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Impact of Working Capital Management on Financial Performance of Listed Manufacturing Firms in Nigeria

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***Abstract*— This paper is an empirical analysis of the impact of working capital management on financial performance of listed manufacturing firms in Nigeria for the period of seven years (2011 to 2016). The population consists of ninety one (91) listed manufacturing firms in Nigeria Stock Exchange and the paper used forty seven (47)as the sample size. The study aims to investigate whether working capital management (proxy cash conversion cycle and Inventory Turnover in Days,) have any significant contribution on firm's financial performance. The study adopted Simple Regression Analysis technique and data were collected from secondary source through the audited annual reports and accounts of the firms. The findings reveal that working capital management influences firm's performance. Therefore it recommended that the listed manufacturing firms should maintain a considerable number of days in managing the process of converting raw materials to finish goods and cash collection to improve firms' performance.**

***Index Terms*— Working Capital Management, Competitive Environment, Performance.**

I. INTRODUCTION

In contemporary global and aggressive business environment, the business sustainability relies on the capability and success of financial management function. In the financial market it has become a challenge for a financial manager that the way to respond the dynamics of financial markets (Padachi, 2006). The survival of a firm not only relies upon on how it is able to successfully and efficiently pursue its financing and investing opportunities in local and global financial markets' but also how it is coping with the financial and operational affairs of the firm. The long term survival can only be viable through efficient control of working capital management which (Weinraub & Visscher, 1998). The efficient use of finances together with efficient operations management is the essential area of financial affairs of a firm. In line with Jose and Stevens (1996) working capital management is a complete measure associated with the control of account receivables, control of inventory in addition to the control of account payables. The significance of the management of current assets and short term liabilities cannot be overlooked in any enterprise. Researchers all around the world discuss this difficulty in the angle of various economies and it's going to continue to impact on profitability of companies for this reason the need for non-stop studies on the concern matter, it is a subject of concerned to developing nations, management of current assets are taken into consideration as a life blood for organization (Ayiro, 2012).

The paper, consequently, examines the impact of working capital management on financial performance of listed manufacturing firms in Nigeria stock exchange. To achieve this purpose, the study formulated research hypotheses these are, there is no significant impact of cash conversion cycle on financial performance of listed manufacturing firms in Nigeria and there is no significant impact of inventory management on financial performance of listed manufacturing firms in Nigeria. The rest of the paper is structured into four sections, segment 2 covers literature overview and theoretical framework. In segment three methodological issues are mentioned and model specified. In segment four, the result of the empirical work is provided and discussed. Subsequently, segment five deals with conclusion and recommendations from the findings.

II. LITERATURE REVIEW

Muthiani (2011) analyzed the cash conversion cycle and financial performance of firms listed at the Nairobi Stock Exchange for the period 2006 to 2010. The goal was to set up the connection between cash conversion cycle and financial performance. The examination utilized descriptive analysis and the correlation model. The data was gotten from the Nairobi Stock Exchange. An sample of 30 organizations chose from the agricultural, commercial and services, and industrial and allied sectors was studied. The Pearson Correlation coefficient was figured to set up the relationship and a t-test used to decide the centrality of the relationship. The key finding from the examination was that there exists a negative connection between m cash conversion cycle and financial performance of firms listed in the Nairobi Stock Exchange. The relationship coefficient of the affiliation was -0.202. This opposite relationship was discovered more articulated in the agrarian area, which had a connection coefficient of -0.329. The discoveries propose that organizations with short time cash conversion cycle are probably going to perform superior to those with long term cash conversion cycle.

Majeed, Saleem, and Aziz (2013) inspected observationally the effect of Cash conversion cycle on the performance of Pakistani manufacturing firms. The investigation utilized the sample of 32 organizations chosen at random from three sector for the time of five years going from 2006 to 2010. The correlation and regression analyses were utilized to look at the relationship of Cash Conversion Cycle with performance of the organizations: Return on Assets (ROA), Return on Equity (ROE) and Operating Profit

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(EBIT). The study scrutinized the effect of various factors of Cash Conversion Cycle on association's performance. The study found that the normal colleting time of account receivables, stock conversion period and Cash conversion cycle (CCC) have negative association with association's performance.

Anthonia (2014) analyzed the connection between cash conversion efficiency of manufacturing firms' net revenue and degree of profitability. The ex-post factor and explanatory research plans were utilized in the investigation. The time series data covering a time of eleven (11) years (2000 - 2010) and cross sectional data of seventeen (17) firms were used to complete examinations to approve the outcome acquired. The outcome affirms the negative connection between Cash conversion cycle and cash conversion efficiency of manufacturing firms.

Lwiki, Ojera, Mugenda and Wachira (2013) inspected the effect of inventory management practices on the financial performance of sugar producing firms in Kenya, by breaking down the degree to which lean inventory system, strategic supplier partnership and technology are being applied in these organizations. The exploration study was done in all the eight working sugar firms from the period 2002-2007. The outcomes demonstrate that there exists a positive relationship between's Return on Equity and Return on Sales and furthermore with Return on Equity which were observed to be factually huge at 5% level.

Hoang (2015) researched the connection between working capital administration and profitability. This investigation depends on a board information of 98 producing firms recorded on Ho Chi Minh City Stock Exchange for a period 6 years (from 2009 to 2014). The consequences of Pearson's connection and settled impacts different relapse investigation discovered huge negative connections between money change cycle, net exchange cycle, normal accumulation period, normal stock period, normal installment period and profit for resources.

Mogere, Oloko and Okibo (2015) evaluated the impact of stock control frameworks on operational performance tea firms with an attention on Gianchore tea processing plant. The investigation target populace was 119 respondents comprising of one (1) manufacturing plant administrator, sixteen (16) center level directors, thirty six (36) industrial facility managers and sixty six (66) representatives working at Gianchore tea plant. The result in this examination is that there can be a huge connection between's the utilization of stock control frameworks and operational performance of a tea firm.

Fahim, Kaviani, and Fashtali,(2015) clarified the relationship of WCM with productivity. 90 listed on Tehran Stock Exchange whose financial related data for the period 2008 through to 2012 was accessible were chosen. The outcomes don't affirm huge reverse U-shape relationship of Cash Conversion Cycle (CCC) and Net Working Capital to Total Assets (NWC/TA) as pointers (indicators) of working capital with Return on Assets (ROA), yet do show a huge opposite U-shape relationship of current proportion and brisk proportion with ROA. From the discoveries, one may induce that every industry has its own ideal present and fast proportions augmenting its returnsl.

Bagh, Nazir, Khan, and Razzaq (2016) empirically explored the impact of working capital management (WCM) on firms performance of chosen manufacturing firms listed in Karachi stock exchange (KSE). The quantitative research methods, correlation matrix and multiple regressions, secondary data and purposive sampling have been worked out. Arandom sample of 50 listed non-financial companies on Pakistani Stock Market was selected for the period ranging from year 2005 to 2014. The study results advocated that the FP of selected firms is influenced by WCM. By validating the findings with previous researchers, this endeavour will contribute to the literature. It will be beneficial to the academic, social and practical deportment. The study findings endowed with deeper insights into WCM practices.

Bagh, Nazir, Khan, and Razzaq (2016) experimentally investigated the effect of working capital administration (WCM) on firms performance of chosen manufacturing firms listed in Karachi stock exchange (KSE). The quantitative research techniques, correlation matrix and multiple regressions, secondary data and purposive sampling have been worked out. A random test of 50 listed non-financial companies on Pakistani Stock Market was selected for the period ranging from year 2005 to 2014. The study results advocated that the FP of selected firms is influenced by WCM.

A. Theoretical Review

Baumol Model of Cash Management

Baumol model of cash control helps in figuring out a firm most suitable cash stability under certainty. it is significantly used and enormously beneficial for the cause of cash management. The Baumol model is primarily based on the economic Order quantity (EOQ). The goal is to decide the most suitable target cash stability. Baumol made the subsequent assumptions in his model; the company is capable of forecast its cash requirement with actuality and get hold of a particular amount of regular intervals; the company's cash payments arise uniformly over a time period this is; a consistent rate of cash outflows; the opportunity cost of holding cash is understood and does not alternate over time; cash holdings incur an possibility cost in the form of opportunity foregone; the company will incur the same transaction cost each time it converts securities to cash; cash transactions incurs at a set and variable cost.

The Baumol model assumes the cash manager invests extra finances in interest bearing securities and liquidates them to meet the company's demand for cash. As investment returns boom, the opportunity cost of retaining cash will increase and the cash manager decreases cash balances (Baumol, 1952). As transaction costs (price of liquidating short-term investments) growth, the cash manager decreases the number of instances he liquidates securities, leading to better cash balances. handling the cash-short-time period investments blend entails figuring out the most effective frequency for replenishing cash and the amount of securities to liquidate.

Transaction value Economics theory

The most suitable level of stock ought to be decided on the premise of a trade-off between costs and advantages related

with the levels of stock. Expenses of holding inventory consist of ordering and carrying prices. Ordering costs is associated with acquisition of stock which incorporates costs of preparing a purchase order or requisition form, receiving, examining, and recording the goods acquired. but, carrying costs are involved in retaining or carrying stock and could rise up because of the storing of inventory and opportunity costs. There are numerous reasons for decrease or higher ranges of inventories and highly relies upon on what business a company is in. The most broadly and easy motive of dealing with inventories is the cost motive, which is frequently primarily based at the Transaction cost Economics (TCE) theory (Marques, 2011). To be competitive, organizations ought to lower their costs and this could be achieved with the aid of keeping the costs of stocking inventory to a reasonable minimum. This practice is also rather valued by using stock marketplace analysts.

Miller and Orr's cash management model

Miller and Orr (1966) came up with another model of cash management. As per the Miller and Orr model of cash management the corporations permit their cash balances circulate within limits, upper and lower limit. The companies purchase and sell marketable securities only if the cash stability is at the lower or higher limit. The model rectifies a number of the deficiencies of the Baumol model by accommodating a fluctuating cash float scenario stream that could either be inflow or outflow.

The significance of Miller-Orr model is that it offers a method for figuring out the most advantageous cash balance (Z), the point at which to sell securities to elevate cash (lower limit L) and when to make investments excess cash by way of buying securities and lowering cash holdings (upper limit H).

Operating Cycle theory

Liquidity management can be carried out by way of undertaking the balance sheet and income statement evaluation. in particular, incorporating accounts receivable and inventory turnover measures into an operating cycle concept gives a more suitable view of liquidity control than does reliance on the current and acid-test ratio signs of solvency. these extra liquidity measures explicitly understand that the life expectations of some working capital components rely on the volume to which three fundamental activities- production, distribution (sales), and collection-are non-immediately and un-synchronized (Weston, 1979).

For the reason of this study Miller and Orr theory was adopted to underpin the study because it gives a formula for determining the most excellent cash balance (Z), the point at which to sell securities to raise cash (lower limit L) and when to invest excess cash by buying securities and reducing cash holdings (upper limit H).

III. METHODOLOGY AND VARIABLE MEASUREMENT

This study targets to evaluate the impact of working capital management on firms financial performance of listed manufacturing companies quoted on the Nigeria stock trade during the period 2011-2016. The study used data from secondary sources extracted from the audited annual reports and accounts of the companies. This study adopts ex-post thing research designs. The ex-post factor research design is aims to have a look at the impact of cash conversion cycle on firm performance. Multiple regression was adopted in analysing the data under study. The population will comprise all the 91 firms listed on NSE as at December 31, 2016. For, this study Yamane's formula was used for calculating sample size. This formula is given as:

$$\mathbf{n} = \frac{N}{1+N(e)^2}$$

Where:

n = desired sample size

N = population size

e = margin of error

For the purpose of this research study, the margin of error is taken to be 10%.

Since n= 47 and e = 10% (i.e. 0.1), substituting N = 91 and e = 0.1 into the formula implies that the required sample size needed to carry out our survey will be: $\mathbf{n} = \frac{91}{1+91(0.1)^2} = \mathbf{47}$

The choice of research variables is primarily guided by previous empirical studies along this line. Therefore, the variables are defined to be consistent with those of Teruel and Solano (2005), Deloof (2003), Shin and Soenen (1998), Karaduman, Akbas, Caliskan and Durer (2011).

A. **Dependent Variable (financial performance)**

The dependent variable in the study is financial performance. In order to analyse the influence of working capital management on firm's financial performance, the economic value added will be used as dependent variable. This is because the EVA is an indicator of managerial efficiency (Stewart,1993),

EVA = NOPAT – (Equity Capital * % Cost of Equity Capital)

B. **Independent Variables**

With regards to the independent variables, working capital management is measured by using Inventories ratio, accounts payable ratio and the cash conversion cycle ratio (CCC).

Inventories

This variable represents the rates stocks are held by the firm. Longer storage represents a greater investment in inventory for a particular level of operation. (Ghosh and Maji 2004, Samiloglu and Demirqunes 2008, Muchina and Kiano 2011, Falope and Ajilore2009)

Cash Conversion Cycle ratio (CCC)

The cash conversion cycle (CCC) is a proxy for working capital management efficiency. The CCC is calculated by subtracting the payables from the inventories and the receivables (Deloof, 2003).

C. **Model Specification:**

To investigate the effect of cash conversion cycle on firms performance of listed meals product firms in Nigeria, a linear model is constructed. The model captures the contribution of cash conversion cycle on company performance of listed manufacturing firms in Nigeria. The regression equation model was as below:

$FPERF_{it} = \alpha + \beta CCC_{it} + \beta INV_{it} + \mu_{it}$

Where

FPERF: (dependent variable) financial performance (EVA)

CCC: (independent variable) cash conversion cycle

INV: (independent variable) inventory

IV. RESULTS AND DISCUSSION

Table 1: Summary of Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
eva	282	1.904726	.4101207	-.1613121	3.128878
ccc	282	60.49603	98.94528	.06	663.46
iv	282	112.3358	112.7973	0	1345.48

Table 1 shows the summary statistics for the variables used in the study. It shows the descriptive statistics for the dependent and independent variables and revealed that the average or the mean for EVA, CCC and IV are 1.904726, 60.49603 and 112.3358 respectively.

Table 2: Correlation Matrix

	eva	ccc	iv
eva	1.0000		
ccc	0.3113	1.0000	
iv	0.6803	0.3502	1.0000

Table 2 shows the correlations matrix between the dependent and independent variables. The correlation matrix shows the degree of relationship that exists between the variables. The result revealed that all the independent variables show positive relationship with the variable.

Table 3: Regression Results

Source	SS	df	MS		
Model	22.164074	2	11.082037	Number of obs =	282
Residual	25.0998464	279	.089963607	F(2, 279) =	123.18
				Prob > F =	0.0000
				R-squared =	0.4689
				Adj R-squared =	0.4651
Total	47.2639203	281	.168199005	Root MSE =	.29994

eva	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
ccc	.0003454	.0001931	1.79	0.075	-.0000347	.0007254
iv	.0023675	.0001693	13.98	0.000	.0020342	.0027009
_cons	1.617872	.0257243	62.89	0.000	1.567234	1.66851

From the table above, CCC has a p-value of 0.075 and a beta value of .0003454 which is insignificant. This signifies that cash conversion circle is insignificantly and positively contributing to the performance of listed manufacturing firms in Nigeria stock exchange. It therefore implies that for every 1% increase in cash conversion circle, the performance of listed manufacturing firms in Nigeria stock exchange will insignificantly increase by .0003454. This provide an evidence of accepting the null hypothesis which state, cash conversion circle has no significant impact on performance of listed food product firms in Nigeria stock exchange.

IV has a p-value of 0.00 and a beta value of .023675 which is significant. This signifies that inventory is significantly and positively contributing to the performance of listed manufacturing firms in Nigeria stock exchange. It therefore implies that for every 1% increase in cash conversion circle, the performance of listed food product firms in Nigeria stock exchange will increase by .023675. This provides an evidence of accepting the alternate hypothesis which state, inventory has significant impact on performance of listed food product firms in Nigeria stock exchange.

The R^2 (0.4689) which is the multiple coefficient of determination gives the proportion of the total variation in the dependent variable is explain by independent variables (CCC and IV). Hence, it signifies 46% of the total variation in performance of listed manufacturing firms in Nigeria stock exchange.

Discussion of the Findings

The regression result of the study shows that cash conversion circle has no impact on performance of listed manufacturing firms in Nigeria stock exchange. This result is in line with the findings of Attari and Raza (2012); Bolek, Kacprzyk, and Wolski (2012); Abbasi and Bosra (2012); Majeed, Saleem, and Aziz (2013); Anthonia (2014); Yasir, Majid, and Yousaf (2014); Ghaderi (2015); Nwakaego and Ikechukwu (2015); Nimal and Anandasayanan (2015); Upadhyay, Sen, and Smith (2015); Muturi, (2015); Muscettola (2014); Hoang (2015); Çam and Ozbek (2015). While Anser and Malik (2013);Majanga(2015) study revealed that cash conversion cycle is having significantly inverse association with both return on assets and equity.

The regression result of the study shows that inventory has impact on performance of listed manufacturing firms in Nigeria stock exchange. This result is in line with the findings of Agu` Obi-Anike and Nnate (2016)

V. CONCLUSION AND RECOMMENDATION

The paper examines the impact of working capital management on performance of listed manufacturing firms in Nigeria stock exchange. Therefore the results imply that cash conversion circle do not have a significant impact on the performance of listed food product firms where as inventory a significant impact on the performance of listed food product firms. It is however, recommended that listed manufacturing firms should have shorter days of cash conversion circle and continually improves the efficiency of the inventory management so as to continuously improve the performance of the firm.

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