POLAC INTERNATIONAL JOURNAL OF ECONS & MGT SCIENCE (PIJEMS)
DEPARTMENT OF ECONOMICS & MANAGEMENT SCIENCE NIGERIA POLICE ACADEMY, WUDIL-KANO



EFFECT OF WORKING CAPITAL CYCLE ON THE PROFITABILITY OF LISTED INDUSTRIAL GOODS COMPANIES IN NIGERIA.

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Abstract

The study discussed the effect of working capital cycle on the profitability of listed industrial goods companies in Nigeria. The objective of the study is to ascertain the effect of inventory conversion period on profitability of listed industrial goods companies in Nigeria. Total of 11 companies on the Nigerian Exchange Group that have been listed for the past 10 years and have been consistent in filling their Annual Report with the Exchange to 2024. Data was collected from secondary sources, such as Annual Report of the Exchange. Multiple regression technique was used to analysis data with the aid of E-view 12 statistical software. The findings revealed that inventory conversion period has no significant effect on profitability of listed industrial goods companies. The study also showed that a significant negative relationship exist between debtors collection period while accounts payable period has an insignificant effect on profitability. Lastly cash conversion cycle has a negative significant effect on profitability of listed industrial goods companies. The study recommends that, management of industrial goods in Nigeria should have proper inventory management system to avoid over stock of inventory resulting in efficient outcome of investment. Managers should endeavour to obtain information on their customers before starting a credit arrangement. Also, creditors payment period in days should be increased so as to better enhance the financial performance of listed industrial goods companies. Lastly, Nigerian industrial goods companies should maintain a lesser cash conversion cycle as it will enhance profitability.

Keywords*:* Working Capital Cycle, Profitability, of Listed Industrial Goods, Companies

1. Introduction

The essential financial purpose of the corporation is value creation. It is a known fact that inefficient firms are usually the result of poor application of financial management technique. In most firms, the major ingredient of financial management is the stock of working capital. The efficient management of a firm's stock of working capital determines the extent to which the fortunes of the firm can be turned around and its eventual going concern status. Thus, the manager of a business entity is in a dilemma of achieving desired trade-off between liquidity and organization's performance in order to maximize the value of an organization through an effective working capital management. Therefore, for any business to be successful it needs to apply working capital management which involves planning and controlling liquidity in a way that eliminates the possibility of inability to meet short term obligations, and avoid too much investment in liquid assets (Soku, 2011).

Therefore, the general measure of working capital management is the working capital cycle, which is the time taken from the date of the purchases of inventory to the collection of sales of finished goods. Zahra and Azam (2012) opined that management of working capital cycle is very significant for every business entity that has large investment in inventories, receivables and payables. Every firm whether, profit oriented or not, irrespective of size and nature of business, requires necessary amount of working capital. Inventory conversion cycle, account receivable period, account payable period and cash conversion cycle are the components of working capital cycle which are the most crucial element needed for maintaining liquidity, survival, solvency and profitability of business.

Cash conversion cycle is one of the most widely used measures to evaluate and measure the risks and returns associated with liquidity management. Since every corporate organization is extremely concerned about how to sustain and improve profitability, hence they have to keep an eye on the factors affecting the profitability. Cash conversion cycle is a very important component of working capital cycle because it directly affects the liquidity and profitability of the company (Anser & Malik, 2013).

In a dynamic and competitive business environment, business entities around the globe face increased challenges especially in the manufacturing sector. However, an ideal business needs sufficient resources to keep it going and ensures that such resources are maximally utilized to enhance its profitability and overall performance. It has however been discovered that some methods that managers use in practice to make working capital decisions do not rely on the principles of finance, rather they use imprecise rules of thumb or poorly constructed models (Emery, Finnerty & Stowe 2004). This, however, makes the managers not to effectively manage the various mix of working capital component which is available to them, and as such, the organization may either be overcapitalized or undercapitalized or worst still, liquidate.

Smith (2000) stated that large number of business failures in the past has been blamed on the inability of the financial manager to plan and control the working capital of their respective firms. These reported inadequacies among financial managers are still practiced today in many organizations in the form of high bad debts, high inventory costs etc., which adversely affect their operating performance (Egbide, 2009).

Also, the fact that an organization makes profits is not necessarily an indication of effective management of its working capital because a company can be endowed with assets and profitability but short of liquidity if its assets cannot readily be converted into cash As, such there will be shortage of cash available for the firm's utilization as at when due. Such an organization may run into debts that could affect its performance in the long run because the smooth running of operations of the organization comes to a sudden halt and it will not be able to finance its obligations as at when due.

Again, some managers do neglect the organization's working capital cycle thereby having longer debtors' collection period and shorter creditors' payment period. All these constitute the problem of the investigation, hence, the need to study the effects of working capital cycle on the profitability of listed industrial goods companies in Nigeria. Most studies on working capital cycle and profitability focused mainly on the experience of developed economies, such as the United State of American (USA) and other European nations, therefore studies on working capital cycle and profitability are few in developing countries, accordingly knowledge about working capital cycle and profitability in Nigeria is still limited and even non-exist on industrial goods companies in Nigeria. Few studies have paid their attention to the impact of some selected working capital cycle management on profitability.

Even though there is a growing body of literature on working capital cycle management and profitability, there is a diversity of results due to the different theoretical perspectives applied, selection of methodologies, measurement of variables,

environmental differences. Prior research on effect of working capital cycle on profitability has been done in the developed and developing countries alike, such as (Abbasi & Bosra, 2012: Anser & Malik, 2013: Mohammad & Tayebeh, 2014; Khan, Ayaz, Waseem, Abbasi & ljaz, 2016; Lin, et.al, 2016; Linh and Mohanlingam, 2018). But a few studies have been carried out in Nigeria, mostly on working capital management of listed oil and gas, cement, agricultural, consumer goods companies and IT firms in Nigeria (Olayiwola, 2018, Micheal, 2023, Dibie, 2022 Ayebainasuoton, 2021, Uzoamaka, Nweze, Offor & Ikediashi, 2017; Ajayi, Abogun & Odediran, 2017; Olaoye, Akintola & Ogundipe, 2019). Furthermore, Ubesi and Duru 2016 used only one indicator (inventory conversion cycle) among other working capital cycle management. In the same vein, Karaduman, Akbas, Ozsozgun and Durer (2010) covered four years and it is not appropriate for a panel data analysis. Therefore, this study period is from 201l to 2024, which is appropriate for a panel analysis. However, this study used four indicators of working capital cycle which are cash conversion cycle, account collection period, inventory conversion cycle and account payable period.

The uniqueness of research may be based on techniques of data analysis employed by Mansoori and Muhammad 2012 is limited on the basis of the fact that it does not allowed heteroscedasticity test and other related robustness tests were not conducted. Therefore, this study included them in the data analysis. This study deviated from prior studies by looking at the effects of working capital cycle management on profitability of listed selected industrial goods companies in Nigeria over a long period of time from 2011 -2024.

The main objective of this study is to evaluate the effect of working capital cycle on the profitability of listed industrial goods companies in Nigeria. Therefore, the specific objectives are to:

i. ascertain the effect of inventory conversion period on profitability of listed industrial goods companies in Nigeria;
ii. evaluate the effect of accounts collection period on profitability of listed industrial goods companies in Nigeria;
iii. assess the effect of accounts payable period on profitability of listed industrial goods companies in Nigeria; and
iv. examine the effect of cash conversion cycle on profitability of listed industrial goods companies in Nigeria.

Based on the objectives of this study, the following hypotheses where formulated in their null form to guide the analysis of the study;

H_{01}: Inventory conversion cycle has no significant effect on profitability of listed industrial goods companies in Nigeria

H_{02}: Accounts collection period has no significant effect on profitability of listed industrial goods companies in Nigeria

H_{03}: Accounts payable period has no significant effect on profitability of listed industrial goods companies in Nigeria.

H_{04}: Cash conversion cycle has no significant effect on profitability of listed industrial goods companies in Nigeria.

2. Literature Review

2.1 Conceptual Review

Working capital cycle can be considered as an important determinant of profitability performance of a firm. Many researchers investigated the impact of working capital cycle on financial performance. Several Research though limited have also been carried out in this important area of corporate finance.

According to Harper (2009), a good working capital cycle helps to balance the incoming and outgoing payment to hence maximizing working capital. Working capital plays a significant role to firms' growth and profitability. Larsson and Hammarlund (2005) express working capital as the difference between current assets

and current liabilities, Such that: Net Working Capital is equal to current assets minus current liabilities.

Thus, both current assets and current liabilities are found in the statement of financial position. Here current assets are defined as the assets that are expected to generate cash in a financial year normally grouped under prepaid expenses and inventories, receivables, short-term investment, and cash and its equivalent. On the other hand, current liabilities are defined as the obligation maturing within a period of one financial year. Current liabilities are classified as trade payables, short-term debt and accrued liabilities (Penman, 2007; Lambrg & Valming, 2009).

Inventory Conversion Cycle

Inventories are referred to as the stock of raw materials, work in progress or finished goods waiting to be consumed in production or to be sold (Ubesie & Duna, 2016). Maintaining adequate inventory helps every firm to have an uninterrupted production of goods and meeting the demand for the goods in the market. Inventory represents stock available within the asset structure of a business and incorporates finished goods, work-in-progress and raw materials (Horne & Wachowicz, 2000).

Therefore, the term inventory management refers to the supervision of the stock of goods from the stage of purchase of raw material to the point of sale of finished goods. However, maintaining inventory also incurs costs to the company such as holding cost, carrying costs and the cost of purchasing and processing the stock also gets blocked until the stock gets sold out. Therefore inventory management becomes one of the most important areas to be taken care of in a business.

Accounts Collection Period

According to Agyei and Yeboah (2011), account collection period is the approximate amount of time that it takes for a business to receive payments owed in terms of accounts receivable. Accounts receivables also called debtors arise from sales on credit (Horne & Wachowicz. 2000), a company accrues accounts receivables when it sells its goods on credit. Therefore, account collection period determines the speed of payment by customers and delayed payment is a potential ground for bad debts which have a negative effect on a firm's financial performance (Pandey, 2008). Account collection period vary from company to company. However, it depends on the payment terms of a particular company and the company might receive cash in weeks or even months. Therefore, Deloof (2003) and Almazari (2013) found a negative significant relationship between account receivable and gross operating profit.

Account Payable Period

Accounts Payable is the money that a company is obligated to pay out over a short term. It is also a key component of working capital management (Deloof, 2003). Companies seek to strike a balance between maintaining maximum cash flow by delaying payments as long as is reasonably possible and the need to maintain positive credit ratings and good relationships with suppliers and creditors. Accounts payable is the amount owed by a business to suppliers (e.g. for raw materials). The accounts payable period (ACP) used as a proxy for the payment policy is the time between receipt of inventory and payment for it's (i.e. accounts payables multiplied by 365, divided by cost of sales).

Cash Conversion Cycle (CCC)

The concept of cash conversion cycle was introduced by Gitman (2009) as a means of managing a firm's working capital and its implications for firm liquidity and profitability. Richards and Laughlin (1980) subsequently operationalized the cash cycle concept into the Cash Conversion Cycle (CCC) theory for analyzing firms' working capital management efficiency. The CCC theory posits that, ceteris paribus, efficient working capital management (i.e. a short cash conversion cycle) will increase a firm's liquidity, profitability and concomitantly its value: while inefficient working capital management (i.e. a long cash conversion cycle) will lead to lower profitability and lower firm value.

Aliet (2012) defined profitability as an income generated in the business which is calculated by subtracting the expenses from the revenue. He went on by indicating that

the word profitability derived from the word "profit" denoted by the Greek letter "n". This is defined as the difference between the total revenue of a business and the total cost of a business.

Profitability is the ability to generate profit during a certain period by using productive assets or capital, both in total and in their own capital. Investors in the capital market are very concerned about the company's ability to produce, support and increase profits; if the company's profits are high then investors will be interested in buying its shares, so that the share price will increase.

2.2 Empirical Review

Inventory Conversion Cycle and Profitability

Lazaridis and Tryfonidis (2006) examined the relationship between profitability and working capital management of 131 firms listed on the Athens Stock Exchange. The study found a statistically significant inverse relationship between profitability measured as gross operating profit and the inventory days. This study re-emphasizes that, firms can enhance profitability by prudently keeping their working capital management components (inventory) within optimal levels. The findings on the study reviewed above are important to Athens firms and cannot be used in Nigerian industrial goods firms. More so, the study used gross operating profit as measure of profitability, meanwhile, this study made used of net profit before tax divide by total assets as measurement for profitability. However, the period covered by Lazaridis and Tryfonidis (2006) is not appropriate for a robust finding, therefore, this current study covered from 2011 – 2024 which is appropriate for a panel study.

Accounts Collection Period and Profitability

This study reviewed and critiqued previous studies on account collection period and profitability. However, Lazaridis and Tryfonidis (2006) examined the relationship between profitability and working capital management of 131 firms listed on the Athens Stock Exchange. The study used regression estimation approach and data covering the period five years from 2001-2004. The study found a statistically significant inverse relationship between profitability, measured as gross operating profit and the accounts receivables days. This study re-emphasizes that, firms can enhance profitability by prudently keeping their working capital management component (accounts receivables) within optimal levels. The findings on the study reviewed above are important to Athens firms and cannot be used in Nigerian firms.

Accounts Payable Period and Profitability

Studies conducted on account payment period and profitability was reviewed and critiqued in this study. Lazaridis and Tryfonidis (2006) examined the relationship between profitability and working capital management of 131 firms listed on the Athens Stock Exchange. Using regression estimation approach and data covering the period from 2001-2004, the study observes significantly positive association between profitability and accounts payable days. This study re-emphasizes that, firms can enhance profitability by prudently keeping their working capital management component (accounts payables) within optimal levels. The findings on study reviewed above are important to Athens firms and cannot be used in Nigeria.

Mathuva (2010) examined the influence of working capital management components on corporate profitability of 30 Kenyan listed firms. Using panel data methodology and data covering the period from 1993-2008, the study finds a significantly positive relationship between average payment days and profitability. Findings of the study therefore confirm the traditional view of efficient working capital management and its effects on profitability. The study was conducted in Kenya and the period was from 1993 to 2008 while this study is carried out in Nigeria and the period covered is from 2011 to 2024, which makes it current.

Cash Conversion Cycle and Profitability

Eljelly (2004) examined the relationship between profitability and working capital management on a sample of 929 Saudi firms spread across three industries, Correlation data analysis and regression data estimation technique were used, the study found a significantly negative relationship between the firms' profitability and liquidity level, as measured by current ratio and cash

conversion cycle. The study further observed variations in the cash conversion cycle among the industries used in the study and concluded that short cash conversion cycle and large firm size is associated with enhance profitability. In same vein, Lazaridis and Tryfonidis (2006) analyzed the relationship between profitability and working capital management of 131 firms listed on the Athens Stock Exchange. Regression estimation approach and data covering the period from 2001-2004 were used. This study showed a statistically significant inverse relationship between profitability, measured as gross operating profit and cash conversion cycle. The findings on both studies reviewed above are important to Athens and Saudi firms and cannot be used in Nigeria.

2.3Theoretical Framework

Transaction Cost Theory

The Transaction Cost Theory was formulated by Commons (1934) and reinforced by Coase (1937), Arrow (1969, 1974) and Williamson (1985, 1991). According to Arrow ((1969), transaction costs are the costs involved in running the economic system. Coase (1988) suggests that there are always costs for carrying out market transactions. Therefore, a firm would prefer transactions to be organised within the firm if the cost would be less than the cost of carrying out the transaction in the market. However, as the additional costs of transactions within the firm exceed the cost of carrying out the transaction through the market, firms attempt to reduce transaction costs by vertical integration (Williamson, 1991). Therefore, the rationale behind the transaction cost theory is that market costs are usually too high for firms to overcome individually. This leads to the creation of linkages for small firms (Thorelli, 1986).

From a transaction theory perspective, a firm needs to consider two main costs, market transaction costs and control costs, as their part of internationalization process (Williamson, 1985; Hennart, 1989). These costs occur as the result of environmental and behavioral uncertainties, opportunism, and asset specificity (Rindfleisch & Heide, 1997). Heide (1994) states both environmental and behavioral uncertainties refer to the market changes that is unpredictable together with the uncertainty of possible firm action of reaction. Such unpredictability leads to the contractual constraints, which denote every possibility and consequent response become more ineffective (Heide, 1994).

The theory's central claim is that transactions will be handled in such a way as to minimize the costs involved in carrying them out. The goods in this case refer to finances committed to for working capital management. In working capital management, the four elements cash, debtors, inventory and creditors stand out as the key problems, whose management involves rigorous planning and resource commitment. For example, stocks can be modeled mathematically to formulate a basic policy outlining when stocks should be ordered, what quantity and the associated cost.

3. Methodology

3.1 Research Design

The study adopted ex-post facto research design to investigate the relationships as well as the effects of working capital cycle on the profitability of listed industrial goods companies on the Nigerian Exchange Group. This design was chosen because of its effectiveness in assessing the relationships and the effects of two or more variables that is, the dependent and independent variables.

3.2 Method of Data Collection

Secondary data was used from the published financial statements of the sampled industrial goods companies on the Nigerian Exchange Group under consideration for a period from 2011 -2024.

3.3 Population Size

The population of this study consists of all the listed industrial goods companies on the Nigerian Exchange Group. The total number of companies listed on the Exchange under the Industrial Sector is 13 (Nigerian Exchange Group Report (2024).

3.4 Sample and Sampling Techniques

The sample size comprises only those companies on the Nigerian Exchange Group that have been listed on the Exchange from 2011 to 2024 and have been consistent

in filling their Annual Report with the Exchange to 2022. Since the study population is not many, this study will be focus on eleven (11) industrial goods companies listed on the Nigerian Exchange Group that have been consistent in filling their Annual Report with the Exchange to 2024.

3.5 Methods of Data Analysis

Based on the data type and previous research studies, the study used panel data regression technique. Multiple regression technique was used to analysis data with the aid of E-view 12 statistical software. Furthermore, data were analyzed using various diagnostics tests such as multicollinearity, normality and heteroscedasticity. To address panel effect of the data, fixed effect and random effect options were explored.

4. Results and Discussion

Table 1: Descriptive Statistics Results

	PRO	ICC	ACP	APP	CCC
Mean	0.240991	41.08445	36.65873	44.08755	46.44955
Maximum	0.596000	79.81000	87.22000	93.85000	97.40000
Minimum	0.008000	10.23000	10.22000	10.15000	24.76000
Std. Dev.	0.176742	18.39725	19.83725	17.98348	17.87169
Skewness	0.337987	0.009588	0.707797	0.328869	1.123315
Kurtosis	8.547245	1.907953	2.543224	2.943563	3.389813
Jarque-Bera	8.547245	5.467619	10.14086	1.997434	23.83011
Probability	0.013931	0.034971	0.006280	0.368352	0.000007
Observations	110	110	110	110	110

Source: E-View output, 2026

Table 1. Shows the results of the descriptive statistics. The table shows a total of 110 observations which comprised of 11 industrial goods companies listed on the Nigerian Stock Exchange from the years that is from 2011 – 2024. The average value of Profitability (PRQ) is determined to be 0.240991 which indicates a low profitability. The minimum value of PRO is – 0.008000 with maximum value of 0.596000 and standard deviation of 0.176742. This indicates that the industrial goods industry in Nigeria has an average PRQ of 0.240991. The standard deviation value of 0.176742 is less than the mean value of 0.240991, it means that the data are not widely dispersed from the mean value. The skewness value of PRQ is 0.337987 which is close to 0 and is considered to be symmetrical. Similarly, a maximum value of 3 for kurtosis is expected to guarantee the normal distribution (Blundell & Bond, 2000). The kurtosis value of PRQ is 1.813445 which is not far above 3, it indicates that the variable is normally distributed in nature.

Also, the table 1 shows that the average value of Inventory Conversion Cycle (ICC) is 41.08445, the maximum value of 79.81000, minimum value of 10.23000, standard deviation value of 18.39725. It shows that the average value or industry value of ICC of the industrial goods companies is 41.08445. The standard deviation of the PRO is less than the average value, it indicates that the data are widely dispersed from the mean. The skewness value of the variable is 0.009588 which is close to zero, it means that the distribution of the variables is symmetric in nature. The Kurtosis values of PRO is 1.907953 which is close to 3, it indicates that the shape is normally distributed in nature.

The Accounts Collection Period (ACP) mean value is 36.65873, maximum value is 87.22000, minimum value of 10.22000 and standard deviation of 19.83725 of the descriptive statistic. The average ACP of the industrial goods companies is 36.65873 while the highest value of ACP that can be attributed to an industrial goods

company is 87.22000.The lowest value of ACP possessed by one of the industrial goods company is 10.22000. The standard deviation of 19.83725 is less than the mean value of 36.65873, it shows that the data are not widely dispersed from the mean. The skewness value of the variable is 0.707797 which is far above zero, it means that the distribution of the variables is non-symmetric in nature. The Kurtosis values of ACP is 2.543224 which is not far above 3, it indicates that the variable is normally distributed in nature.

The descriptive statistics exhibits the mean value of Accounts Payable Period (APP) to be 44.08755, maximum value of 93.85000, the minimum value of 10.15000, and standard deviation value of 17.98348. The average number of APP in the industrial goods company is approximately 44, the standard deviation value of 17.98348 is less than the mean value of 44.08755 which indicates that the data are not widely dispersed from the mean. The skewness value of the variable is 0.328869 which is close to zero, it means that the distribution of the variables is symmetric in nature. The Kurtosis values of the variable is 2.943563 which is not far above 3, it indicates that the variable is normally distributed in nature.

The table also indicates that the average value of Cash Conversion Cycle (CCC) to be 46.44955, the minimum value of CCC is 24.76000 with maximum value of 97.40000 and standard deviation of 17.87169. The standard deviation value of 17.87169 is less than the mean value of 46.44955, it means that the data are not widely dispersed from the mean value. The skewness value of CCC is 1.123315 which is close to 0 and is considered to be symmetric. Similarly, a maximum value of 3 for kurtosis is expected to guarantee the normal distribution (Blundell & Bond. 2000). The kurtosis value of CCC is 3.389813 which is 3, it shows that the variable is normally distributed in nature.This study uses the Jarque-Bera test for normality, the results of the test indicate that the data are not normally distributed because their P-value is less than 0.05. However, the Guasian theorem (1929) and Shao (2003) suggest that normality of data does not in any way affect the inferential statistics estimate to the blue.

4.2 Correlation Matrix

Table 2: Correlation Matrix

	PRO	ICC	ACP	APP	CCC
PRO	1.000000				
ICC	-0.097974	1.000000			
ACP	-0.284611	0.259283	1.000000		
APP	0.048700	0.094118	0.160398	1.000000	
ACC	-0.615399	0.227534	0.1099908	1.000000	

Source: E-view output, 2026

Table 2. Shows the correlation values between the independent variables. The correlation matric is used to determine the correlation between independent and dependent variables of the study. It is observed that the variables correlate fairly well (between -0.6154 and 0.0487). There is no correlation coefficient greater than 0.8, hence there is no problem of data collinearity (Neter, et al 1996; Cassey et. al., 1999; Wallace & Naser, 2005).

4.3 Variance Inflation Factors (VIF)

Table 3: VIF

Variable	Coefficient Variance	Uncentered VIF
ICC	1.40E-07	4.779912
ACP	2.73E-07	2.053443
APP	6.06E-07	3.728038
CCC	8.80E-07	3.467194

Source E-view output, 2026

Table 3 shows tolerance values and the variance inflation factor are two good measures of assessing multicolinearity between the independent variables in a study. The result shows that variance inflation factor were consistently smaller than ten (10) indicating complete absence of multicolinearity (Neter et al; 1996; Cassey et al., 1999). This shows the suitability of the study model been fit with the four independent variables. Also, the tolerance values were consistently smaller than 6.00, therefore extend the fact that there is complete absence of multicolinearity between the independent variables (Tobachmel & Fidell, 1996).

4.4. Random Effect Model Regression Result

Table 4: Regression

Variable	Coefficient	Standard Error	T- Statistics	Prob.
PRO	0.489611	0.066549	7.357164	0.0000
ICC	- 0.000728	0.000472	- 1.541953	0.1261
ACP	- 0.000990	0.000445	- 2.227101	0.0281
APP	4.760005	0.000695	0.068546	0.9455
CCC	-0.001957	0.000517	- 3.785037	0.0003
R^2	0.630290			
Adj. R^2	0.574635			
F. Statistics	11.32490			
Prob. (F- Statistics)	0.000000			
Hausman Chi 2	3.279377			
Hausman Pro > Chi 2	0.5122			
Obs R- Squared	3.507241			
Heteroskedasticity Sig.	0.4768			
Br-Godfrey L.M Stat	20.60961			
Breusch-Godfrey Obi. R	0.3161			

Source: E-view Output, 2026

Dependent Variable: PRO

The regression line shows that PRO = 0.489611, ICC = – 0.000728, ACP = – 0.000990, APP = + 4.760005, CCC = – 0.001957. The F-Statistic of 11.32490 and its corresponding P-value of 0.0000 indicates that the model is fit and the independent variables are properly selected, combined and used. The coefficient of Determination (R^2) of 0.630290 indicates that about 63% of variation in PRO can be explained by ICC, ACP, APP and CCC or the ability of the regression line to predict Profitability (PRO) is about 63%. The study therefore, accepts alternate Hypothesis which states

that, ICC, ACP, APP and CCC have significant effect on Profitability of listed industrial goods companies in Nigeria.

The Breusch -Godfrey Test of Heteroskedasticity indicates that the probability chi-square value of 0.4768 indicates that the data are homokesdasticity. Thus, the P-value of 0.4768 which is greater than 0.05 makes the study to accept the null hypotheses that the residuals are not heteroskedasticity but homokesdasticity and are desirable, therefore, the Breush--Godfrey serial correlation LM test for serial correlation was performed on the residuals and the results showed observed R-squared of 0.316l, which is in excess of 0.05, which lead us to reject the presence of serial correlation in the residual. The Hausman Specification Test indicates that Random Effect Model is most appropriate to Fixed Effect Model given the Chi-Square value of 3.279377 and its corresponding P-value of 0.5 1 22 which is greater than the critical value of 0.05.

4.5 Discussion of Major Findings

Inventory Conversion Cycle and Profitability

H_{01}: Inventory conversion cycle has no significant effect on profitability of listed industrial goods companies in Nigeria.

From the regression result, the study revealed that inventory conversion cycle (1CC) has no significant effect on profitability (PRO), this means that ICC does not in any way influence profitability of listed industrial goods companies in Nigeria.

Account Collection Period and Profitability

H_{o2}: Accounts collection period has no significant effect on profitability of listed industrial goods companies in Nigeria

In the case of Accounts Collection Period (ACP) and Profitability (PRO), a significant negative effect was found. This indicates that PRO will reduce when there is an increase in account collection period. This implies that increasing number of days will negatively impact on profitability. This is because the regression result indicates a negative relationship between ACP and PRO.

Accounts Payable Period and Profitability

H_{o3}: Account payable period has no significant effect on profitability of listed industrial goods companies in Nigeria. In the regression result, Accounts Payable Period (APP) has an insignificant effect on profitability (PRO) of listed industrial goods companies in Nigeria. This indicates that APP does not have any influence on profitability.

Cash Conversion Cycle and Profitability

H_{o4}: Cash conversion cycle has no significant effect on profitability of listed industrial goods companies in Nigeria.

The study found that cash conversion cycle (CCC) has a negative significant effect on profitability of listed industrial goods companies in Nigeria. This implies that cash conversion cycle positively influence profitability of listed industrial goods companies in Nigeria.

5. Conclusion and Recommendations

From the findings of the study, the following conclusions are drawn:

i. That there exist a relationship between growth inventory conversion cycle and profitability of listed industrial goods companies in Nigeria. This means that any increase or decrease on ICC will not influence profitability.

ii. That accounts collection period is a significant factor of working capital cycle in listed industrial goods companies in Nigeria. The negative coefficient of account collection period implies that when account collection period is increased, the profitability will reduced. The reason for this could be to attract more customers to the company.

iii. Accounts payable period has no significant effect on profitability of industrial goods companies in Nigeria. This implies that any increase or decrease in the days for industrial goods company to pay its creditors will not affect the profitability of the company.

iv. That increase in the cash conversion cycle will lead to decrease in profitability of industrial goods companies in Nigeria.

The study offers the following recommendations based on the conclusions of the study:

i. Management of industrial goods in Nigeria should have proper inventory management system to avoid over stock of inventory resulting in efficient outcome of investment. It has to make sure certain standards and levels which would stop piling up inventory are maintained to ensure faster inventory conversion and higher firm profitability. Also, the managers of industrial goods companies have to monitor their inventory levels with a view to reduce the number of day's inventory are to be sold.

ii. To reduce account collection period, managers should endeavour to obtain information on their customers before starting a credit arrangement. Hence, to reduce overall debtor days, companies should keep customer information up to date. By so doing the profitability of industrial goods companies might increase.

iii. Industrial goods companies in Nigeria should engage in relationship with those suppliers who allow long credit time period and those customers who allow short payment period. Also, they should be able to negotiate better payment terms to allow them utilize creditors money in their operation which in turn enhances the firm profitability.

iv. Management of industrial goods companies should shape cash conversion cycle by changing the way their businesses function in multiple areas, including sales, delivery, production, and billing and payment cycles. For instance, industrial goods companies management can improve their Cash Conversion Cycle (CCC) by collecting payments in full before production. This way they will only spend on inventory when necessary Furthermore, Nigerian industrial goods companies should maintain a lesser cash conversion cycle as it will enhance profitability.

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