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EFFECT OF WORKING CAPITAL MANAGEMENT ON PERFORMANCE OF BASIC MATERIALS FIRMS IN NIGERIA

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ABSTRACT

This study analyzes the effect of working capital management on performance of basic materials firm in Nigeria between the period of 2014 - 2020. The specific objectives include: To determine the extent to which account receivables, inventory conversion period, operating efficiency and Stock availability have on firm performance in Nigeria. Four research questions were formulated in line with four objectives. Regression analysis method of data analysis was used. The variables used which were culled from the annual report of the quoted basic material firms. The study found that account receivables and inventory conversion period have no significant effect on firm performance in Nigeria, while operating efficiency has a positive and significant effect on firm performance in Nigeria. Based on these, the study recommends among others, that firm should diversify their inventory system to suit specific needs of production. Also, that firms should improve the operating management by reducing their account receivable period as this may reduce bad debt that result through credit sale and increase the cash available for investment.

Keywords: account receivables, inventory conversion, operating efficiency & Stock availability. working capital management

1.1 INTRODUCTION

The word working capital has numerous explanations in both private and public sectors towards output, economic growth and public finance correspondingly. Working capital is labelled as the establishments of

firm's short-term current assets and current liabilities. Net working capital means the additional of current assets over current liabilities, and it is the image of the firm's skill to meet its short-term monetary obligations (Pais & Gama, 2015). The Working Capital Management of any firm is an indicator of the firm performance. The key aim

of any firm is to make profit, businesses are established for no other motive than construction and maximizing profit which is a clear suggestion that preservative liquidity of the firm is a significant facet as well (Padachi, 2016). Increasing revenues at the cost of liquidity can draw great risk to the firm (Makori & Jagongo, 2013). Therefore, there must be a symbiosis trade- off relationship between these two basic aims of the organizations. One aim should not be at the harm of the other because both have their important goals/ role to play in other to boost firm's productivity.

Effective organization of working capital presents a critical and challenging financing verdict that firms have to make in their day-to-day running of operations. It includes taking planned decision in managing the link between the short-term liabilities and assets of a firm to guarantee smooth and effectual operations. It can simply be clarified as the act of dealing investment/divestment in short-term receivables as well as handling the increase/decrease in short-term payables.

Working capital management is said to be viable on the off chance that an organization is able to back every day operational costs and meet other short-term commitments at lesser costs (Angahar and Alematu, 2014). Barine (2012) opines that successful administration of both short-term payables and receivables beside long term resources is required to meet every day business operational exercises. Both brief term receivables and payables are the most components of working capital. Corporate execution depends to a great extent on the viability of methodologies received in overseeing working capital in an organization since of its significance to the food of its day by day operations.

he significance of working capital management to the realization of organizational objective is clear in writing. Horne and Wachowitz (2000) opine that proficient working capital administration is pivotal for customer and mechanical products companies since most of their assets and

liabilities are within the shape of short-term receivables and payables. Raheman and Nasr (2007) declare that firms are in commerce to create benefit whereas guaranteeing that liquidity is at the ideal level. Upkeep of ideal adjust between productivity and liquidity problem is hence a vital calculate in deciding working capital blend or structure for a firm. Since an ideal blend of working capital components upgrades firm execution, it takes after in this manner that successful working capital administration guarantees that shareholders get esteem for their venture.

Researchers have considered working capital management in numerous distinctive ways. Whereas a few creators examined the effect of an ideal stock administration (Shin & Soenen, 1998; Kroes & Manikas, 2014), others have studied the optimal way of managing accounts receivables that leads to profit maximization (Ebben & Johnson, 2011; Emery, Finnerty and Stowe 2004; Padachi, 2006; Egbide, 2009; Besley and Meyer, 1987). In order to improve a firm's organizational performance, the firm must manage its working capital in an "optimal way". The most optimal way of managing working capital is one that leads to the highest possible profitability for the firm. In order to sustain the business, it is essential for any organization to successfully manage its working capital. Keeping in view the realistic importance of working capital management, an attempt was made in this study to examine the working capital management on performance of basic material firms in Nigeria.

LITERATURE REVIEW

Working Capital

Working Capital Management encompass current assets and current liabilities. It involves the management of current assets and current liabilities, directly in proportion with the liquidity and profitability of the company (Altaf & Shah, 2017). Current liquidity crisis has reflected the impact of working capital management. Working capital management has showcased impact for profitability through the liquidity of the company. To reach satisfactory working capital management firm manager should control the tradeoff between profitability maximization and liquidity accurately (Raheman & Mohamed, 2007). The best or the optimal point of working capital management is expected to have significant

and positive value to the firm (Kaddumi & Ramadan, 2012). Working Capital Management is very crucial and a very sensitive organ in the financial management (Gill, Biger, & Mathur, 2010). It involves the decision of the amount and financing of these assets which depicts the running of the organization. Current assets involve all those assets that in the normal spectrum of business return to the form of cash within a short period of time, within a year and such temporary investment as may be converted into cash as soon as possible.

Account Receivables

Account receivables management has to do with the length of time it takes customers to whom goods and services are supplied to settle their debts. According to Lanze (2008), It represents the average number of days that it takes a company to receive payments from its customers. Scholars are of the opinion that the shorter the debtor's collection periods, the better the financial performance of the firm. According to Boisjoly (2009), this has made companies to devise strategies for shortening the debtors' collection periods in order to improve both the company's level of liquidity as well as profitability.

Inventory Management

Inventory, according to NdiranguKung'u (2016) is defined as "the stock purchased with the purpose of resale in order to gain a profit". Good inventory management should ensure that inventory is ready and low, because it is the most important asset in manufacturing and merchandising firms. Inventory represents around 40 percent of the total invested capital in industrial organizations, and about 33 percent of its working capital.

The inventory conversion period determines how much time it takes to convert the inventory into sales, i.e., the time taken from purchasing the new stock to the actual product sale. It is calculated as inventory divided by average sales or cost of sales and multiplied by 365 to know the exact days of inventory conversion into sales. The high conversion period determines the slow cash conversion cycle and block of money in inventory. In contrast, a decreased

conversion period reduces cash conversion cycles and unnecessary money blockage. It takes into account the average amount invested in the stock.

Operating Efficiency

Operational efficiency is the capacity of an organization to decrease squander in time, exertion and materials as much as conceivable, whereas still creating a high-quality benefit or item. Monetarily, operational efficiency can be characterized as the proportion between the input required to keep the organization going and the yield it gives. Input refers to what is put into a business to operate properly, such as costs, employees and time while output refers to what is put out or gained, such as rapid development times, quality, revenue, customer acquisition and customer retention. Measuring operational efficiency includes keeping track of a company's inputs and yields as performance pointers. Ordinarily, these execution pointers relate to productivity, quality or esteem.

THEORETICAL REVIEW

Agency Theory

The study is anchored on the Agency Theory propounded by Jensen and Mekline (1986). The agency theory view shareholders as owners/ principals of a company and the managers as their agents. Thus, there is principal – agent relationship between shareholders and managers. In theory, managers should act in the best interests of shareholders. In practice, directors may not essentially act within the best intrigued of shareholders, and they may seek after their personal individual objectives. For occurrence, supervisors may permit for speculation in exchange credit if they think it'll maximize deals development and Increment Company's riches but the shareholders are concern almost the hazard included in such speculations since such fulfilling behavior of directors may baffle the objective of shareholders' riches maximization. It is in the interest of managers that the firm survives over the long - run. When managers expand such commitments, they wish to appreciate autonomy and flexibility from exterior impedances, control and observing. Hence, their activities are likely to be coordinated towards the objectives of survival and self- adequacy. Moreover, a company may be a complex organization comprising of numerous partners such as workers, debt–holders, providers, government and society. Directors in practice may, see their part as accommodating conflicting objectives of stakeholder. This stakeholders' view of manager's role may compromise with

the objective of shareholders wealth maximization.

Empirical Review

Ironkwe and Wokoma (2017) inspected the association in the midst of Working Capital Management (WCM) in expansion to Financial Performance of Oil companies in Nigeria. The Quasi-Experimental plan was utilized. The theories were tried utilizing the Pearson Product Moment Correlation (PPMC). Data analysis and results shows that a progressive and perfectly substantial relationship amongst investing and financing rules and Return on Assets (ROA) exists; a neutral and minor relationship amid both financing and investing policies and earnings per share (EPS) exists. Moreover, there's an inconsequential but undesirable relationship among contributing and financing rules and return on equity (ROE). Conclusively, WCM impacts on the execution of Nigerian firms fundamentally from the space of ROA. It is prescribed among others that the comprehensive examination of financial execution patterns and WCM framework; Firms within the segment ought to build up satisfactory benchmarks of working resources components in arrange for developing commitments to be met enough.

Oladipo, Adegboyo, and Olugbamiye (2020) examined the effect of working capital management on profitability in manufacturing firms in Nigeria between the period of 1988 and 2019. The study disaggregated capital management into trade receivables, stock, cash and bank balances and trade payables in line with the theories looked into. The information was gotten from the company survey published review financial report. Based on the mixed level of stationarity of the variables as revealed by the unit root test, the study made use of auto-regressive distributed lag (ARDL) technique to analysis the data. The bound test revealed that; there was presence of co-integration (long-run relationship) among the dependent and all the explanatory variables consequently the study estimated the ARDLECM. The result advance appeared that Cash and Bank Equalizations (CBB), Trade Payables (TAP) and Trade Receivables (TAR) had a positive and critical effect on profitability of manufacturing firms in Nigeria which could be a clear sign that

working capital management has positive and critical effect on company profitability in Nigeria both in brief and long run. The findings of this study are in tandem with Keynesian Liquidity preference theory. This study recommends that financial managers increase their working capital and ensure that it is properly managed in order to enhance sales revenue, thus strengthening firm profitability. Besides, the study proposes that monetary directors ought to increment speculation in working capital to quicken their efficiency so that they can to make strides the profitability of the firms.

Sorin and Anca (2021) investigated the relationship between working capital and firm profitability for a sample of 719 Polish listed firms over the period of 2007–2016. The scarcity of empirical evidence for emerging economies and the importance of working capital efficiency motivate the research on the working capital–financial performance relationship. The paper embraces a quantitative approach utilizing diverse panel data techniques (ordinary least squares, fixed effects, and panel-corrected standard errors models). The experimental comes about report an altered U-shape relationship between working capital level and firm profitability, meaning that working capital incorporates a positive impact on the profitability of Polish firms to a break-even point (optimum level). After the break-even point, working capital starts to negatively affect firm profitability. The study brings theoretical and practical contributions. It extends and complements the literature on the field by highlighting new evidence on the non-linear interrelation between working capital management (WCM) and corporate performance in Poland. From the practitioners' perspective, the results highlight the importance of WCM for firm profitability.

Owolabi, (2012) effective working capital management and profitability: a study of selected quoted manufacturing companies in Nigeria management of firms, to examine this, an Ex-post - facto research involving trend analysis of five years financial statements of five manufacturing companies was carried out using purposive sampling technique. Multivariate analyses were made to test the research hypotheses. The result however, indicated that each working capital

component affected the company's level of profitability at varying rates, but, these effects when pooled together are not significant. To facilitate the smooth running and/or effective management of working capital so as to enhance the level of profitability, it was recommended that the companies should adequately plan and control their operations, adjust the shortfalls as noted, consider the principles of finance in their decision making, employ the services of experts (analysts) in complex business areas, and conduct periodic stock taking if possible every two weeks.

METHODOLOGY

This study adopted ex-post facto research design. According to study.com, ex-post facto research design is a quasi- experimental study examining how independent variables present prior to the study affects a dependent. Groups with qualities that already exist are compared on some dependent variable in a method. Quasi-experimental study means that participants are not randomly assigned. The area of study focuses on some selected basic materials firm companies in Nigeria from which the data required for a thorough analysis were derived

The target population of this study was consisting of basic material firms quoted on the Nigeria stock exchange. This study made use of secondary data mainly. The data were sourced from publications of the Nigerian Stock exchange (NSE) and the annual report and accounts of the listed basic material firms for a seven (7) year period spanning 2014-2020. The sampled basic material firms were six (6). The included firms are; African Paints (Nigeria), Aluminum Extrusion Industries, O.C. Gases Nigeria, Berger Paints, CAP, First Aluminum Nigeria | FIRSTALUM

The listed basic material firms were:

- African Paints (Nigeria) | AFRPAINTS
- Aluminum Extrusion Industries | ALEX
- O.C. Gases Nigeria | BOCGAS
- Berger Paints | BERGER
- CAP | CAP
- First Aluminum Nigeria | FIRSTALUM
- Meyer | DNMEYER
- Multiverse | MULTIVERSE

- Paints & Coatings Manufactures | PAINTCOM
- Portl& Paints & Products Nigeria | PORTPAINT
- Premier Paints | PREMPAINTS
- Thomas Wyatt Nigeria | THOMASWY

Model Specification

In an attempt to determine the effect of working capital management and firm performance, we develop an empirical model to ascertain the relationship that exists between the variables. Generally, specification of economic model is based on accounting theory and on the available data relating to the working capital management being studied. The model of accounting analysis in this study will therefore follow the conventional method, and this, is in reference to the variables of interest in the model above. Algebraically, therefore

ROA =F (ACR, ICP, OPE, SA)

Where

ROA= Return on Asset (proxy of firm performance)

ACR= Account receivable

ICP= Inventory conversion period

OPE= Operating efficiency

SA= Stock availability

With the linear expression of the model being

ROA=□o+□$_1$ACR + □$_2$ICP +□$_3$OPE + □$_4$SA +□

Where

Bo= constant

□i-□3 is parameters to be estimated

RESULT AND DISCUSSIONS

The study investigated the effect of working capital management on firm's performance: evidence from selected basic material firms in Nigeria. Table 4.1 provides the summary of the descriptive statistics of the sampled companies between 2014 -2020.

Table 4.1.1: Descriptive Statistics Result

	ROA	ACR	ICP	OPE	SA
Mean	1.019500	7.496750	0.854250	85.94450	27.00000
Median	0.935000	7.635000	0.620000	86.05500	29.00000

Maximum	2.470000	8.680000	2.180000	90.47000	54.00000
Minimum	0.510000	6.060000	0.090000	81.69000	6.000000
Std. Dev.	0.357089	0.817229	0.623229	1.904292	15.97273
Skewness	2.199359	-0.402264	0.769062	0.028178	0.076850
Kurtosis	8.923094	1.922397	2.318371	3.170304	1.593342
Jarque-Bera	90.71961	33.04159	4.717401	8.053632	30.37182
Probability	0.000000*	0.001556*	0.094543***	0.003540*	0.000512*
Sum	40.78000	299.8700	34.17000	3437.780	1080.000
Sum Sq. Dev.	4.972990	26.04668	15.14818	141.4268	9950.000
Observations	42	42	42	42	42

Source: Researcher's Summary of Descriptive Statistics e-view 10

*Note: *1% level of significance, **5% level of significance, ***10% level of significance.*

The descriptive statistics result in Table 4.1.1 provides some insight into the nature of the selected listed service firms that were used in the study. Firstly, it was observed that over the period under review, the sampled firms have average positive firm value. Within the period under review, the firms have maximum value of ROA of 2.470 while the minimum value was 0.510 respectively. The large difference between the maximum and minimum values of ROA indicates that the performance of the service firms selected differs greatly among the firms selected and over the period under review, this shows that the firms are not heterogeneous in nature. This extreme large value of ROA implies that some firms in the sample performed poorly while some had added value. This therefore means that firms with mean value higher or equal to 1.019 are high profitable firms with added value while firms with the value below 1.019 are low profitable firms. Hence, it can be argued that the selected firms had been efficient enough to generate a higher value for their assets. Skewness measures the degree of asymmetry of the observations while Kurtosis is a measure of peakedness or flatness of the distribution of the series. The standard deviation for ROA was 0.357 while the skewness for ROA was 2.199 implying that data on firm value were skewed to the right hence most values were bunched to the left of the distribution. The kurtosis for firm value was 8.923 that are greater than 3 hence the distribution is said to be leptokurtic hence it may have few outliers.

Account receivable was observed to have a mean value of 7.496 which suggest that almost all the firms in the sample have large assets that accumulated to positive firm value. The standard deviation of 0.817 further indicates that there is the existence of a considerable number of firms in the distribution. The minimum and maximum values of firm size measured as log of total assets are 6.06 and 8.68 respectively. This implies that the data in the sample firms deviate from the mean by .81%. The skewness for firm size was -0.402 implying that data on account received were skewed to the left hence most values were bunched to the right of the distribution. The kurtosis for firm size was 1.922 that are less than 3 hence the distribution is said to be platykurtic and having few outliers. The Jacque-Bera statistic of 33.04 alongside its p-value (0.001) indicates that the data satisfies normality.

Inventory conversion period was observed to have a mean value of 0.854 and a standard deviation of 0.623 suggesting considerable clustering of liquidity for the distribution around the mean value. The maximum, minimum and median values are 2.180, 0.09 and 0.062 respectively. The Jacque-Bera statistic of 4.717 alongside its p-value (p=0.094) indicates that the data satisfies normality at 10% significance level.

The table also indicates that operating efficiency has an average value of 85.94 with standard deviation of 1.904. While the minimum and maximum values are 81.69 and 90.47 respectively. This implies that operating efficiency was about 85.94% during the period of the study and the deviation from the mean is 1.904%. The value of skewness of 0.028 indicates that the data is positively skewed and therefore conform to the symmetrical distribution requirement. Moreover, the coefficient of Kurtosis 3.170 also indicates that leverage variable does not meet the Gausian distribution criterion.

Firm growth was observed to have a mean value of 27 which suggest that almost all the firms in the sample have been in existence in the last 27 years ago. The standard deviation of 15.97 further indicates that there is the existence of a considerable number of old firms in the distribution. The minimum and maximum values of firm age are 6 growth and 54 years respectively. This implies that the data in the sample firms deviate from the

mean by 15.97%. The skewness for firm growth was 0.0760 implying data on firm growth were skewed to the right hence most values were bunched to the left of the distribution. The kurtosis for firm growth was 1.59 that are less than 3 hence the distribution is said to be platykurtic and having few outliers. The Jacque-Bera statistic of 30.37 alongside its p-value (0.000) indicates that the data satisfies normality.

Generally, the JB Probability values of 0.0000 shows that all the variables are normally distributed at 1% level of significance except inventory period that was normally distributed at 10% level of significance. It is an indication that all variables are approximately normally distributed. This means that there are no variables with outlier, even if there are, they are not likely to distort the conclusion and are therefore reliable for drawing generalization. This also justifies the use of panel least square estimation techniques. Hence, any recommendations made to a very large extent would represent the characteristics of the true population of study.

4.2: Pearson Correlation Matrix

In examining the relationship that exists among the variables, the study employed the Pearson correlation coefficient. The results are presented below in table 4.2

Table 4.1.2: Correlation Analysis Result

	ROA	ACR	ICP	OPE	SA
ROA	1.000000				
ACR	0.055727	1.000000			
ICP	-0.293859	0.216586	1.000000		
OPE	0.215248	-0.123491	-0.372426	1.000000	
SA	0.017173	0.236602	0.149936	-0.249635	1.000000

Source: researcher's summary of correlation result (2022) using E-view 10

The above results show that there exists a positive but weak association between Return on assets, firm age and account receivable (ROA/FG and ACR = 0.017 and 0.055) respectively. There exists a negative and strong association between ROA and ICP (ROA/ICP = -0.293). It was discovered that another positive and strong association exists between return on assets and inventory conversion period ICP (ROA/ICP = 0.215). Another positive and strong association was documented against Account receivable, inventory conversion period and firm growth (ACR/ICP and SA = 0.216 and 0.236). It was

discovered that another negative and weak association exists between Account receivable and operating efficiency (ACR/OPE = - 0.123). A negative and strong direction was noticed between inventory conversion period and operating efficiency (ICP/OPE = -0.372) while a positive association was documented against ICP and firm growth.

4.3 Regression Results.

The general hypothesis of this model is that working capital management has no statistically significant effect on the performance (ROE) of basic material firm in Nigeria.

Table 4.1.3: Regression Analysis

Dependent Variable: ROA
Method: Panel Least Squares
Sample: 2014 2020

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	7.930437	15.89801	0.498832	0.6247
ACR	0.721880	2.004188	0.360186	0.7234
ICP	0.780012	2.240724	1.686960	0.1110
OPE	0.671597	0.194844	3.446844	0.0033
SA	0.371787	0.164904	2.236994	0.0133

R-squared	0.578622	Mean dependent var	3.909000
Adjusted R-squared	0.592738	S.D. dependent var	7.784756
F-statistic	5.095996	Durbin-Watson stat	2.114074
Prob(F-statistic)	0.011519		

Source: Researcher's summary of e-view

Note: x 1%, 5%xx, 10% ***.level of significance

From table 4.3.1, we observed that the R-squared and R-squared (adjusted) value were (0.578622) and (0.592738). This indicates that all the independent variables jointly explain about 57% of the variations in firm's performance of the sampled companies over

the period (**2014 – 2020**). The F-statistics (5.09) and its p-value (0.0125) shows that the ROA, OLS regression model used is generally significant and well specified the F-statistics also it shows that the overall ROA regression model is statistically significant at 1% levels.

$H_0$1: Account receivable has no significant effect on firm performance.

The analysis result shows a coefficient value of 0.721880, a t-statistics value of 0.36019 and probability value of 0.7234, account receivable appears to have a positive influence on the performance of the sampled quoted firms. The t-statistics value shows that account receivable from operating activities has effect on the firm performance of the sampled firms. The probability value reveals that the effect of account receivable on firm performance is statistically insignificant at 10% level. The result suggests that we accept the null hypothesis which stated account receivable does not significantly affect firm performance and reject the alternate hypothesis. This therefore means that the use of account receivable is not efficient, and so companies should do more to ensure that account receivable from operating activities is maximize to maximize profit.

$H_0$2: Inventory conversion period has no significant effect on firm performance.

The analysis result shows a coefficient value of 0.7800, a t-statistics value of 1.6869 and probability value of 0.1110. The result suggests that Inventory conversion period appears to have a positive influence on the firm performance. The t-statistics value (below 2) shows that Inventory conversion period has (weak) effect on the firm performance. The probability value reveals that the defect of Inventory conversion period on firm performance is statistically not significant even at 10% level. The result suggests that we accept the null hypothesis which stated Inventory conversion period does not have significant effect on firm performance and reject the alternate hypothesis.

$H_0$3: Operating efficiency has no significant effect on the firm performance.

The analysis result shows a coefficient value of 0.671597, a t-statistics value of 3.446844 and probability value of 0.0033, Operating

efficiency appears to have a positive influence on the performance of the sampled quoted companies. The t-statistics value (above 2) shows that Operating efficiency has effect on the firm performance of the sampled firms. The probability value reveals that the operating efficiency on firm performance is statistically significant. The result suggests that we reject the null hypothesis and accept the alternate hypothesis. This implies that operating efficiency has significant effect on the performance of the selected firms.

$H_0$4: Stock Availability has no significant effect on firm performance.

The analysis result shows a coefficient value of 0.371787, a t-statistics value of 2.236994 and probability value of 0.0133. The result suggests that stock availability appears to have a positive influence on the firm performance. The t-statistics value (above 2) shows that stock availability has (strong) effect on the firm performance. The probability value reveals that stock availability on firm performance is statistically not significant even at 10% level. The result suggests that we reject the null hypothesis and accept alternative hypothesis which stated stock availability have significant affect on firm performance of the selected firms

CONCLUSION

One of the main objectives of every firm is to maximize the wealth of the owners, and survival in the long run. However, this depends on the firm's ability to generate positive management for the owner. This study reveals the effect/relationship between account receivables, inventory conversion period, operating efficiency and firm growth and performance of firms selected in Nigeria. The study found that some aspect of operating efficiency has more influence on performance than the other, for instance operating efficiency has more influence on profit than account receivable. Hence, a proper management of account receivable will influence the performance of firms. Based on the findings, the study recommends the following:

i. The company should diversify their inventory system to suit specific needs of production

ii. The study therefore recommends that inventory management of firms in Nigeria should make policy that will increase investing cash flow. This will improve their liquidity level and performance.

iii. Company should improve the operating management by reducing their account receivable period as this may reduce bad debt that result through credit sale and increase the cash available for investment.

iv. Management should closely monitor and manipulate their inventory system to maintain production consistency for firm growth and effectiveness.

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