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## IMPACT OF WORKING CAPITAL MANAGEMENT ON ORGANIZATION PERFORMANCE; CASE STUDY OF SELECTED QUOTED MANUFACTURING COMPANIES IN NIGERIA

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### Abstract

*The value of the firm is created by optimal working capital management, the term which refers to the quantum of fund required to maintain day-to-day running of an organization. The fund is required to run the wheels of the business enterprise. Working capital constitutes the short term investment decision of the organization; it is short term sources and application of fund. The cost of these short term source of fund is very important to an organization because it is the life blood of an organization, it consist the liquidity flow as different from profitability of the organization. Working capital management is an important factor in accessing organizations' performance that is ability to efficiently maintain the balance between liquidity and profitability.*

*The main objective of this paper is to ascertain the impact of working capital management on organization performance. Specifically to determine the effect of working capital management on organization efficiency and profitability of manufacturing companies. Data were sourced from secondary data making used of annual reports and financial statements of four (4) quoted manufacturing companies in Nigeria. It analyzed using multiple regression analyses. It was discovered that every stage in the production process needs adequate working capital and that there is relationship between working capital management, efficiency and profitability of manufacturing companies in Nigeria. Therefore it was recommend that an optimum level of debtors should be sought by organization through an efficient debtors' management and that stock should be efficiently managed.*

**Key words:** Working capital Management, organization efficiency, organization profitability

### Section I: Introduction

Working capital management (WCM) decisions are one of the short term decisions of financial management, financial management decision of any firm has four specific aspects viz: investment decision, financing decision, dividend decision and liquidity decision. The working capital management is considered to be a vital issue in liquidity and short-term investment decisions of the firm. It has an effect on liquidity as well as on profitability of the firm. The working capital is the fund flowing, it is the required fund necessary for the day-to-day running of the business; it includes cash, inventory, account receivable, prepayment (which constitute application of fund) account payable, accruals, and so on. Working capital serves as a measure of how efficiently a company is operating and how financially stable it is in the short-run because working capital ratio is the ratio of current assets by current liabilities an

indication whether the company has adequate cash flow to cover short-term debts and expenses. Hawley (2020) argued that business uses working capital in its daily operations; working capital is the difference between a business's current assets and current liabilities or debts.

The value of the firm is being created by optimal working capital management. The term working capital refers to the quantum of fund required to maintain day-to-day expenditure on operational activities of a business enterprise. It is actually required to run the wheels of the business enterprise. Working capital management objective is to maximize the profits, which results into reducing the risk of not being able to satisfy the maturing short-term debts. The efficacy of working capital management depends on the balance between liquidity and profitability. A firm's high liquidity risk results in high profitability. The issue here is that in managing working capital, a firm must take into consideration all the items in both debit and credit sides of an account and try to balance the risk and return (Pinku & Paroma, 2018; Niresh, 2012).

Working capital constitutes the short term investment decision of the organization; it is short term sources and application of fund. The cost of these short term source of fund is very important to an organization. It is the current assets circulating or floating capital. It changes form in the production and trading process, for example cash is used to purchase raw material (inventory) these are being used up in production process to yield finished goods (stocks) the stock are sold for cash or on credit (yielding) account receivable, sometimes inventory (raw material) are obtained on credit (account payable). But Okwokwo (2000) defined working capital as money available to company for use on day to day transaction of the business of the company, he further classified it as current assets minus liabilities that is the amount of current assets that remains after current liabilities are deducted.

Observably, working capital is the life blood of an organization, it consist the liquidity flow as different from profitability of the organization. A profitable but illiquid business can be forced to close down, working capital constitute the main frame liquidity flow of the organization. It is a major aspect of investment decision of an organization. Onuha (2003) observed that working capital management is process of evaluating cost and benefit of holding various level of working capital. As the management of capital labour and raw materials, all these factors are the major component of working capital of which if properly integrated, the maximum effectiveness for day-to-day running activities of the business will be attained. For quite some times, the manufacturing sectors have been experiencing decline in production process, and most of the goods produced are of sub-standard. Certainly, all these can be attribute to some factors in economy planning and political formulation.

Government been the major dictator of the economy, and has for several reasons formulated different economy policies to assist the manufacturing sectors like the interest rate, pegging foreign exchange, and in attempt to face up with the imminent economic. However, the problems posed by the current harsh economy situation to the management of working capital are obvious. First, there is the problem of coping with high costs of production. Second, there is a problem in many instances of shortage of essential raw materials, which has led to the cuts in production shift and has worsened the level of production capacity utilization. High costs of domestic production necessarily and unavoidably led to prices increases such in turn worsened the customers' purchasing power resulting into high stockpile of goods and these entire problems creating hardship to organization working capital management. The researcher is intending to carry out the survey of how the organization effectively manages working capital for the organization survival.

This paper will attempt to look at the impact of working capital on the survival strategy adopted by manufacturing companies in Lagos Area, therefore the paper will be significant to the management and policy maker of manufacturing companies. The paper will also serves as reference material for other researchers.

### **1.1 Objective of the Study**

The main objective of this paper is to ascertain the impact of working capital management on organization performance. Specifically, the paper is set to

- ❖ Determine the effect of working capital management on organization efficiency in manufacturing companies
- ❖ Determine the influence of working capital management on profitability of manufacturing companies.

## 1.2 Research Questions

In order to ascertain the impact of working capital in the profitability of manufacturing sector and its effectiveness, attempt will be made to answer the following research question:

- ❖ What is the effect of working capital management on organization efficiency in manufacturing companies?
- ❖ What is the influence of working capital management on profitability of manufacturing companies?

## 1.3 Research Hypotheses

In order to quantify the reliability of this research work, hypothesis which will form basis of research will formulated in pair; Null hypothesis which is the negative aspect of the statements and the alternate hypothesis that is the positive side of the statements thus:

### Hypothesis I

**Ho:** Working capital management does not have significant effect on organization efficiency

**HA:** Working capital management has effect on organization efficiency

### Hypothesis II

**Ho:** Working capital management does not have significant influence on profitability of manufacturing companies

**HA:** Working capital management has influence on profitability of manufacturing companies

## 1.4 Scope of the Study

The scope of this research work is limited to the manufacturing companies using 7Up Bottling Company Plc, Aboseldehyde Laboratories Plc, Afprint Nigeria Plc and African Paints Nigeria Plc as a case study.

## 1.5 Study Plan

This paper consist of four sections thus: section one is the background of the study, significant of the study, research questions, statement of the hypothesis, scope and limitation, while section two is the review of existing literature and current works of scholars on the subject matter. Section three is the research methodology and interpretation of results. Consequently section four consist of finding, summary, recommendation and conclusion.

## Section II: Literature Review

Over the years, management has been defined in many ways. Early definitions state that management consists primarily, planning, organizing, directing, and controlling. It would seem that this generalized definition, which probably evolved from the work of Henri Fayol. But in term of its ability to explain what management is, this definition is somewhat inadequate, because it stop at explaining what managers do rather than the essence of what management is. Therefore management is defined as the total system of an organization, management of resources (both man and materials) to achieve organizational goals. Anuinina (2004) defined management as the process of allocating of an organization's inputs (human and economic resources) by planning, organizing and controlling for the purpose of producing outputs (goods and services) desire by its customers so that organization objectives are accomplished. In modern business environments managers need to understand modern technology that can give the organization competitive edge, in term of efficiency and most essentially management of her working capital.

Research has shown that ineffective working capital management is one of the factor identified as significant to profitability and efficiency in any manufacturing company (OECD, 2006). It is of note also that companies in developing country like Nigeria find it difficult to obtain loans of business expansion or for working capital requirements. Where the borrowing is feasible, the cost of borrowing from such sources is unsustainable arising from high interest costs. Also, the government policies such as high debt burden, persistent increased in inflation, increased in minimum cost of doing business in Nigeria and intense competition in the business environment in Nigeria are indications of the need to undertake a study into working capital management in the country. Financial management decision of a firm has four aspects, which include investment decision, financing decision, dividend decision and liquidity decision. The working capital management is considered to be a vital issue in liquidity and short-term investment decisions of the firm. It has an effect on liquidity as well as on profitability of the firm. The value of the firm is being created by optimal working capital management. The term working capital refers to the quantum of fund required to maintain day-to-day expenditure on operational activities of a business enterprise. It is actually required to run the wheels of the business enterprise. Working capital

management objective is to maximize the profits, which results into reducing the risk of not being able to satisfy the maturing short-term debts. The efficacy of working capital management depends on the balance between liquidity and profitability. A firm's high liquidity risk results in high profitability. The issue here is that in managing working capital, a firm must take into consideration all the items in both debit and credit sides of an account and try to balance the risk and return (Pinku and Paroma, 2018; Niresh, 2012).

## 2.1 Concept of Working Capital

Manufacturing companies are essential factor in economic growth and development, the role they play transcend production of goods and services, it include employment generation and revenue generation to the government (Babajide and Ogundare; 2015). Bolton Report, (1971) shows that manufacturing sector promote entrepreneurial culture. Therefore the performance of these businesses is very germane to the growth of the economy. However, given their reliance of many business organizations on short-term funds, it has long been recognized that the efficient management of working capital is crucial for the survival and growth of these organizations (Grablowsky, 1984). A large number of business failures have been attributed to inability of financial managers to effectively control the current assets and current liabilities of their respective organizations (Smith, 1973). Working capital management is of particular importance to the business organizations. Some business organizations have limited access to the long-term capital markets, these organizations tend to rely more heavily on owner financing, trade credit and short-term bank loans to finance their needed investment in cash, accounts receivable and inventory.

Working capital management is an important factor in accessing organizations' performance that is ability to efficiently maintain the balance between liquidity and profitability. Harris (2005) opined that working capital management is a simple and straightforward concept of ensuring the ability of organization to fund the difference between the short term assets and short term liabilities. The concept of Working Capital Management (WCM) is misnomer, working capital has been defined as current assets minus current liabilities but working capital management is defined as the management of both current assets and current liabilities. Umoren and Udo (2015) defined working capital management as process of finding a balance between liquidity and profitability objectives of the firm in view of the of all the risk involved. They further posited that working capital management (MWC) is concerned with the differences between current assets and current liabilities as well as the interrelationships that exist between them. But Mbawuni et al. (2016) opined that working capital affect the firm's investment in two types of assets, an enterprise investment in current assets needed to operate over a normal business cycle, and enterprise investment in non-fixed assets (Bevan & Danbolt, 2002; Sogorb-Mira, Working capital is expected to meets the short term financial requirements of a business enterprise (Gitman, 2005), therefore, working capital is the investment required for running daily business activities. Gitman, (2005) opined that it is the result of the time lag between the expenditure for the purchase of raw materials and the cash collection of the sales of finished products or services rendered. Hence this have effect on liquidity and profitability of a firm (Shin and Soenen, 1998). This task goes a long way to affect the financing and investing decisions of firms. WCM considers every decision that relates to managing current assets and liabilities, i.e., determining the optimal amount of cash, receivables, inventory, and current liabilities and the relationship between current assets and current liabilities (Abuzayed, 2012). Working capital refers to funds to be invested in the business for a short period, generally one year. It is a measure of a company's efficiency and short term financial health. It shows whether a company has short-term assets to cover its short-term debt. It is required to meet day to day operating expenses and for holding stocks of raw materials, spare parts, consumables, work in progress, finished goods, and overdrafts. It is vital to the operating cycle of a firm (Rawat & Dave, 2017). The amount of working capital needed by a company is a times dependent on the industry it operates, the credit days allowed by creditors and credit days given to debtors, and the level of stock they need to maintain (Kosgey & Njiru, 2016). Firms must monitor their working capital to ensure that they have enough resources to continue their day to day operations (Runyora, 2012).

Korede (2017) opined that a company should have working capital policies on the management of inventory, trade receivables, cash, and short-term investments to minimize the possibility of illiquidity and inefficiency. These policies should also take into consideration the nature of business as different businesses have different working capital requirements. The efficient utilization of the firm's working capital has a linear relationship with the profitability of that firm. So, effective and efficient working capital management is expected as it has a significant effect on the profitability and sustainability of firms (Agha & Mba 2014). Working capital management is the process of planning for the acquisition and usage of short term assets (Ismail, Mohammed & Mohammed, 2015). Working capital management

(WCM) is an important component of corporate financial management as a result of a strong connection with the liquidity, profitability, and solvency objectives of a firm (Kolapo, Oke & Ajayi, 2015). Hawley (2020) posited that proper management of working capital is essential to a company's fundamental financial health and operational success as a business. He further adduced that the hallmark of good business management is the ability to managed and utilize working capital to maintain a balance between growth, profitability and liquidity.

Maurice (1980) viewed that the management of current assets and liabilities is called working capital management. While current assets are mainly cash, marketable securities, account receivable and inventory, while current liabilities are mainly account payable, notes payable and accrual. Therefore, the aim of working capital is to optimally manage current assets and current liabilities such that an acceptable level of net-working capital can be achieved. Thus, net working capital (NWC) is the mathematical difference between current assets and current liabilities of an organization. If a firm cannot maintain a satisfactory level of net working capital, it would be insolvent and if not corrected would be commensurate with bankruptcy.

Pandey (2010) posited that working capital has two concepts, namely gross working capital and net working capital. He further opined that gross working capital covers the current assets, while the networking capital refers to the difference between a firm's current assets and current liabilities.

Business firms are supposedly invested in enhancing stockholder wealth and this requires the steady generation of profits. This in turn requires a successful sales programmer and current assets are necessary to ensure the smooth functioning of the sales programme. Stephen (1983) defined working capital management as the process of planning and controlling the level and mix of the current assets of the firms as well as financing these assets. Specifically, working capital management requires financial managers to decide what qualities of cash, other liquid assets, account receivable and inventories the firm will hold at any point in time. In addition, financial managers must decide how these current are to be financed. Financing choice includes the mix of current as well as long term liabilities. Robert (1986) said working capital management involves the determination of the appropriate levels for each current assets and the day to day administration and control of those assets. The objective in managing working capital is to maximize shareholders wealth. This implies that decisions concerning current assets will be based upon an evaluation of profitability and risk. Coltman (1984) Defined working capital management as the arithmetical difference between current assets and current liabilities, and he said it more importantly a reflection of the ability of the manager of the business to effectively control each current asset and current liability account given the operating conditions for the business. In other words, the amount of working capital required by a business is the amount that results from each current asset and each current liability being at the best level to ensure, for example, that there is sufficient inventory on hand or that account payable are paid when due. A business with a good working capital position will be able to buy inventory, supplies and services on favourable terms and with satisfactory delivery schedules. It will be able to take advantage of trade discount offered and keep its own price competitive. It will have a good credit rating and will not be dictated to by its creditors. It will collect its account receive able and not suffer high bad debt losses. Douglas (1997) said working consist of choosing the levels of cash, marketable recon tires receivable and inventories, as well as the level and mix of types of short term financing working capital management includes several basic business relationships.

Stanley (1987) working capital management involves the financing and management of the current asset of the firm. The financial executives probably devote more time to working capital management than any other activity. Current assets by their nature are changing daily, if not hourly, and managerial decisions must be made.

### **Section III: Methodology**

The population of study is all quoted manufacturing companies in Nigeria, sample size comprise of four (4) quoted manufacturing companies in Nigeria Stock Exchange. Secondary data were sourced from financial statements obtainable from the Nigeria Stock Exchange and annual reports of 7Up Bottling Company Plc, Aboseldehyde Laboratories Plc, Afprint Nigeria Plc and African Paints Nigeria Plc as a case study between 2000 to 2019.

### 3.1 Method of Data Analyses

The study used both descriptive and econometric model to analyse the effect of working capital on profitability of selected manufacturing companies in Nigeria. The descriptive statistics made use of mean, median and maximum and minimum. These are used to describe the general behaviour of the data. The analysis is based on a panel data from the selected manufacturing companies' financial statements obtainable from the Nigeria Stock Exchange. The study then estimated the determinant of profitability by using the ordinary least squares (OLS). Therefore, from Raheman and Nasr, (2007), the study could adopt

$$Y_{it} = \beta_0 + \sum_{k=0}^n \beta_1 X_{it} + \mu \quad (1)$$

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \dots + \mu \quad (2)$$

In a panel format equation becomes

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \dots + \mu_{it} \quad (3)$$

$$Y_{it} = \beta_0 + \sum_{k=0}^n \beta_1 X_1 + \sum_{k=0}^n \beta_2 X_2 + \sum_{k=0}^n \beta_3 X_3 + \dots + \mu \quad (4)$$

The model relevant to the study are adopted from the studies of Ali and Iva (2013) as adjusted by Yu and Gan (2018). This study introduced static OLS equation follows a standard ARDL model which is quoted in following models in line with research objectives as follow;

**Model I:** Relationship between working capital management and efficiency of manufacturing  
Then (4) become;

$$Roe_{it} = \beta_0 + \sum_{k=0}^n \beta_1 CCC_{it} + \sum_{k=0}^n \beta_2 DCP_{it} + \sum_{k=0}^n \beta_3 CPP_{it} + \sum_{k=0}^n \beta_4 LEV_{it} + \sum_{k=0}^n \beta_6 RSK_{it} + \mu \quad (5)$$

**Model II:** Relationship between working capital management and profitability of manufacturing

Then (4) become;

$$PAT_{it} = \beta_0 + \sum_{k=0}^n \beta_1 CCC_{it} + \sum_{k=0}^n \beta_2 DCP_{it} + \sum_{k=0}^n \beta_3 CPP_{it} + \sum_{k=0}^n \beta_4 LEV_{it} + \sum_{k=0}^n \beta_6 RSK_{it} + \mu \quad (6)$$

**Where;**

ROE (Efficiency)=Ratio of earnings before interest and taxes to Equity fund for manufacturing companies in time t

PAT (Profitability)= Profit After Tax

CCC (Cash Conversion Cycle)= The difference between Debtors Collection Period and Creditors Payment

DCP (Debtors Collection Period)= The ratio of Bank current assets to interest income in 365 for Manufacturing companies in time t

CPP (Creditors Payment Period)= The ratio of bank short-term debt to interest expense in 365 for Bank I in time t

Leverage (LEV)= The ratio of total debt to total net assets for manufacturing companies in time t

Risk (RSK)= Standard deviation of Profitability

$\mu$ = Error term

### 3.2 Presentation of Panel series Data

The raw data on the variables employed for this study are presented in Appendix I for the time series variables. Various statistics tools were employed to examine the shapes of the distribution of these data and to check whether the data series follow a Gaussian process. The statistics are Jaque Bera (JB), Lilliefors (D), Cramer-von Mises (W2), Watson (U2), and Anderson-Darling (A2). Tables 1 and 2 present the value of these statistics in respect of each variable using time series.

**Table 1: Summary Statistics, using the observations 2000-2019 for 4 Manufacturing Companies**

Statistic	ROE	PAT	CCC	CPP	LEV	DCP	RSK
Obs	28	28	28	28	28		28
Mean	.3293727	7.980455	-4914.02	9425.619	5.5636	4511.594	.0712796
Maximum	1.5599	.77	-138677	140860	20.108	43030.86	.4433559
Minimum	-.1751	-.077	-138677	3.735841	.433	979.926	0
Std. Dev.	.2608764	72.83	.1754781	18231.46	17039.73	3.832492	.0904809
Skewness	1.748782	.032386	-5.95969	7.104261	.9127151	4.364571	1.963526
Kurtosis	9.088945	2.560569	45.5877	55.31174	4.613765	22.03066	5.619
Jarque-Bera	16.73670	3.427336	1628.820	0.000912	3.484150	4.712865	20.25728
Probability	0.000232	0.180204	0.000000	0.999544	0.175157	0.265710	0.000040
Lilliefors(D)	0.351979	0.093912	0.492204	0.104378	0.267892	0.521928	0.271477
Probability	0	> 0.1	0	> 0.1	0	>0.1	0
Cramer-von Mises (W2)	1.093915	0.062774	2.657704	0.056207	0.339178	1.892102	0.798492
Probability	0	0.339	0	0.4148	0.0001	0.032110	0
Watson (U2)	1.001803	0.062481	2.565581	0.056191	0.325897	0.672911	0.701816
Probability	0	0.3043	0	0.3742	0.0001	0.234312	0
Anderson-Darling (A2)	5.565505	0.470814	12.68607	0.3328	2.024485	3.5609	4.27702
Probability	0	0.2321	0	0.498	0	0	0

**Source:** Researcher's Computation (2020)

Data were collected in panel format from four (4) selected manufacturing companies in Lagos on ROE (Return on Equity), PAT (Profit Before Tax), CCC (Cash Conversion Cycle), DCP (Debtors Collection Period), CPP (Creditors Payment Period), LEV (Leverage) and RSK (Risk) for a period of 10 years (between 2010 to 2019). The mean values of ROE is .3293727, with maximum value equal to 1.5599 and minimum value -.1751 with standard deviation of .2608764 with skewness of 1.748782 and Kurtosis of 9.088945. These result show a volatile variable.

But the maximum and minimum values measure the degree of variations in the variables under study. PAT ranges between - 7.7 percent and 77 percent meaning that profit can rise as high as 77 percent and fall as low as -7.7 percent among the companies under study. The arithmetic mean which measures the central tendency of the variables is of good fit and it is supplemented by coefficient of variation and standard deviation. The coefficient of variation shows that the most volatile variable is the CCC. This shows that there is extreme variation in CCC among the various companies. The coefficient of variation also shows that LEV is the less volatile variable. This means that LEV among the companies does not differ much.

Skewness implies asymmetry of a distribution, a distribution with an asymmetric tail moving towards the right is known as positively skewed while the one with the asymmetry tail widening to the left direction is known as negatively skewed. The estimate of a skewness lies within the range of negative unity and positive unity and an absolute value above 0.2 indicates great skewness (Hildebrand, 1986). The variables except CCC are positively skewed. Additionally with the exception of LEV and profit all the variable have values of skewness greater than 1. This shows that almost all the variables have outliers.

This simply means throughout the sampling period, the raw data exhibit much more high values than low value. The kurtosis values are larger than 3 with probability below 0.5. These mean the variables are leptokurtic with high volatility of volatility. This leptokurtic characteristic suggests that in future time, these variables would manifest high values or there would be occasional outliers in the future. The probability values associated with Jarque-Bera, Lilliefors, Cramers-Von-Misses, Watson and Anderson-Darling with respect to ROE, PAT, CCC, DCP, CPP, LEV and RSK signifying that these variables are not normally distributed. On the contrary, the probability values of all these statistics with respect to ROE and PAT are larger than 10 percent. Thus, the null hypothesis that these two variables are normally distributed cannot be rejected.

**Table 2: Correlation matrix.**

	ROE	CCC	Mcl	Mcd	Mcil	Mcid
ROE	1					
CCC	-.495**	1				
DCP	.887**	-.305	1			
CPP	.918**	-.357	.984**	1		
LEV	-.634**	.878**	-.382*	-.447*	1	
RSK	-.511**	.440	-.415*	-.451*	.568**	1

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

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

**Source:** Researcher's Computation (2020)

**Table 3: Correlation matrix.**

	PAT	CCC	Mcl	Mcd	mcil	Mcid
PAT	1					
CCC	-.218**	1				
DCP	.967**	-.511	1			
CPP	.856**	-.891	.718**	1		
LEV	-.715**	.761**	-.620*	-.212*	1	
RSK	-.920**	.134	-.298*	-.362*	.718**	1

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

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

**Source:** Researcher's Computation (2020)

### 3.3 Unit Root Test

Unit root test was conducted using Augmented Dickey Fuller (ADF) method for the time series data. The unit test results are reported in table 3.

**Table 4: Showing ADF Results for the Data**

Var	ADF-stat	Critical-Value @ 5%	P-Value
DROE	-3.92	-3.56	0.02
DPAT	-8.20	-3.61	0.03
D(CCC)	-6.03	-3.55	0.00
D(DCP)	-6.91	-6.91	-3.54
D(CPP)	-6.81	-3.55	0.00
D(LEV)	-4.79	-1.95	0.00
D(RSK)	-3.17	-2.23	0.00

**Source:** Researcher's Computation (2020)

Table 3 presents the ADF statistics and the critical values at 5 percent level of significance with respect to ROE, PAT, CCC, DCP, CPP, LEV and RSK. ROE at first deference has ADF statistic (-3.92), which is in absolute term greater than the critical value at 5 percent. Therefore, ROE at first deference is stationary.

The variables LEV yields ADF (-4.97). In absolute value, this is larger than the critical value at 5 percent (-1.95). Hence, LEV is I(1) integrated variable CCC, DCP, CPP, LEV and RSK have ADF statistics - 6.03, -6.91 and -3.17 respectively, which are larger than the critical value at 5 percent. This means CCC, DCP, CPP, LEV and RSK are I (1) variables. Since all the variables are integrated to order one, therefore we can proceed to co-integration test by Johansen.

### 3.4 Results of the OLS

#### Model I

**Table 5: OLS Results (ROE-DEpendent)**

Variable	Coefficient	Std. Error	t-ratio	p-value	
Const	0.467598	0.046017	10.1614	<0.00001	
CCC	-1.51976	8.92308	-1.7032	0.09380	*
DCP	-3.98527	6.85908	-5.8102	<0.00001	***
CPP	-0.109265	0.078778	-1.3870	0.17066	
LEV	0.00488337	0.002734	1.7860	0.07924	*
Rsk	-0.297844	0.253675	-1.1741	0.24507	

**Source:** Researcher's Computation (2020)



ROE= 0.467598-1.51976CCC-3.98527DCP-0.109265 CPP+0.00488337LEV-0.297844RSK  
 Std Error =(0.029111) (9.73421) (5.08930) (0.977078) (0.390134)  
 't' =(13.0673) (-2.8220) (-3.1120) (-1.1487) (1.8130) (-1.3181)

The regression line shows that there is a positive relationship between working capital management and efficiency of manufacturing companies

$$R = 0.771$$

$$R^2 = 0.595$$

$$\text{Standard Error} = 1.57364E6$$

$$\text{Durbin Watson} = 1.365$$

**Correlation Co-efficient (R):** The level of co-efficient of correlation (R) is 0.771 which means a positive correlation existed between working capital management and efficiency of manufacturing (represented by Return on Equity). That is there is 77.1 percent correlation between working capital management and efficiency of manufacturing companies.

**Co-efficient of Multiple Determination (R<sup>2</sup>):** It is to be noted that the closer to one the value of R<sup>2</sup>, the better the fit and the closer to zero the value, the worse of fit. In above model the "goodness of fit" that is R<sup>2</sup> is equal to 0.595 depicts a goodness of fit that is equal to 59.5 percent. It is noted that variation notice in the Return on Equity (efficiency) in manufacturing companies can be attributed to change in working capital management (represented by CCC, DCP, CPP, LEV and RSK).

**Standard Error Test:** The decision rule of this test is that, if the standard error of  $\beta_1$  is smaller than half of the numerical value i.e. if  $s(\beta_1) < (\beta_1/2)$ , we conclude that the estimate is statistically significant by rejecting the null hypothesis (H<sub>0</sub>) and vice-versa. The  $s(\beta_1) = -221155.856$  while  $(\beta_1)/2 = 110577.928$  i.e.  $s(\beta_0) < (\beta_1)/2$  ( $-2312173.172 < 110577.928$ ). It means we accept the null hypothesis (H<sub>0</sub>) of two-tailed test at 5% level of significant.

**Durbin Watson test (d-statistics):** The Durbin-Watson test of autocorrelation states that;

1. If the value d\* is equal to zero (d\*=0), it depicts perfect positive autocorrelation.
2. If d\* value ranges between 0<d\*<2, there is some degree of positive autocorrelation.
3. If d\* value ranges between 2<d\*<4, there is some degree of negative autocorrelation.
4. If d\* value is equal to 4 (d\*=4), it depicts perfect negative autocorrelation.

The Durbin Watson for this analysis is 1.365 showing that there is evidence of auto correlation between the variables.

**Decision:** Results of analyses show that there is correlation between working capital management as represented by Cash Conversion Cycle (CCC), Debtors Collection Period (DCP), Creditors Payment Period (CPP), Leverage (LEV) and Risk (RSK) and organization efficiency represented by Return on Equity (ROE). Coefficient of correlation show that one unit change in Working Capital Management (independent variables) will have 59.5 percent influence the organization efficiency (dependent variable). Therefore reject the null hypothesis that working capital management does not have significant effect on organization efficiency. These results supports findings of Agyei and Yeboah (2011) which identified leverage as one of the main factor that affect performance of manufacturing companies. The cash conversion cycle (CCC) which shows the ratio of payment to outsiders and payment from outsiders to the banks has a negative relationship with profitability.

## Model II

**Table 6: OLS Results (PAT Dependent)**

Variable	Coefficient	Std. Error	t-ratio	p-value	
Const	0.189235	0.029111	13.0673	<0.00007	
CCC	-2.32901	9.73421	-2.8220	0.07188	*
DCP	-2.80061	5.08930	-3.1120	<0.00001	***
CPP	-1.09985	0.977078	-1.1487	0.16178	
LEV	0.00721081	0.0038902	1.8130	0.08122	*
Rsk	-0.932094	0.390134	-1.3181	0.26219	

**Source:** Researcher's Computation (2020)

PAT= 0.189235-2.32901CCC-2.80061DCP-0.109985CPP+0.00721081LEV-0.932094RSK  
 Std Error =(0.029111) (9.73421) (5.08930) (0.977078) (0.0038902) (0.390134)  
 't' =(13.0673) (-2.8220) (-3.1120) (-1.1487) (1.8130) (-1.3181)

The regression line shows that there is a positive relationship between working capital management and efficiency of manufacturing companies

$$R = 0.890$$

$$R^2 = 0.632$$

$$\text{Standard Error} = 3.6110232$$

$$\text{Durbin Watson} = 1.101$$

**Correlation Co-efficient (R):** The level of co-efficient of correlation (R) is 0.890 which means a positive correlation existed between working capital management (represented by CCC, DCP, CPP, LEV and RSK) and profitability of manufacturing (represented by PAT-Profit After Tax). That is there is 89 percent correlation between working capital management and profitability of manufacturing companies.

**Co-efficient of Multiple Determination (R<sup>2</sup>):** In above model the “goodness of fit” that is R<sup>2</sup> is equal to 0.632 depicts a goodness of fit that is equal to 63.2 percent. It is noted that one unit change in working capital management (represented by ROE, PAT, CCC, DCP, CPP, LEV and RSK) will influence PAT (Profitability) in manufacturing companies by 63.2 percent.

**Durbin Watson test (d-statistics):**

The Durbin Watson for this analysis is 1.10 showing that there is no evidence of auto correlation between the variables.

**Decision:** These results show that there is correlation between working capital management as represented by Cash Conversion Cycle (CCC), Debtors Collection Period (DCP), Creditors Payment Period (CPP), Leverage (LEV) and Risk (RSK) and organization profitability represented by Profit After Tax (PAT). Coefficient of correlation show that one unit change in Working Capital Management (independent variables) will have 63.2 percent change in organization profitability (dependent variable). Therefore reject the null hypothesis that working capital management does not have significant influence on profitability of manufacturing companies.

#### Section IV: Summary Conclusion and Recommendations

This section is the final section of this paper, this paper has been able to establish that working capital is crucial for day to day running of any manufacturing company so it therefore follows that if company will achieve its goals and objectives then it will take the issues of working capital very serious. It was theoretically discover that working capital is dependent on the current assets and liabilities of an organisation. This presupposes that there is a functional relationship between working capital and current assets/ current liabilities. Consequently, it becomes apparent that working capital management hinges upon the management of current assets and liabilities. These endogenous variables (current assets and liabilities) have a strong nexus with the liquidity position of a firm. Thus, an outstanding liquidity position depends on effective working capital management. It is never an overstatement that all activities in an organization of which production process is not an exception is depending on working capital position. It was discovered that every stage in the production process needs adequate working capital. Although the findings of this research effort are limited but should not be overlooked. It thus exposed the inconsistency of the working capital in selected quoted manufacturing companies in Nigeria over the years. The rise and fall of working capital shows that economic condition have a great impact on the working capital of organization of which manufacturing companies is no exception.

It was also been established that there is a strong nexus between working capital and the day to day running of any manufacturing companies. A quantitative analyses show empirically that there working capital have impact on the performance of manufacturing companies in Nigeria

It was discovered empirically that there is relationship between Profit Before Tax of Unilever Nigeria Plc and her working capital within the period under study and also that there is correlation between working capital and efficiency of manufacturing sector’s contribution to national development.

Implicitly it was discovered that investment in some current assets may also stimulate sales and increase the stream of expected returns for shareholders but most companies’ current assets are not sufficient enough to cover their current liabilities. Hence the working capital possessed by most firms is not adequate and sufficient enough to meet the firms operating circle.

#### 4.1 Conclusion

The primary concern of profit- oriented organization is to increase their pool of profitability. Manufacturing organization can only achieve this through the incessant smooth running of the production process which is dependent on a large working capital management which is the planning, organization controlling and co-coordinating of current assets and liabilities to achieve overall business objectives. It

is imperative therefore that working capital has a way of stimulating the sales and increase the stream of returns to shareholders. This, good working capital management will increase the Return of capital Employed (ROCE) of organization. It also has a position impact m dividend declared by organization as well as the pool of retained earnings where the organization prefers the retaining of at earnings especially when in the growth stage.

Conclusively, acquisition of raw materials (input) need to be effectively managed, it is an essentially aspect of stock management. Factory workers (both direct and indirect workers) need to be paid promptly. Factory wages and salaries accrued should be paid in the shortest of possible time. This is an aspect of accrual (liability) management. All these have an impact on the production process.

## 4.2 Recommendations

After careful analysis of the research findings the following recommendations are made for an adequate working capital management to ensure an improve performance thus;

An optimum level of debtors should be sought by organization through an efficient debtors' management. This can be achieved through the establishment of a credit policy in relation to normal credit periods and overall credit control by establishment of a policy on individual credit limits and adequate debt collection management which can be done through prompt invoicing credit control system, collection of overdue debt and appropriate discount policy.

Stock should be efficiently managed to achieve this by maintaining timely optimum or appropriate order size and reordering, appropriate stock control system should be used in other to avoid cost of stock out and excessive holding or carrying cost should be avoided.

There has to be an optimum level of cash in the firm's working capital management that is of all current asset items cash is the most important, hence it must be managed efficiently. This can be achieve through proper cash planning (planning of cash inflows and outflows) to maintaining an optimum cash level. Policy should be formulate on management, collection and disbursement of trade creditors to obtain satisfactory credit period from the firms trade creditors and maintain adequate debt payment management.

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