limitations due to the following factor. The study is only limited to a particular sector, that is, the listed Pharmaceutical Firms in the Nigerian Stock Exchange. Therefore, the findings and recommendation is only applicable to Listed Pharmaceutical Firms as the working capital management may vary in other sectors. This work investigates the effect of working capital management on the financial performance of Listed Pharmaceutical Firms in Nigeria and is believed to have paved way for further research .The study only made use of four working capital management proxies (Account receivable, Account payable, Inventory, Cash conversion cycle). Therefore, the study suggest to future researchers who might be interested in this area to include measurement of liquidity such as cash, marketable securities, current ratio, quick ratio and cash ratio.

Future research should investigate generalization of the findings beyond the pharmaceutical firms in Nigeria; other sectors like banking, telecommunication, textile should be area of focus to other researchers. In addition, the study made use of return on asset to proxy financial performance. The study therefore suggests that further studies in this area should make use of other performance measurement such as return on equity, net profit margin, etc.

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