

Cash Management and Corporate Profitability: A Study of Selected Listed Manufacturing Firms in Nigeria

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Abstract: Cash has always being disregarded in financial decision making since it involves investment and financing in short term period. However, it is an important component in firm financial management decision. This study therefore investigates empirically the relationship between cash management and profitability in listed manufacturing companies in Nigeria. Cash conversion cycle is used as the measure for cash management as used in Raheman and Nasr (2007). Current ratio, debt ratio and sales growth were used as control variables. This study utilizes secondary data while Pearson's correlation and regression analysis were used in analyzing the data for a sample of 15 listed manufacturing companies in Nigeria between 2005-2009. The results of the empirical findings show that there is a strong negative relationship between cash conversion cycle and profitability of the firms. It means that as the cash conversion cycle increases it will lead to decreasing profitability of the firms. The study therefore recommends that managers can create a positive value for the shareholders by reducing the cash conversion cycle to a possible minimum level and also accounts receivables should be kept at an optimal level. This study will also help companies in Nigeria see the need for cash management techniques.

Keywords: cash conversion cycle; cash equivalent; profitability; investment

JEL Classification: G30; G32

1. Introduction

Over the years, the manufacturing sector in Nigeria has been a victim of high production costs which invariably reduces profitability. As argued by Akinbuli

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(2006), poor management is the main reason for business failure as many corporate organizations went into liquidation in Nigeria because of poor management. In a study carried out by Peavler (2009) it was observed that most failed businesses (up to 60%) were of the opinion that all or most of their failures were due to cash flow problems.

The importance of cash flow is particularly pertinent when access to cash is difficult and expensive. When the real economy slips into recession, businesses face the additional risk of customers running into financial difficulty and becoming unable to pay invoices. This can lead to scarcity of cash from non-operational sources such as bank loans.

Thus, for manufacturing operations to be run effectively and efficiently, optimum cash management techniques must be adopted as cash shortage can disrupt the firm's manufacturing operation, while excessive cash can simply remain idle, without contributing anything in terms of return towards the firm's profitability.

In Nigeria, many organizations that are profitable on paper are forced into liquidation due to the inability to meet short term debts when they fall due. In order to remain standing, it is essential that organizations effectively manage cash. In practice, the difficulty of predicting cash flows and because there is hardly any synchronization between inflows and outflows spurs the necessity of cash management.

In 2006, a study conducted by BDRC on behalf of ABN AMRO on 101 companies around Europe, USA and Canada found that 48% of companies have centralized liquidity management, that is, a large number still have the opportunity to efficiently manage their cash, hence the need for the study on cash management is a global issue (Jutur, 2006).

Although, several studies have been carried out on working capital management and its impact on performance of companies (Deloof, 2003; Eljelly, 2004; Shin and Soenan, 1998; Rahemen and Nasr, 2007), but to the best of the researcher's knowledge, there is dearth of literature on studies that examine the relationship between the most important component of working capital; cash management and profitability in a developing economy like Nigeria. As a result, this study examined if there is a significant relationship between cash management and profitability of companies in the Nigerian manufacturing industry.

Research Hypothesis

For the purpose of this study, the hypothesis to be tested is stated below in null form:

- 1) H_0 : There is no significant relationship between cash management and profitability of manufacturing companies in Nigeria.

Literature Review

Cash Management Defined

The aim of cash management is to maintain adequate control over cash position to keep the firm sufficiently liquid and to use excess cash in some profitable ways. Cash management has therefore been defined by **Johnson and Aggarwal (1988)** to involve managing the money of the firm in order to attain maximum interest income on idle funds. The Chartered Institute of Bankers of Nigeria (2000) also explained that the role of cash management is to plan, monitor and control the cash flows and the cash position of a company maintaining its liquidity. Akinsulire (2006) further opines that cash management involves the efficient collection, disbursement and temporary investment in cash.

In addition, Pandey (2005) opined that cash management is significant because it constitutes the smallest portion of the total current assets, yet management considerable time is devoted in managing it. Pandey further discussed that the recognition of cash as both a valuable resource and an operational necessity for business is core to cash management in the short and long term. If there is a shortage of cash, a company must be able to find the shortfall, preferable at the lowest possible cost. If there is a cash surplus, the money should be put to profitable use or paid out as dividends to shareholders.

From the above definitions, we therefore define cash management as a means of knowing when cash needs occur; knowing what the best sources are for meeting additional needs and being prepared to meet these needs when they occur, by keeping good relationships with bankers and other creditors.

2. Importance of Cash Management

Cash management assumes more importance than other current assets because cash is the most significant asset that a firm holds. Cash is unproductive unlike fixed assets or inventories; it does not produce goods for resale, notwithstanding management's considerable time is devoted to managing it. The importances of managing cash to a manufacturing concern as identified by Alfred (2007) are:

- 1) Management of cash aids the achievement of liquidity and control.
- 2) It brings about proper planning with regard to cash disbursement and receipts over cash positions to keep the firm sufficiently liquid and to use excess cash in some profitable venture
- 3) The management of cash is also significant since we cannot rightly predict accurately cash flow behavior in the future.
- 4) Through cash management appropriate strategies are developed thereby providing innovation for cash receipts and payments.
- 5) It also aid maintaining adequate control over cash position to keep the firm sufficiently liquid and to use excess of cash in some profitable ventures.

The primary purpose of cash management is therefore to reduce cost. However, a cost-benefit analysis of cash management is also needed. Such costs of cash management include cost of interest payments, cost of collection, cost of disbursement of funds, etc

Prior Studies

Shin and Soenen (1998) researched on the relationship between working capital management and value creation for shareholders. The standard measure for working capital management is the cash conversion cycle (CCC). They examined this relationship by using correlation and regression analysis, by industry, and working capital intensity. Using a COMPUSTAT sample of 58,985 firm years covering the period 1975-1994, they found a strong negative relationship between the length of the firm's net-trade cycle and its profitability. Eljelly (2004) also empirically examined the relationship between profitability and liquidity, as measured by current ratio and cash gap (cash conversion cycle) on a sample of 929 joint stock companies in Saudi Arabia. Using correlation and regression analysis, a

significant negative relationship was also found between the firm's profitability and its liquidity level, as measured by current ratio.

In a similar result, Raheman and Nasr (2007) studied the effect of different variables of working capital management including average collection period, inventory turnover in days, average payment period, cash conversion cycle, and current ratio on the net operating profitability of Pakistani firms. They selected a sample of 94 Pakistani firms listed on Karachi Stock Exchange for a period of six years from 1999 - 2004 and found a strong negative relationship between variables of working capital management and profitability of the firm.

In Nigeria, Falope and Ajilore (2009) used a sample of 50 Nigerian quoted non-financial firms for the period 1996 -2005. Their study utilized panel data econometrics in a pooled regression, where time-series and cross-sectional observations were combined and estimated. They found a significant negative relationship between net operating profitability and the average collection period, inventory turnover in days, average payment period and cash conversion cycle.

Furthermore, Mathuva (2009) examined the influence of working capital management components on corporate profitability by using a sample of 30 firms listed on the Nairobi Stock Exchange (NSE) for the periods 1993 to 2008. The study used Pearson and Spearman's correlations, the pooled ordinary least square (OLS), and the fixed effects regression models to conduct data analysis. The key findings of his study were that there exists a highly significant negative relationship between the time it takes for firms to collect cash from their customers (accounts collection period) and profitability.

On the other hand, Lazaridis and Tryfonidis (2006) conducted a cross sectional study by using a sample of 131 firms listed on the Athens Stock Exchange for the period of 2001 - 2004 and found statistically significant relationship between profitability, measured through gross operating profit, and the cash conversion cycle and its components (accounts receivables, accounts payables, and inventory).

In summary, the literatures reviewed indicate that cash management is majorly studied as part of working capital management components. In filling the gap in literature, this study therefore studied specifically the relationship that exists between cash management and profitability which is proxied by cash conversion cycle (CCC).

Methodology

This study examined the relationship between cash management and profitability of companies in the manufacturing sector in Nigeria. The focus is on fifteen (15) listed companies randomly selected within this industry. These companies are Nigerian Breweries Plc, Lafarge Cement Wapco Nigeria, Cadbury Nigeria Plc, Guinness Nigeria Plc, Nestle Plc, PZ Plc, Unilever Nigeria Plc, Nigeria Enamelware Company, First Aluminum, A.G Leventis (Nigeria) Plc, Vita Foam Nigeria Plc, 7-Up Bottling Company, Flour Mills Nigeria Plc, Cement Company of Northern Nigeria and Benue Cement Company Plc. The study focused on listed companies due to easy accessibility to the financial information of the selected firms. The study covers a period of five years between 2005 and 2009.

Panel data methodology was adopted because it combined period and cross sectional data. To analyze the panel data, the researcher used Pearson's Product Moment Correlation Coefficient and regression analysis which is used to describe and evaluate the relationship between the given variables.

Using the Formula: $y = mx + c$

The unknown parameters is denoted as m; the independent variable is x while the dependent variable is y. The dependent variable is firm's profitability hence; proxied by Operating Income (OI).

Variable Description

In order to analyze the effects of cash management on the firm's profitability, Operating Income is given as the dependent variable, while the independent variables, cash management was measured by cash conversion cycle (CCC). CCC focuses on the length of time between when a firm makes payment and when firm receives cash inflow.

CCC is calculated as the number of days of average trade debtors (ATD) plus the number of days of average trade inventories (ATI) minus the number of days of average trade creditors (ATC).

In this respect, ATD is calculated as Average trade debtors/ (sales/365). ATD represents the number of days that a firm takes to collect payments from its customer. ATI is calculated as Average trade inventories/ (cost of sale/365). This variable reflects the average number of days of stock held by a firm. ATC is calculated by Average trade creditors / (cost of sale/365). This measure indicates the average time firm takes to pay their suppliers.

Control Variables

Control variables are introduced as the growth in firm sales and its leverage. Sales growth (SG) is calculated as: $(Sales_1 - Sales_0)/Sales_0$. The leverage (DR) measured by debt ratio is calculated thus: Total debt divided by Total asset. In addition, current ratio (CR) which is calculated by dividing current asset by current liability was included as one of the control variables.

The Equation is thus:

Operating Income = F (Cash Conversion Cycle; Current Ratio; Debt ratio and Sales Growth)

The Econometric Model is as follows: $OI = b_0 + b_1CCC_t + b_2CRatio_t + b_3DRatio_t + b_4SG_t$

Decision Rule

If the calculated value is less than the tabulated value, we accept H_0 but if otherwise, reject H_0 .

3. Results and Discussions

Table 1. Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Operating Income	75	-.04542	.49027	.1786098	.12414367
Cash Conversion Cycle	75	-230	184	34.12	75.257
Current Ratio	75	.07326	3.18086	1.2229419	.55653774
Debt Ratio	75	.24550	1.11822	.6302424	.19142402
Sales Growth	75	-.38319	2.00610	.1964643	.29325020
Valid N (listwise)	75				

Computed by researcher from annual reports using SPSS 15

The results from the descriptive statistics show the average operating income for the whole sample at 17.86% with a standard deviation of 12.41%. The CCC portrays an average of 34 days with a standard deviation of 75 days. This indicates that on the average it takes 34 days before cash is collected from sales measured from when the inventory is actually paid for in the manufacturing industry. The

average current ratio is 1.2 with a standard deviation of 0.56. On average the manufacturing firms' Sales growth is also seen to be 19.64%.

Table 2. Correlation Result

		Operating Income	Cash Conversion Cycle	Current Ratio	Debt Ratio	Sales Growth
Operating Income	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	75				
Cash Conversion Cycle	Pearson Correlation	-.228(*)	1			
	Sig. (2-tailed)	.049				
	N	75	75			
Current Ratio	Pearson Correlation	.036	.527(**)	1		
	Sig. (2-tailed)	.759	.000			
	N	75	75	75		
Debt Ratio	Pearson Correlation	-.152	-.107	-.653(**)	1	
	Sig. (2-tailed)	.193	.362	.000		
	N	75	75	75	75	
Sales Growth	Pearson Correlation	.245(*)	-.222	-.199	-.056	1
	Sig. (2-tailed)	.034	.056	.088	.634	
	N	75	75	75	75	75

Computed by researcher from annual reports using SPSS 15

From table 2, the correlation coefficient between cash conversion cycle and operating income is negative (-0.228), this implies that the lower the cash conversion cycle, the higher the operating income, this also corresponds to the a priori expectation. Also debt ratio is negatively correlated to profitability with the correlation coefficient at -0.152. However, the current ratio and Sales growth are positively correlated to profitability with the coefficient of .036 and 0.245 respectively.

Table 3. Regression Result

	Coefficient	Significant value
Constant	0.13015	0.23904
CCC	-0.00049	0.03945
CRatio	0.04827	0.25804
DRatio	-0.01937	0.85418
SG	0.09319	0.06497
R-squared	0.1336	
Adjusted	0.0841	
F-statistic	2.699	
Sig. (F-statistic)	0.0375	

Computed by researcher from annual reports using SPSS 15

From table 3, the regression coefficient relating CCC (Cash Conversion Cycle) to OI (Operating Income) is -0.00049. The result confirms a negative relationship between the cash conversion cycle and firm profitability. This negative relationship is significant at 5% and 10% (0.03945). This confirms the a priori expectation of the research that as Cash Conversion Cycle reduces, Profitability of manufacturing firms increases. Based on the significant relationship recorded, we therefore accept the alternate hypothesis at the expense of the null hypothesis.

The implication of this is that a firm with a relatively shorter period of cash conversion cycle is more profitable. Therefore, reducing the firm's CCC is a potential way for the firm to create additional shareholder's value. This is in line with Deloof (2003), Eljelly (2004), Shin and Soenan(1998) and Rahemen and Nasr (2007) who found a strong negative relationship between Cash Conversion Cycle and Profitability. For conventional measure of liquidity, the current ratio is positively related to profitability (0.04827). This relationship is though not consistent with the study of Shin and Soenon (1998), however the positive relationship is also not significant.

Furthermore, profitability is negatively associated with leverage (-0.01937) which is measured by debt ratio. It is further interpreted that if the firm increases its debt financing, it will lead to decreasing profitability of the firm in terms of financial cost. This debt ratio coefficient exhibits a non significant relationship.

For the sales growth, evidence is positively related to profitability (0.09319) and also significant at 10%. This is consistent with prior studies (Dess and Robinson

(1984) and Markman and Gartner (2002), that growth is part of the feature for firm profitability and the creation of shareholder's value.

4. Conclusion and Recommendations

The study therefore concludes that the need for efficient cash management cannot be over emphasized. This is because, the research work showed that the overall profitability and shareholders' value in the Nigerian manufacturing industry is enhanced if cash is properly managed as measured by the cash conversion cycle. The study further conclude that the shorter the cash conversion cycle, the more efficiently cash is managed and ultimately the more profitable the firm as less borrowing cost is involved. On the other hand, the longer the cash conversion cycle, less cash is available and ultimately decreasing profitability due to increased borrowing cost.

The study therefore recommends that to ensure better cash management, that is shorter CCC, which would invariably lead to better profitability in the manufacturing industry, the duration of time that goods are held in inventory should be reduced. This can be accomplished by improving the inventory control process. Also, accounts receivable should be collected more quickly by improving the efficiency of the collection process as debt should be collected in line with the agreed credit terms.

However, future research should put effort in increasing the trend of analysis to determine the effect of cash management on profitability overtime and also use a different model to prove the significant negative relationship between cash conversion cycle and profitability. The scope of further research may also be extended to the working capital components management including marketable securities, receivables and inventory management.

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