

# Working Capital Management and Profitability: Evidence from Quoted Food and Beverages Manufacturing Firms in Nigeria

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## ABSTRACT

The study investigated the relationship between working capital management measured by Aggressive Investment Policy (AIP), Account Collection Period (ACP), Inventory Conversion Period (ICP), Average Payment Period (APP), Cash Conversion Cycle (CCC) and Net Operating Profit of quoted food and beverages manufacturing firms in Nigeria. Survey research design was employed using primary data. Regression analysis (OLS) was used to establish the relationship. It was found that Working capital management had significant positive relationship with profitability; Cash conversion cycle and Aggressive investment policy had insignificant positive relationships with profitability. Account collection Period had significant negative relationships with profitability; Inventory Conversion Period and Account Payment Period had insignificant negative relationship with profitability. Therefore, It was recommended that; there should be a reduction in the average collection period of quoted food and beverages manufacturing firms in Nigeria in order to increase their profitability. The management of food and beverages manufacturing firms in Nigeria should be more efficient in the management of working capital by reducing their cash conversion cycle in order to have improved profitability.

**Key Words:** Working Capital Management, Profitability, Account collection period, Aggressive Investment Policy, Cash Conversion Cycle.

## 1. INTRODUCTION

Food and Beverages manufacturing firms are the major producers of consumer goods and beverages in Nigeria. They are the largest sub-sector of the Nigerian manufacturing firms listed on the Nigerian Stock Exchange (Okere, 2012). This is a growing and dynamic sub-sector of the Nigerian manufacturing sector therefore proper attention should be given to the management of its working capital so that profitability can be maximized.

In spite of the number of research that have been done in the field of working capital management and firm's profitability both in Nigeria and around the globe, largely missing from literature was the focus on working capital management and profitability in the food and beverages manufacturing firms listed on the Nigerian Stock Exchange. In addition, little works have related aggressive investment policy with firm's profitability in this sector. In order to bridge these identified gaps in the literature, an attempt was made in this study to investigate the relationship between working capital management and firm's profitability focusing on quoted food and beverages manufacturing firms in Nigeria

Efficient management of working capital is a prerequisite to the growth and existence of corporate enterprises (Nwankwo and Osho, 2010). According to Singh and Asres (2011), inefficient management of working capital will lead firms to achieve under performance. A firm which performs under its capacity not only decreases the current profitability but also its future survival is threatened. Working capital should not be too high or too low. It should be adequate for current operations. Joshi (1994) in Appuhami (2008) opines that working capital management of a company is a very sensitive area in the field of financial management. The successful management of working capital is essential for short-run corporate solvency or the survival of any organization (Appuhami, 2008).

According to Enyi (2011) strong finance leadership is required for profit maximization and excellent cash flow management which in turn will engender and encourage robust liquidity that will ensure the continued and unhindered solvency and going-concern of the organization. In any business organization, there must be sufficient working capital to run daily operation. The concern in working capital management is to set optimal level of working capital and managing short-term assets and liabilities of firms within a specified period, usually one year (Singh and Asres, 2011). When any company manages its working capital well, it has every leverage opportunity to continue in business indefinitely both in profitability and in liquidity (ALShubiri, 2011)

The research question is: How does working capital management relate to profitability of quoted food and beverages manufacturing firms in Nigeria? And the study sets out to investigate the relationship between working capital management and profitability of food and beverages firms listed on the Nigerian Stock Exchange. The hypothesis is thus stated as:

H<sub>0</sub>: There is no significant relationship between working capital management and profitability of food and beverages firms listed on the Nigerian Stock Exchange

## 2. LITERATURE REVIEW

The concept of working capital is so important to the operation of a business, especially businesses in manufacturing sector to the extent that its absence or inadequacy can hamper the growth and survival of such business. In any business, not only in manufacturing firms, cash is required for day to day running of business. For instance, in manufacturing firms, cash is needed to make purchase of raw materials that will be used in production. Some companies make credit sales to boost their profit and also to maintain good relationship with their customers. Where there are credit sales, there would be receivables. In some instances, firms may not have adequate cash to make purchase of raw materials. In such situations, firms may purchase their raw materials on credit from their suppliers. Also, firms may take bank overdraft to meet this obligation or other financial obligations in order to keep the company running.

From the above, it could be inferred that working capital is what is needed for a business to run smoothly its operations. For this reason, it should not be only seen as a financial item in the balance sheet but also as an operational item. The working capital requirement of any manufacturing firm should be commensurate with the volume of its operation. In other word, the amount of working capital required in a business should be determined by the volume of its operations. For a business to maximize its profit, its working capital should be a right proportion of its operations. The working capital should neither be too much nor too small for a company's operation, it should just be moderately adequate. Having the right proportion of working capital in relation to business operations is one of the major factors that determine business success.

In the opinion of Valipour, Moradi and Karimi (2012) working capital is defined as investing in current assets such as cash, short-term securities, accounts receivable and inventories. AARB No 43 according to Enyi (as cited in Egbide, 2009) working capital has been defined as a margin or buffer or a safety cushion for meeting obligations within the ordinary operating cycle of any business. Kehinde (2011) defines working capital as that part of a company's total capital which is employed in the short term operations.

Salawu (2007), opined that the working capital policy alternatives open to a firm depend to a large extent on its debt-equity ratio (leverage), rates of interest on current and long-term debts and the foreseeable net operating income. Different working capital policies involve a risk/return trade-off because it deals with the nature of short versus long-term financing. The more aggressive a company's working capital policy, the more it relies on short-term financing. A firm can adopt any of the three approaches to working capital, depending on what it is aiming at in terms of profitability and liquidity.

### 2.1. Concept of Profitability

According to Egbide (2009), profit is the excess of revenue generated by a firm over the cost that generated it within an accounting period. Furthermore, he opines that operational definition of profit is imprecise. Damilola (as cited in Egbide, 2009) submits that profit can be expressed as: profit before tax, profit after tax, gross profit, net profit, profit per share, return on assets etc. Thus, this imprecision in the definition of profitability is a problem in financial management which needs serious attention. However, Net operating profit is more appropriate for measuring corporate profitability because this is arrived at after all operating expenses have been taken off.

According to Kamal and MohdZulkifli (2004), as cited in NorEdi and Noriza (2010), profitability is used as a measurement for corporate performance because it evaluates the efficiency with which plant, equipment, and current assets are transformed into profit. The composition of assets and liabilities and decisions made concerning them are major determinants of profitability of any business (Egbide, 2009). Different measures of corporate profitability as used by previous researchers are as follows: Return on Investment (ROI), Return on Capital Employed (ROCE), Return on Net Worth (RONW), Return on Sales, (ROS)

Egbide (2009) investigated empirically the relationship between working capital management and profitability in non-financial quoted companies on the Nigerian stock Exchange by using 50 firm-year observations extracted from the annual report and accounts of 25 non-financial quoted companies selected judgmentally for period of 2005 – 2006. He found a significant relationship between working capital management (as a whole) and profitability, while considering each component of working capital he found that only Debtor's collection period (DCP) has a significant negative relationship with profitability, other independent variables (ICP & CPP and NLS) are not significantly related to return on Asset (ROA)

Falope and Ajilore (2009) studied the effects of working capital management on profitability for a panel made up of 50 samples of Nigerian quoted non-financial firms for the period 1996-2005 taking 694 firm's year observations. They found negative relationships between Cash conversion cycle, Average collection period, Average payment period and Inventory turnover in days with Return on asset (ROA).

Amarjit, Nahum and Neil (2010) studied the relationship between working capital management and profitability using sample of 88 American firms listed on New York Stock Exchange in USA for a period of 3 years from 2005 to 2007. They found positive relationship between cash conversion cycle and gross operating profit, negative relationship between accounts receivables and corporate profitability, no statistically significant relationship between average days of accounts payable and the profitability, no significant relationship between the average number of days the inventory is held and the profitability, no significant relationship between firm size and its gross operating profit ratio.

Mathuva (2010) investigated the influence of working capital management components on corporate profitability in Kenyan listed firms on the Nairobi Stock Exchange using 468 firm-year observations collected from annual reports of 30 firms for the period 1993 to 2008. The outcomes of his study revealed that Account collection Period, Cash Conversion Cycle (CCC) are negatively related to profitability while Inventory conversion period, Account payable period, and firm's size are positively related to profitability.

Raheman, Afza, Qayyum, and Bodla (2010) studied the relationship between working capital management and corporate performance of 204 manufacturing firms listed on Karachi Stock Exchange in Pakistan for the period 1998 to 2007 using 2040 firms-year observations. They found that Operating Profitability is negatively associated with measures of working capital management (Average Collection Period, inventory turnover in days, Average Payment Period, Cash Conversion Cycle and Net Trade Cycle).

Huynh and Jyh-tay (2010) investigated the relationship between working capital management and profitability of 130 firms listed in Vietnam stock market, Taiwan, using 390 firm-year observations for the period of 2006-2008. They found that average collection period (AR), cash conversion cycle, and number of days inventories are negatively related to profitability while number of days accounts payable (AP) is positively related to profitability.

ALShubiri (2011) investigated the relationship between aggressive/conservative working capital practices and profitability as well as risk for 59 industrial companies and 14 banks listed at Amman Stock Exchange in Jordan for a period of 2004-2008. He found that aggressive investment policy is negatively related to return on assets as well as return on equity.

Akinlo (2011) studied the effect of working capital on profitability of firms in Nigeria for the period 1999 to 2007 using data collected from annual reports of 66 listed firms on the Nigerian Stock Exchange. The results of her study show that cash conversion cycle, account receivables and inventory period are positively related to profitability while account payable are negatively related to profitability.

Palani and Mohideen (2012) explored the impact of aggressive working capital management policy on firm's profitability of 204 non-financial firms listed on the Bombay Stock Exchange (BSE) in India using a panel data of 1,632 year-end observations for the period 2002-2010. They found a negative relationship between aggressive investment policy (AIP) and return on assets.

Uremadu, Egbide, and Enyi (2012) investigated the effect of working capital management and liquidity on corporate profitability by taking 50 samples of annual reports and accounts of 25 selected manufacturing companies listed on the Nigerian Stock Exchange for the period of two years from 2005 – 2006. The result shows that working capital management components of inventory conversion period (ICP), debtors collection period (DCP) have positive significant relationship with return on asset (ROA) while cash conversion period (CCP), creditors payment period (CPP) have negative significant relationship with return on asset (ROA).

Uwuigbe, Uwalomwa and Egbide (2012) examined the relationship between Cash Management and Corporate Profitability of Selected Listed Manufacturing Firms on the Nigerian Stock Exchange using 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. Debt ratio (leverage) is negatively correlated to profitability.

Ogundipe, Idowu, and Ogundipe (2012) observed the relationship between Working Capital Management and Firms' Performance as well as Market Valuation in Nigeria using annual reports of fifty four non-financial quoted firms on the Nigerian Stock Exchange for the period 1995-2009. The results show working capital management (CCC) has a negative relationship with return on asset (ROA) but positive insignificant relationship with return on invested capital (ROI). Finally, current ratio (CACL) and current asset to total asset (CATA) were found to have no significant relationship with profitability (Tobin Q, ROA, and ROI).

### 3. METHODOLOGY

Survey research design was adopted in this study using primary data obtained through questionnaires administered on staff of Audit and Finance Departments of quoted food and beverages manufacturing firms in Nigeria. This is premised on the fact that this was the most suitable design for this study. Mostly, previous researchers in the field of working capital management had equally made use of this type of research design (Egbide, 2009; Agyei and Yeboah, 2011; Ogundipe, Idowu, and Ogundipe, 2012). No doubt, the suitability of survey research design has been considered and confirmed appropriate for investigating the relationship between working capital management and firm's profitability. The sampling technique adopted in this study was simple random sampling. The total number of accountants and auditors in the 12 chosen firms was 171, out of which 120 were selected randomly. A simple random sampling gives every element of the population equal chance of being selected.

In this work, the relationship between working capital management and profitability was explored by using regression analysis (Ordinary Least Square).

#### 3.1 RELIABILITY TEST OF RESEARCH INSTRUMENT

The reliability test of the questionnaire was done using Cronbach's alpha method with a result of 0.724 and composite reliability of 0.721.

*A priori* expectation based on the pilot survey is as follows;

Net Operating Profit

$$\frac{\Delta NOP}{\Delta AIP} > 0, \quad \frac{\Delta NOP}{\Delta ACP} > 0, \quad \frac{\Delta NOP}{\Delta ICP} < 0, \quad \frac{\Delta NOP}{\Delta APP} > 0, \quad \frac{\Delta NOP}{\Delta CCC} < 0$$

Where NOP is Net Operating Profit, AIP is Aggressive Investment Policy, ACP is Account Collection Period, ICP is Inventory Conversion Period, APP is Average Payment Period and CCC is Cash Conversion Cycle.

### 4. RESEARCH MODEL, ANALYSIS AND DISCUSSION

$$NOP = \alpha + \beta_1 ACP_{it} + \beta_2 ICP_{it} + \beta_3 APP_{it} + \beta_4 CCC_{it} + \beta_5 AIP_{it}$$

$$NOP = -0.300 + 0.185 ACP_{it} + 0.418 ICP_{it} + 0.365 APP_{it} + 0.086 CCC_{it} + 0.087 AIP_{it}$$

#### 4.1 Tabular presentation of regression result

Variables	β(Beta)	S.E	t-test	Signi.	F-test	Signi.	R	R <sup>2</sup>	Adj. R <sup>2</sup>	D. W
A	-0.300	0.804	-0.374	0.710	15.725	0.000	0.679	0.461	0.432	1.747
ACP <sub>it</sub>	0.185	0.150	1.233	0.221						
ICP <sub>it</sub>	0.418	0.115	3.647	0.000						
APP <sub>it</sub>	0.365	0.097	3.763	0.000						
CCC <sub>it</sub>	0.086	0.125	0.683	0.496						
AIP <sub>it</sub>	0.087	0.089	0.979	0.330						

Table 4.1 is in line with the *a priori* expectation stated above. From the regression result of our primary data, ACP has positive effect on Net Operating Profit which means that as Account Collection Period increases, Net Operating Profit increases; ICP has positive effect on Net Operating Profit, which means that as Inventory conversion Period Increases, Net Operating Profit of quoted food and beverages manufacturing companies in Nigeria increases. Likewise, APP has positive effect on Net Operating Profit, this means that as Account Payment Period of these companies increases, Net Operating Profit increases, CCC also has a positive effect on Net Operating Profit, meaning that as the former increases, the latter increases. Lastly, AIP has a positive effect on NOP; this means that as food and beverages manufacturing companies in Nigeria intensify effort in aggressive investment policy, Net Operating Profit increases.

The value of  $\alpha$  is -0.300, this means that, if food and beverages manufacturing companies in Nigeria pay less attention to ACP, ICP, APP, CCC and AIP, their Net Operating Profit will reduce drastically by 30%. This shows that efficient management of these components of working capital management is very important to the survival of these quoted food and beverages manufacturing companies.

The coefficients of the regression equation however show that a day increase in account collection period will increase Net Operating Profit of food and beverages manufacturing companies in Nigeria by 18.5%. Also, a day increase in inventory conversion Period will bring about 41.8% increase in Net Operating Profit of these

companies. Moreover, a day increase in Account Payment Period will increase Net Operating Profit of food and beverages manufacturing companies by 36.5%. A day increase in cash conversion cycle will increase Net Operating Profit by 8.6% and lastly if aggressive investment Policy is increased by 1%, Net Operating Profit of Nigerian quoted food and beverages manufacturing companies will increase by 8.7%.

To test for the significance effects of each of the independent variables, we used attached probability to t-test for variables ACP, ICP, APP, CCC and AIP which are; 0.221, 0.0000, 0.0000, 0.496 and 0.330 respectively. Based on these significance values, we observed that ACP, CCC and AIP have no significant effect on Net Operating Profits of food and beverages manufacturing companies in Nigeria and submit that Inventory conversion Period and Account Payment Period have positive and significant effect on Net Operating Profit at  $\alpha$  level of 0.05.

F-statistic value is 15.725 and the significance level is 0.000. Since the significance level 0.000 is less than 0.05, the overall model is significant. That is, working capital as a whole has a significant effect on Net Operating Profit of food and beverages manufacturing companies in Nigeria at significance level of 0.05. This means that we have 95% confidence that working capital has a significant effect on Net Operating Profit of these companies.

The coefficient of determination ( $R^2$ ) is 0.461. This means that, ACP, ICP, APP, CCC and AIP can explain 46.1% variation in Net Operating profit of food and beverages manufacturing companies in Nigeria while the rest 54.9% of the variation will be explained by other factors not accommodated in the model. The adjusted  $R^2$  however shows that the model has 43.2% fitness in explaining the relationship between working capital management and Profitability of quoted food and beverages manufacturing companies in Nigeria.

**Account Collection Period with Profitability:** The results of our analysis show that there is a significant negative relationship between Account collection period (ACP) and profitability (NOP). This finding is line with the works of (Egbide, 2009; Falope and Ajilore, 2009; Raheman, Afza, Qayyum and Bodla, 2010; Huynh and Jyh-tay, 2010; Amarjit et al., 2010; Mathuva, 2010), where it was found that negative relationship exists between Debtor's collection period and profitability. On the contrary, it is at variance with the findings of the research carried out by (Akinlo, 2011; and Uremadu, Egbide, and Enyi, 2012) which revealed that Debtors collection period had positive relationship with profitability. The implication of our result is that as Account Collection Period increases, Net Operating Profit reduces. The coefficients of the regression equation show that a day increase in account collection period will reduce Net Operating Profit of food and beverages manufacturing companies in Nigeria significantly. In support of this finding is the opinion of the majority of the respondents (68.4%) to the administered questionnaire who are of the opinion that average collection period should be reduced in order to be more efficient. In view of this fact, reduction in the average collection period of food and beverages manufacturing firms in Nigeria is suggested in order to increase their profitability.

**Inventory Conversion Period with Profitability:** It was found that there is a negative but insignificant relationship between Inventory Conversion Period and profitability (NOP). This supports the studies of (Egbide, 2009; Falope and Ajilore, 2009; Raheman et al., 2010; and Huynh and Jyh-tay, 2010) who found that there is a negative relationship between inventory conversion period and profitability. However, this is not in line with results of the works of (Mathuva, 2010; Akinlo, 2011; and Uremadu et al., 2012) which revealed that there is a positive relationship between inventory conversion period and profitability. The implication of our finding here is that a day increase in inventory conversion period will bring about reductions in Net Operating Profit of these companies. Too long days in inventory conversion period for food and beverages manufacturing firms that have large percentage of their raw materials and finished good as perishables will lead to low profitability. Efforts should be directed at reducing this so as to increase their profit. In conclusion, we wish to state that our finding is in line with our *a priori expectation*

**Account Payment Period with profitability:** The results of regression analysis show an insignificant negative relationship between Account Payment Period and profitability. This is similar to the studies of (Egbide, 2009; Falope and Ajilore, 2009; Raheman et al., 2010; Akinlo, 2011; Uremadu et al., 2012) in which it was established that creditors payment period has significant negative relationship with profitability. Contrary to this finding, were the works of (Mathuva, 2010; and Huynh and Jyh-tay, 2010) who found positive relationship between account payment period and profitability. The implication of this finding is that as Account Payment Period of food and beverages manufacturing firms in Nigeria increases, their profitability decreases slightly. Since this is the case, the clamour for increase in account payment period, as revealed in the response to questionnaire, is out of place and should not see the light of the day. We believe that if account payment period is reduced, the sampled firms will benefit from the available cash discount from their suppliers and will eventually boost their profitability.

**Cash Conversion Cycle with Profitability:**The results of regression analysis of primary data revealed a positive but no significant relationship between Cash Conversion Cycle and Net Operating Profit of food and beverages manufacturing companies in Nigeria. The implication of this outcome is that a day increase in cash conversion cycle will lead to increase in Net Operating Profit. This result is in line with the works of (Amarjit et al., 2010; and Akinlo, 2011) who found that there is a positive relationship between cash conversion cycle (CCC) and profitability. However, our result is at variance with the works of (Egbide, 2009; Falope and Ajilore, 2009; Raheman et al., 2010; Huynh and Jyh-tay, 2010; NorEdi and Noriza, 2010; Mathuva, 2010; Uremadu et al., 2012; Uwuigbe, Uwalomwa and Egbide, 2012; Ogundipe et al., 2012) who found empirically that cash conversion cycle (CCC) has significant negative relationship with profitability.

**Aggressive Investment Policy with Profitability:**The outcome of our analyses of primary data suggests there is an evidence of positive but insignificant relationship between Aggressive Investment Policy and profitability of quoted food and beverages manufacturing companies in Nigeria. This is similar to the result of the studies of (Raheman et al., 2010; and NorEdi and Noriza, 2010) which revealed significant positive relationship between aggressive investment policy and profitability. However, our finding is at variance with the findings of (ALShubiri, 2011; Palani and Mohideen, 2012) in Pakistan, Jordan, and India respectively which show that aggressive investment policy (ratio of current assets to total assets) has significant negative relationship with profitability. The result of our primary data validates the result of our secondary. In conclusion, we wish to state that our finding is in line with the *a priori expectation* stated above.

#### 4.3 CONCLUSION AND RECOMMENDATION

From the discussions and findings above, it can be concluded that in food and beverages manufacturing firms in Nigeria, Working Capital Management had significant positive relationships with profitability while Account Collection Period had significant negative relationships with profitability. Also, Cash Conversion cycle and Aggressive investment policy had insignificant positive relationships with profitability while Inventory Conversion Period and Account Payment Period had insignificant negative relationship with profitability of food and beverages manufacturing firms in Nigeria.

Therefore, it is recommended that management of food and beverages manufacturing firms in Nigeria should be more efficient in the management of working capital by reducing their cash conversion cycle. If days of cash conversion are reduced, profitability will improve. Food and beverages manufacturing firms in Nigeria should shift from moderate investment policy to aggressive investment policy. This step will help to improve the profitability of this sector. There should be a reduction in the average collection period of food and beverages manufacturing firms in Nigeria in order to increase their profitability.

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