Research Article

Working Capital Management and Corporate Performance of Quoted Manufacturing Companies in Nigeria

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Abstract
The paper investigated the relationship between working capital management and the performance of quoted manufacturing companies in Nigeria. Data were collected from line managers of fifteen (15) quoted companies in Port Harcourt – Rivers State, Nigeria through a well designed structured questionnaire. Survey design was employed for the study. Pearson Product Moment Correlation was used for the analysis. The findings showed that there is a significant relationship between inventory management and increase in product quantity of quoted manufacturing companies in Nigeria, there is a significant relationship between inventory management and product quality of quoted manufacturing companies in Nigeria and there is a significant relationship between inventory management and volume of sales of quoted manufacturing companies in Nigeria. The researchers therefore recommend that: there should be effective and efficient management of inventory in the manufacturing firm so as to increase the firms' quantity of products, the inventory management should be given attention in order to enhance the quality of products of firms etc.

Keywords: Working Capital Management, Inventory Management, Corporate Performance, Volume of Sales, Quality of product etc.

1. INTRODUCTION

Working capital is a short term financial assets that has a key and delicate influence on the performance of any firm. The management of these assets is very essential for the maximization of share holders wealth. The main purpose of all firms is to have enough money to pay its short term obligations. Best possible working capital decision will enhance the company's performance (Home & Wachowicz, 2004). The effectiveness and efficiency of working capital management is indispensable, mainly for manufacturing firms, because the key part of the manufacturing firms is made up of current assets (CA) (Home & Wachowicz, 2000).

The management of short term assets is done by the financial managers. The efficient management of short term assets has direct influence on the firm's monetary performance. It is regarded as very important area of financial manager's decisions making (Haq et al., 2011). High working capital is not too good for a business, because it will cause financial problems and also too little working capital is also not advisable because it will lead to high indebtedness or liquidity crunch. The both extreme cases may affect the survival of the companies, and therefore lead to collapse or liquidation. The companies should strike a balance and maintain appropriate level of working capital. The main goal of any firm is to maximize profit and maintain adequate liquidity. The financial manager therefore must adopt the strategies that will strike a balance between these two conflicting objectives. The reason is because the both objectives are same, thus one objective cannot be placed at cost of another. If the firm overlooks profit it cannot maintain survival for a longer period, and if the firm fails to keep balance and does not care about liquidity, it may have to combat the problem of bankruptcy and insolvency (Rahman & Nasr, 2007).

Working capital represents operating liquidity at hand for an entity. Mathematically, it is the company's current asset (CA) minus current liabilities (CL). Financial manager has three kinds of decisions that relates to the company's financing. Firstly, company's overall capital structure, secondly, capital budgeting and thirdly, working capital management. These three decisions are absolutely essential because it affects the firm liquidity and profitability. Working capital management therefore is the best possible combination of working capital elements such as current assets and current liabilities in a way that boosts the shareholders' value (Sarniloglu & Demirgunes, 2008). Best possible management of working capital elements increases the financial performance of the firm.

Corporate performance is the end product of the effective management of working capital. Corporate performance can be quantitatively measured such as return on equity, return on assets, earning per share etc or qualitatively measured such as increase in product by the firms, quality of product, volume of sales etc. Since the quantitative measures have been over stretched by many researchers, there is need to ascertain their relationship using the qualitative indices in order to break new ground in this subject area in Nigeria. This therefore constitutes the focal point of this study.

2. Objectives of the Study

The main objective of the study is to examine the relationship between working capital management and the corporate performance of manufacturing companies in Nigeria. Other specific objectives include:
   i) Ascertain the relationship between inventory management and increase in quantity of products of quoted manufacturing companies in Nigeria.
   ii) Ascertain the relationship between inventory management and quality of products of quoted manufacturing companies in Nigeria.
   iii) Ascertain the relationship between inventory management and volume of sales of quoted manufacturing companies in Nigeria.

3. Literature Review

a) Conceptual Framework

i) Concept of Working Capital Management

According to Nurein (2014), working capital is the excess of current assets over current liabilities. This actually brings together the basic concepts of working capital (current assets and current liabilities). There is a general belief among scholars with regard to the meaning of working capital which is the amount of money that is available to finance the firm's short term debt obligation. The obtainability of this short available fund is a role of excess of current assets over current liabilities. While this definition of working capital remains the same almost among scholars, the effective management of this working capital is what makes the difference. The reason being that, while some managers may exercise due care and diligence in the management of firm's working capital, other managers used intuition, rule of thumb and personal judgment which could affect the working capital management.

According to Arnold (2008) and Gitman (2009), organization's working capital components are categorized into three main components. (a) Inventory management consisting of raw materials, work in progress and stock of finished goods (b) Accounts receivable and payable management which accounts for amount recoverable and owed to other firms and individuals in the ordinary course of business of the firm (Feletilika, 2011) and thirdly, cash management which requires the formulation of strategies to facilitate early collection of debt owe to the firm and delaying payments for credit by the firm (Block & Hirt, 1992 and Lantz, 2008).

ii) Inventory Management

Inventory management is composed of diverse components of production depending on the nature of the business the companies involved in. The five major components of inventory are; raw materials, work in progress materials, finished goods, extra material and consumption materials. All firms' have inventories depending on in their operation. According to Lantz, (2008); Arnold, (2008); Cinnamon, Helweg-LarSen, & Cinnamon, (2010) and Gitman, (2009), manufacturing companies used the five inventory components which is used and it is essential for their production. Though these five components are important, the most unavoidable elements of firms' inventories are raw materials, work-in progress and finished goods.

a) Raw Materials

Raw materials are the goods that have been delivered by the supplier to procurer's warehouse but have not yet been taken into the production area for conversion process (Cinnamon et al., 2010). Minimizing raw materials is better in a specific part of working capital. Nevertheless, this must be counterpoise by the economic order quantities available from the sellers.

b) Work in Progress (WIP)

Work in progress dealt with the product leaving the storage area, undergoing procession but not finished and declared for sale and delivery to customers. Therefore, working capital must be considered in terms of reducing the

buffer stocks, eliminating the production process, reducing the overall production cycle time. Work in progress is between raw materials and finished goods. Raw materials and finished goods must be minimized in the production area and work in progress must be carefully examined to justify how long it takes for products to be cleared for sale (Birt et al., 2011 & Cinnamon et al., 2010).

c) Finished Goods

Finished goods are the stock in warehouse ready for sale and delivery to customers. They could be ready in the warehouse or shelf for some time. The managers of the business then choose the best options available to sell them. The managers have the option of repackaging, reprocessing, and selling at lower discount prices. Large volumes of sales reduce or eliminate the finished goods. If an organization adopt just in time system, they minimize or eliminate both raw material stock and work in progress, as the stock is now in finished goods (Brealey, Myers, & Allen, 2006; Cinnamon et al., 2010; Van Home & Wachowicz, 2008). There is a risk in minimizing an inventory to zero level. It increases the possibility of running out of materials needed in the production or running short of finished goods during a high demand. Such situation would be costly due to the revenues that might be lost (Maness & Zietlow, 2005).

iii) Corporate Performance

Performance is the ability of an organization to gain and manage their resources in several ways in order to develop competitive advantage (lswatia & Anshoria 2007). Performance can be financial which objectively emphasizes on variables related directly to financial report. Financial performance are quantitatively measured such as return on equity, return on assets, earning per share etc or non-financial/qualitative such as increase in products by the firms, quality of products, volume of sales etc. which subjectively measure how well a firm can use assets from its primary mode of business and generate revenues.

b) Empirical Review

Bhunia and Khan (2011) investigated liquidity management efficiency of Indian steel companies from 2002 to 2010 using 230 India private sectors, steel companies obtained from CMIE database. A descriptive statistic and multiple regression were used. The result confirmed a lower degree of association between the liquidity management and profitability and also optimal liquidity management could be achieved by company that manages the trade — off between profitability and liquidity management.

Chring, Novazzi and Gerah (2011) evaluated the relationship between working capital management and profitability in Brazilian listed companies from 2005 — 2009. The profitability variables were return on sales (ROS), on asset (ROA) and on equity (ROE). The working capital variables were cash conversion efficiency, debt ratio, days of working capital day's receivable and day's inventory. Multiple linear regressions and ANOVA were used. The result showed that inventory has negative relationship with ROS and ROA but has no statistical evidence in ROE improvement in working capital intensive group.

Deloof (2003) evaluated the relationship between working capital management and corporate profitability for a sample of 1009 large Belgian non-financial firm for the period 1992-1996. The result from the analysis showed that there was a negative relationship between profitability that measure by gross operating income and cash conversion circle as well as number of days accounts receivable and inventories. He suggested that mangers can increase corporate profitability by reducing the number of day's Accounts receivable and inventories less profitable firms waited longer to pay their bills.

Lazaridis and Trynidis (2006) examined the relationship between working capital management and profitability of listed company in the Athens Stock Exchange from 2001- 2004. Multiple regression analysis was used. Operating profit and the cash conversion cycle were used as the variables. The result showed that there as a significance relationship between profitability.

Singh and Pandey (2008) investigated the working capital component and the impact of working capital management on profitability of Hildalco industries limited from 1990 to 2007. Current ratio, liquid ratio, receivables turnover ratio and working capital to total assets ratio were used as the variables. The results showed that current ratio liquid ratio, receivables turnover ratio and working capital to total assets ratio had statistical significant impact on the profitability.

Raheham and Nasr (2007) investigated working capital management and net operating profitability from 1999-2004 using selected samples of 94 Pakistani firms on Karachi stock exchange. The variables used were average collection period, inventory turnover in days, cash conversion cycle sales and operating profit. The results showed that there is a negative relationship between variables of working capital management such as average collection period, inventory turnover in days, cash conversion cycle and profitability.

Afza and Nazir (2009) evaluated the relationship between working capital management policies and a firms profitability from 1998—2005 using a sample of 304 non — financial firms listed on Karachi stock exchange (KSE). The regression result found a negative relationship between the profitability of firms and degree of negative relationship between the profitability of firms and degree of aggressiveness of working capital investment and financing policies.

Vishanani and Shah (2007) investigated the impact of working capital management policies on corporate performance of Indian consumer electronic industry. Simple correlation and regression models were used for the analysis. The study found that there is no significant relationship between liquidity and profitability.

Lyrondi and Lazardis (2000) investigated the cash conversion cycle and liquidity position of the food industry in Greece. The variables used were liquidity ratio, current ratio, quick ratio and cash ratio and also return on investment, return on equity and net profit margin. The result of the analysis showed that there is no significant relationship between liquidity measurement variables and profitable measurement variables.

Kim, Mauer and Sherman (1998) investigated the determinants of corporate liquidity of 915 U.S industrial firms from 1975 to 1994 using panel data and different models. External financing was proxied by market to book ratio and firm size. The finding showed positive relationship between liquidity and cost of external financing.

Mehar (2001) studied the impact of equity financing on liquidity of 255 firms listed in Karachi Stock exchange for the period 1980— 1994 by using a pooled data. The variables used were equity and fixed assets. The finding of the study depicted that equity financing plays an important role in determining the liquidity position of firms.

Bljelly (2004) evaluated the efficient liquidity management and profitability. The variables used were current assets and currents liabilities measured by current ratio and cash gap (cash conversion cycle) and operating profit. The result showed that cash conversion cycle was of more importance measure of liquidity that effect profitability than current ratio.

Ghosh and Maji (2004) examined the efficiency of working capital management and performance of the Indian cement companies from 1992— 1993 and from 2001 – 2002 using the efficiency of working capital management, performance utilization, and overall efficiency indices. The result showed that the Indian cement industry as a whole did not perform remarkably well during this period.

4. Methodology

Survey research design was adopted for the study because the data were obtained from field. Data were collected purely from primary sources. The primary data, which is the data from the original sources, were collected through a well designed structured questionnaire. The questionnaires were distributed through research assistance to all the line managers of the various quoted manufacturing companies in Port Harcourt and data were obtained.

The population of this study consists of 15 quoted manufacturing companies in Nigeria Stock Exchange (NSE). The manufacturing sector was carefully selected because it is the most powerful engine for economic growth and development of a country (Jude, 2010).

Purposive sampling technique was adopted for the study. Since the population size is not too many, the researcher used his best of judgment to select the 5 line managers of the entire population as the sample for the study. Therefore, the sample size is seventy five (75).

Pearson product moment correlation coefficient was employed for the analysis since the research has to do with relationships, correlational analysis is appropriate.

The formula is given as:

$$Rp = \frac{n\sum XY - \sum X \sum Y}{\sqrt{[nX^2 - (X)^2][nY^2 - (Y)^2]}}$$

Where

RP = Pearson correlation coefficient

X =Working Capital Management (independent variable)

Y = Corporate Performance (Dependent variable)

N/B Inventory Management is the variable for Working Capital Management whereas increase in quantity of product, quality of product and volume of sales are the variables for corporate performance.

5. Data Presentation

To affect a comprehensive presentation of the data in this study, questionnaires were administered to Dangote Cement group, Unilever Nig. Plc., Nestle Nig. Plc., Nigerian Breweries, Flour Mills of Nig., PZ Cussons Nig. Plc., United African Company of Nig. (UAC), Champion Breweries Plc., Guiness Nig. Plc., Lafarge Wapco Plc., May & Baker Nig. Plc., National Salt Company Plc., Nigeria Enamel Ware Plc., Cadbury Nig. Plc., and Vita Foam Plc. The questionnaires tagged working capital management and corporate performance (WOCMACP) aimed at obtaining information from the manufacturing companies mentioned above. Out of seventy five (75) copies of questionnaires distributed to them, a total of seventy (70) copies were returned and are used.

The manufacturing companies, number of questionnaires distributed, the number returned and their percentages are presented on the table below:

Table 1 Questionnaire distributed and returned.

S/no	Companies	No. of Questionnaires Distributed	No. of Questionnaires Returned	No. of Questionnaires unreturned
1	Dangote group	5	5	-
2	Unilever Nig. Plc	5	5	-
3	Nestle Nig. Plc	5	5	-
4	Nigerian Breweries	5	5	-
5	Flour Mills of Nig	5	4	1
6	PZ Cussons Nig. Plc	5	5	-
7	United African Company of Nig. (UAC)	5	4	1
8	Dufil Prims Food Ltd	5	5	-
9	Guiness Nig. Plc	5	5	-
10	Lafarge Cement	5	5	-
11	May & Baker Nig. Plc	5	4	1
12	Promasidor Nig. Ltd	5	4	1
13	African Industries Group	5	5	-
14	Cadbury Nig. Plc	5	4	1
15	British American Tobacco Nig. Ltd	5	5	-
	Total	**75**	**70**	**5**

Source: Field survey 2024.

Percentages of distributed questionnaires 100%

Percentages of returned questionnaires 93.03%

Percentages of returned questionnaires 6. 97%

6. Analysis Results

The result of the analysis was first tabulated with 5 point linkert scale and thereafter Pearson Product Moment correlation coefficient was use to analyze the relationship.

Table 2. Inventory Management

S/NO	Description	SA	A	PA	D	SD	Total
A.	**INVENTORY MANAEMENT**						
1.	Raw Materials are checked periodically (stock taking)	30	20	-	10	10	70
2.	Issuing of raw materials is duly authorized	40	20	5	5	-	70
3.	Finished goods are inspected and authorized for sales	50	15	-	5	-	70
4.	Partly finished goods are started with fresh production process	35	20	5	7	3	70

S/NO		SA	A	PA	D	SD	Total
5.	Stores personnel are assigned different roles.	30	30	-	5	5	70
Total		**185**	**105**	**10**	**32**	**18**	**350**
Average		**37**	**21**	**2**	**6**	**4**	**70**
Percentages		**52.86**	**30**	**2.86**	**9.14**	**5.14**	**100**

Source: Field survey 2024.

From the table, 185(52.86%) strongly agree, 105(30%) agree, 10(2.86%) partially agree, 32(9.14%) disagree and 18(5.14%) strongly disagree on inventory management.

Table 3. Product Quantity

S/NO	Description	SA	A	PA	D	SD	Total
E.	**PRODUCT QUANTITY**						
1.	Modern IT equipments are acquired and used to enhance productivity	25	25	10	5	5	70
2.	The staff are usually given target and goal to increase the product	30	25	-	10	5	70
3.	There is increased product produced	15	30	-	15	10	70
4.	The organisation has a machine-based system help in product increment	35	30	-	5	-	70
5.	Staff are regularly trained for to increase the firm's productivity	28	22	5	10	5	70
Total		**133**	**132**	**15**	**45**	**25**	**350**
Average		**27**	**26**	**3**	**9**	**5**	**70**
Percentages		**38**	**37.71**	**4.29**	**12.86**	**7.14**	**100**

Source: Field survey 2024.

From the table, 133(38%) strongly agree, 132(37.71%) agree, 15(4.29%) partially agree, 45(12.86%) disagree and 25(7.14%) strongly disagree on product quantity.

Table 4. Product Quality

S/NO C.	Description PRODUCT QUALITY	SA	A	PA	D	SD	Total
1.	The products have wide customers' acceptability	30	25	-	15	-	70
2.	The product has close substitute(s)	40	20	-	5	5	70
3.	Socio-environmental friendliness and sustainability is considered in product design.	40	25	-	5	-	70
4.	The products are the clear market leader	50	20	-	-	-	70
5.	The rationale for acquiring the product is met by the producer	15	10	-	20	25	70
Total		**175**	**100**	**-**	**45**	**30**	**350**
Average		**35**	**20**	**-**	**9**	**6**	**70**
Percentages		**50**	**28.57**	**-**	**12.86**	**8.57**	**100**

Source: Field survey 2024.

From the table, 175(50%) strongly agree, 100(28.57%) agree, 0(0%) partially agree, 45(12.86%) disagree and 30(8.57%) strongly disagree on product quality.

5. Volume of Sales

S/NO	Description	SA	A	PA	D		SD	Total
D.	**VOLUME OF SALES**							
1.	Cash volume increase periodically	20	25	5	10		10	70
2.	Discount is used to encourage cash sales	30	20	2	10		8	70
3.	Creditor's payment period is longer than debtors collection period	20	20	-	15		15	70
4.	Accounts payable do not compromise firm stability	30	30	-	5		5	70
5.	Cash transaction constitutes a certain threshold of total sales	25	25	5	10		5	70
Total		**125**	**120**	**12**	**50**		**43**	**350**
Average		**25**	**24**	**2**	**10**		**9**	**70**
Percentages		**35.71**	**34.29**	**3.43**	**14.29**	**12.28**		**100**

Source: Field survey 2024

From the table, 125(35.71%) strongly agree, 120(34.29%) agree, 12(3.43%) partially agree, 50(14.29%) disagree and 43(12.28%) strongly disagree on volume of sales.

Test of Hypotheses
Hypotheses were tested to answer the research questions. In all, three hypotheses were tested for the study.

Hypothesis one
$H0_1$: There is no relationship between inventory management and increase in quantity of products quoted manufacturing companies in Nigeria.
The result of the analysis is displayed based on table 2&3 above:

Table 6 The result of Inventory Management and Increase in Quantity of Product

Correlations

		IVM	IQP
IVM	Pearson Correlation	1	.913**
	Sig. (2-tailed)		.000
	N	70	70
IQP	Pearson Correlation	.913**	1
	Sig. (2-tailed)	.000	
	N	70	70

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

Decision rule
Accept alternate hypothesis (Ha) if the calculated p-value is less than the critical value and reject null hypothesis (Ho), otherwise accept Ho and reject Ha.

Decision
From table 6, we deduced that calculated p-value is less than the critical value ie 0.000 < 0.05 and therefore conclude that there is a relationship between inventory management and increase in quantity of product of quoted manufacturing companies in Nigeria.

Hypothesis two
$H0_2$: There is no relationship between inventory management and quality of products of quoted manufacturing companies in Nigeria.

The result of the analysis is displayed based on table 2&4 above:

Table 7 The result of Inventory Management and Quality of Product

Correlations

		IVM	QOP
IVM	Pearson Correlation	1	.944**
	Sig. (2-tailed)		.000
	N	70	70
QOP	Pearson Correlation	.944**	1
	Sig. (2-tailed)	.000	
	N	70	70

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

Decision rule
Accept alternate hypothesis (Ha) if the calculated p-value is less than the critical value and reject null hypothesis (Ho), otherwise accept Ho and reject Ha.

Decision
From table 7, we deduced that calculated p-value is less than the critical value ie $0.000 < 0.05$ and therefore conclude that there is a relationship between inventory management and quality of product of quoted manufacturing companies in Nigeria.

Hypothesis two
$H0_3$: There is no relationship between inventory management and volume of sales of quoted manufacturing companies in Nigeria.

The result of the analysis is displayed based on table 2&5 above:

Table 8 The result of Inventory Management and Volume of Sales

Correlations

		IVM	VOS
IVM	Pearson Correlation	1	.880**
	Sig. (2-tailed)		.000
	N	70	70
VOS	Pearson Correlation	.880**	1
	Sig. (2-tailed)	.000	
	N	70	70

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

Decision rule
Accept alternate hypothesis (Ha) if the calculated p-value is less than the critical value and reject null hypothesis (Ho), otherwise accept Ho and reject Ha.

Decision
From table 8, we deduced that calculated p-value is less than the critical value ie $0.000 < 0.05$ and therefore conclude that there is a relationship between inventory management and volume of sales of quoted manufacturing companies in Nigeria.

The first analysis showed that there is a relationship between inventory management and increase in product quantity of quoted manufacturing companies in Nigeria. The p-value 0.000 is less that critical value 0.05. The coefficient of correlation (R) is very high ie 0.913. This showed that there is a strong relationship between inventory management and increase in product quantity of quoted manufacturing companies in Nigeria.

The second analysis showed that there is a relationship between inventory management and product quality of quoted manufacturing companies in Nigeria. The p-value 0.000 is less that critical value 0.05. The coefficient of correlation (R) is very high ie 0.944. This showed that there is a strong relationship between inventory management and product quality of quoted manufacturing companies in Nigeria.

The third analysis showed that there is a relationship between inventory management and volume of sales of quoted manufacturing companies in Nigeria. The p-value 0.000 is less that critical value 0.05. The coefficient of correlation (R) is very high ie 0.880. This showed that there is a strong relationship between inventory management and volume of sales of quoted manufacturing companies in Nigeria. These results are line with the findings of Lazaridis and Trynidis (2006), Singh and Pandey (2008) etc.

The probable reasons for these strong relationships between the working capital management and the corporate performance's variables could be attributable to the assertions of Nyabwanga, Ojera, Lumumba, Odondo and Otieno (2012) that working capital management is a life wire of any organization. Working capital management indeed is an engine room for the performance of any organization.

7. Conclusion and Recommendations

From the findings, one can conclude that working capital management has a strong relationship with corporate performance. In line with the findings of the study, the researchers make the following recommendations:

i) There should be effective and efficient management of inventory in the manufacturing firm so as to increase the firms' quantity of products.
ii) The inventory management should be given attention in order to enhance the quality of products of firms.
iii) The management of the manufacturing companies should encourage inventory management in order to increase the volume of sales.

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