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Effect of Working Capital Management on the Profitability of listed Consumer Goods Companies in Nigeria

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Abstract

This study examined the effect of working capital on profitability of listed consumer goods companies in Nigeria. Using data obtained from the financial statement of audited annual reports and accounts of the five (5) consumer goods companies for the period of (2015–2020). The Hausman test for randomization of panel result indicated that fixed effect regression was preferred. The Wald coefficient restriction test further showed that fixed effect was better than pooled OLS for investigating the relationship in the model of the study. Regression results indicates that account payable (APP) has a negative effect on profitability proxied by return on asset (ROA) of listed consumer goods companies in Nigeria and the effect is statistically significant. Inventory turnover (INV) has a negative effect on return on asset (ROA) of listed consumer goods companies in Nigeria Exchange Group and the effect is statistically significant. Account receivable (ACR) has a positive effect on return on asset (ROA) of listed consumer goods companies in Nigeria and the effect is not statistically significant. Interest rate (INT) was positively signed but not statistically significant. It was concluded that that, working capital management proxies are determinants of profitability of listed consumer goods companies in Nigeria. It was recommended among others that the management of listed consumer goods companies should strive to reduce the accounts payable period to enhance profitability and create value for the shareholders. This could earn trade discount and confidence from suppliers.

Keywords: Working capital, profitability, consumer goods, Account receivable and Interest rate

1. Introduction

No business can function on a day-to-day basis without appropriate operating capital (Eljelly, 2016). Working capital is essential for any business that is actively operating. Even if a business has all the permanent assets it needed, it will collapse if it doesn't have enough raw materials for processing, the money to pay workers, electricity, and other expenditures, and the ability to give credit to customers, all these calls for adequate working capital. As a result, a company's ability to operate would be severely hampered without adequate operating cash.

Working capital is therefore defined as the cash on hand for day-to-day operations of business transaction.

In order for an economy to be strong and thriving, business organizations are seen as a necessary component. In order to foster a business-friendly environment and to aid in the creation of new jobs, they are considered essential. Working capital management refers to firms' short-term capital management, and the purpose of working capital management is to improve liquidity, profitability, and shareholder value. When it comes to a company's survival, working capital is regarded as one of the most critical functions of corporate management. Regardless of whether a business is profit-oriented or not, it needs a certain level of working capital. Working capital management involves a wide range of variables, for this study we adopt three working capital management variable and a control variable namely: accounts payables period, inventory turnover rate and accounts receivables period to explain the link between working capital management and company profitability. In order to keep things moderate, a variable interest rate was added as a control. After that, we take a closer look at how these variables affect the profitability of consumer products businesses in Nigeria.

The average time it takes for a credit client to pay off their account is known as the account receivable period. The debtor's collection period or receivables turnover in days is the average length of time necessary to convert the firm's receivables into cash in working capital management. Longer loan periods may boost sales, but they also raise the possibility of bad debt. There should be a lower cost of increased bad debts and additional working capital than the enhanced profits earned by a higher turnover. A corporation must have a credit analysis system, a credit control system, and a trade receivables collection system in order to implement its trade receivables policy. Because of this, the accounts receivable turnover ratio is used to gauge the efficiency of an organization's collections efforts. The debtor's speed ratio is another name for the accounts receivable turnover ratio. It shows how quickly the debtors may be paid (Deloof, 2003). The primary goal of this ratio is to determine how much time and money can be lent to a debtor. The success of debt collection is also demonstrated by the turnover ratio of debtors. A higher ratio typically indicates better liquidity management. Firms should, however, ensure that their debtors are kept in balance with the interest accrued on the blocked cash.

One of the main goals of working capital management is to guarantee that businesses have enough cash flow to fund their operations. Thus, excellent working capital management can help organizations maintain expansion, which leads to strong liquidity and profitability for successful customer service. Effective working capital management is critical for corporate survival. The study has discovered that inefficient fund management by some consumer goods corporations may be linked to their financial hardship. For example, too much capital means inefficiency, while too little cash means the company's survival is in doubt. Empirical and documentary evidence demonstrate that most businesses do not have enough stocks, debtors, and cash to cover their maturing short-term obligations and future operational demands. Insufficient working capital also prevents expansion initiatives and increases sales, limiting the company's growth and profitability.

However, it has been shown that some managers' working capital decisions are based on principles of finance rather than vague rules of thumb or poorly developed models. As a result, the organization may be overcapitalized, undercapitalized, or worse, liquidated. Although working capital management is a common research topic in finance and accounting, most studies do not employ a control variable like interest rate to show how their interaction

affect firm profitability. This study provides the link to better understand how different measures of working capital affect the profitability of consumer goods companies. The researcher will examine the impact of those measures on the profitability of the companies under investigation.

2.1 Working capital management

Working capital management refers to the management of current assets in the form of cash, marketable securities, receivables and staff advances, and inventories. It encompasses all areas of the administration of current assets and liabilities (Van Horne, 2015). Hofman (2015) state that working capital management aim at reducing the amount of cash required to turn over the company's operations by increasing current liabilities and decreasing current assets. Stocks, receivables, cash, and short-term securities all fall under the category of short-term assets, and this is where most companies put their money. Osisioma (2017) found that excellent working capital management requires ensuring that the various components of a firm's working capital have an acceptable relationship so that an efficient mix can be achieved, which will assure capital sufficiency. Because of this, working capital management must ensure that each component of the working capital is available in sufficient quantities for management.

Working capital has a variety of dimensions, but we emphasis the following accounts payables period, inventory turnover, and the accounts receivables period in this investigation.

a) Accounts receivables period

$$Accounts\ Receivables = \frac{Accounts\ reveivables \times 365}{Sales}$$

In order to calculate the account receivables collection period, net sales are divided by the number of days in the year (Raheman and Nasr, 2017). This is referred to as debtor management. It is the average amount of time it takes consumers to pay off their debts that is measured in accounts receivables period.

Current assets include receivables, and the debtor's collection period or receivables turnover in days is the average time it takes to convert receivables into cash for a certain company (Raheman & Nasr, 2017).

b) Inventory turnover

The inventory turnover ratio is a crucial instrument for analyzing and evaluating the firm's liquidity and quality of inventories (Subramanyam and Wild, 2009). The time it takes to buy and sell merchandise is known as the inventory period (Ross, 2009). The following are the formulas for calculating Inventory Turnover:

$$Inventory\ Turnover = \frac{Cost\ of\ Goods\ Sold}{Inventory}$$

Inventory Turnover ratio is used to measure how well a company manages its inventory and to get a sense of how liquid its inventory is (Van-Horne & Wachowicz, 2010). Inventory management is the act of ensuring that a firm has the things it needs at all times while keeping

costs as low as feasible. A company's inventory is typically regarded as the least liquid current asset because of the inherent hazards of stockholding, as well as the fact that receivables are closer to cash (Subramanyam & Wild, 2009).

c) Accounts payables period

$$Accounts\ Payable = \frac{Account\ Payable \times 365}{cost\ of\ Goods\ Sold}$$

Net purchases divided by 365 days is used to determine the period for account payables (Raheman and Nasr, 2017). It is the average amount of time it takes a company to pay its suppliers, i.e. accounts receivable (Uyar, 2009). A company's current liabilities consist of all of its debts that are due during the current year, including short-term bank loans, accumulated expenses, income tax obligations, and long-term debt, excluding bank overdrafts. Accounts Payables or Creditors Turnover Ratio, according to Uyar (2009), can be used to determine how much credit time a firm receives from its trade creditors. Creditors' turnover ratio is a measure of the amount of time a company has to pay back the money it has borrowed. Effectiveness is therefore determined by whether or not the company enjoys the actual credit period given by vendors. Calculated by dividing the purchase price by the number of unsecured creditors.

d) Interest rate

If you lent, deposited, or borrowed a lot of money, you have to pay back a certain amount of money each month in interest. This amount is called the interest rate (called the principal sum). There are a lot of things that affect the total amount of interest that an amount of money is lent or borrowed. These things include the amount of money that was lent or borrowed, the interest rate and how often the interest is compounded. The interest rate is the percentage of a loan amount that a lender charges as interest to the borrower, which is usually expressed as a percentage rate for the whole year (Buiter, 2009). In economic theory, this means that lower interest rates make money or cash easier to get. Thus, from the point of view of working capital (receivables, inventory, and payables), a higher interest rate environment would seem to call for more efficient working capital performance – companies would want to offset the higher cost of borrowing or financing by improving their own cash flows to make up for the cost of borrowing or financing (Golas, 2020).

The inventory side of working capital has a cost associated with keeping a certain amount of inventory. Many businesses charge for this. They also charge for obsolescence and the cost of capital, which is the price of money. The cost of capital also includes the opportunity cost of inventory, which is how much money could have been used in another way instead of being held in inventory. All else being equal, rising real interest rates will make it more expensive to keep inventory, which will make inventory management and optimization more important (Akgun and Ayyuce, 2020). As the cost of keeping inventory rises, it becomes more important to figure out how much inventory you need to sell and how much you need to buy in order to meet those needs. As a result, credit risk can rise because the creditworthiness of customers could be affected, which could lead to more bad debt and interest costs. People who

work with the supply base need to be paid quickly, easily, and on time to keep things going smoothly.

2.2 Profitability

A company is profitable if it can make more money than it costs to make that money (Uyar, 2009). Basically, the term is a way to measure profit and how it relates to other things that can affect profit. However, profitability is a measure of how well managers use their company's resources to add value to the business. Profit is the difference between how much money an activity makes and how much money it costs over a period of time. According to Raheman and Nasr (2017), every business care most about making money. When profitability is mentioned, it implies the ability to be able to make money from all of the business activities of a company, firm, or an organization. Furthermore, it shows how well the management can make money by using all the resources in the market to make money. One of the most common tools used in financial ratio analysis is profitability ratios, which are used to figure out how much money a company has at the end of the day. In business, profitability means being able to make money from all of an organization's business activities. It shows how well the management can make money by taking advantage of all the resources in the market.

Ross (2009) says that, when working capital variables move, they will make money. People make more money when things move faster. There will be more costs if there are more current assets. This will cut down on the amount of profit. It is also important to look at how well a company does at making money (Ross, 2009).

2.1.3 Measure of profitability

Net profit margin, return on investment, and return on asset are just a few of the metrics used to measure profitability. This study considers return on asset (ROA) as good indicator of profitability since it shows how quickly a company's resources are turned into profits for its stockholders.

Return on Asset

$$ROA = \frac{Net\ Profit\ before\ Tax}{Total\ Assets}$$

Return on asset (ROA) is an easy-to-understand performance indicator because it takes into account the efficiency of all the company's assets. It is the most frequent way to convey the concept of Return on Investment in terms of performance in a firm (Idam, 2019). As an important measure of a company's financial health, ROA is determined by subtracting net profit from total assets and dividing the result by 100. It is one of the metrics used to measure the success of a company's management team. The ROA measures a company's capacity to make a profit in relation to the total assets it has invested in (Idam, 2019).

2.2 Theoretical Framework

2.2.1 Agency theory

Stephen Ross and Barry Mitnick first proposed the agency theory in (1972). Principal-agent relationships are explained by this theory. One or more persons referred to as the

principal(s) engages another (the agent) to perform a task or service on their behalf, which involves delegating some authority in terms of decision-making, (Jensen and Mecking, 1976). An agency relationship exists when the first party designated as the agent agrees to perform services on behalf of or in a representative capacity for the other party named principal in a decision-making context (Ross, 2009). Management is supposed to act as an agent on behalf of the company's owners in order to maximize the value of those owners as principals and safeguard the interests of other shareholders, according to the theory of the agency (Yusuf & Nasruddin, 2015).

Working capital is a managerial activity that is supposed to be efficiently monitored and managed by managers in order to generate profit and enhance the value of the company's owners. Financial choices for a business fall under the purview of the company manager. In return for their investments, shareholders anticipate a risk-adjusted return that exceeds their expectations. As a result, workers and managers are expected to contribute their talents, time, and human capital to the benefit of their employers. An individual's stake depends on the amount to which he or she exchanges relationships and promises with the company based on specific asset investments (Williamson, 2014).

2.3 Baumol Cash Management Theory

Baumol Cash Management theory was propounded by William Jack Baumol on February 26, 1922). He was a well-known American economics professor. When it comes to dealing with cash, Baumol sees it as an inventory management problem that can be solved using approaches developed for inventory optimization (Baumol, 1952). It's a trade-off between the opportunity costs of having too much cash and the transaction costs of holding too little cash in order to achieve an ideal cash balance. At any given time, a firm's cash balance may be determined using Baumol's theory. Opportunity costs and trade expenses must be equal in order to achieve an ideal cash balance.

In the long run, a company's optimal cash balance helps to reduce the costs of everyday transactions while also providing a buffer against sudden changes in cash flows (Baumol, 1952).

2.4 Review of Empirical Studies

Alvarez, Sensini, and Vazquez (2021) investigated working capital management and profitability from 2016 to 2018. The companies included in the analysis were chosen using a stratified selection technique based on economic criteria. We employed an ex post facto study design. The data span three years and were gathered via a questionnaire. Inventory, accounts receivables, accounts payables, cash conversion cycle, current ratio, size, and leverage are all independent factors in the study. The return on asset and return on equity are the study's dependent variables. We utilized a fixed effects regression model to accomplish the study's aims because it was found to be reliable in explaining the influence of working capital management on profitability. The findings revealed a positive and statistically significant association between all components of working capital and profitability, implying that an increase in any of the variables examined results in a rise in ROA and ROE performance. On the other hand, leverage shows a statistically significant negative correlation with profitability, implying that increasing debt has a detrimental effect on company performance. The shortcoming of this empirical evaluation is that it omitted key critical diagnostic tests such as

heteroscedasticity and multicollinearity, which would have indicated whether the dataset utilized for analysis was error-free.

Adamu (2016) evaluated the financial performance of pharmaceutical enterprises in Nigeria in terms of working capital management. The study lasted eight years, from 2006 to 2013. The study employed an ex post facto research design. Secondary sources were used to acquire data for the study, including yearly financial reports and bulletins of the Nigerian stock exchange for the various enterprises during the study period. Account receivables, account payables, inventory, and cash conversion cycle were used to quantify working capital management, whilst return on asset was used to proxy financial performance using the multiple regression technique. The study discovered that while account receivables and inventory were significantly and positively related to financial performance, account payable was significantly but negatively related to financial performance, and cash conversion cycle was statistically insignificantly related to financial performance. The study revealed that whereas inventory has a big, strong, and favorable effect on the financial performance of publicly traded pharmaceutical enterprises in Nigeria, account receivables has a considerable but negative effect on the financial performance of pharmaceutical firms. Due to the absence of fixed and random effect regression, the study's estimates may be erroneous and unsuitable for policy recommendations.

Athambawa (2015) examined the influence of working capital management on manufacturing firm profitability in Sri Lanka from 2008 to 2013. This study employed an ex post facto technique. The data were examined using both the pooled ordinary least squares and the fixed effect models. Accounts receivable, accounts payable, inventory period, cash conversion cycle, and net trading cycle were used to quantify working capital management. Profitability was determined using gross operating profit. The fixed effect and pooled OLS methods were employed to analyze the data. Managers can produce value by shortening the accounts receivable and net trading cycles and maintaining a suitable inventory level, according to this study. Additionally, the study discovered a substantial negative association between accounts payable and profitability, which supports the assumption that less profitable enterprises pay their bills later. The analysis showed that while there is no evidence of a substantial relationship between cash conversion cycle and profitability, there is evidence of a negative correlation. The empirical review's weakness is that it estimates the model using fixed and random effects without doing any tests to choose which method to use. The proper technique is to utilize the Hausman test to distinguish between fixed and random effect regression, followed by the Wald or Lagrangian multiplier test to distinguish between the OLS and either of the fixed or random effect regression. Anything else than this results in incorrect steps in estimating the relationship in the study's model.

3.0 Methodology

Ex post facto research design was used for this study while the panel data methodology was adopted for this study in line with the nature of the study. The population of this study comprises twenty-two (22) consumer products companies registered on the Nigerian Exchange Group as of December 2020. Five sample period (2015-2020) and (5) consumer products businesses were purposefully chosen for this study to better understand the market.

3.1 Model specification

These models define the amount of variation a given change in the independent variable will affect the dependent variable. This study is modelled as follows:

$$ROA = f(AP, INV, AR, INT) \quad - \quad - \quad - \quad - \quad (1)$$

Where,

ROA = Return on Assets
AP = Accounts Payables
INV = Inventory Turnover
AR = Accounts Receivables
INT = Interest Rate

The explicit form of the model is shown below:

$$ROA_{it} = \alpha + \beta_1 AP_{it} + \beta_2 INV_{it} + \beta_3 AR_{it} + \beta_3 AR_{it} + U_{it} \quad - \quad (2)$$

Where,

α = Model constant
β_1-β_3 = Coefficients of the variables used in the models
i_t = Firm i at time t
U = Stochastic error term

4.0 RESULT AND DISCUSSION

4.1 Descriptive Statistics

The minimum and maximum, as well as the mean and standard deviation, are some of the descriptive statistics that are talked about. These are contained in Table 1.

Table 1: Descriptive Statistics

	ROA	APP	INV	ACR	INT
Mean	-1.373457	142.0667	69.13333	48.76667	12.13167
Maximum	0.264900	240.0000	110.0000	146.0000	16.55000
Minimum	-42.08000	7.000000	8.000000	6.000000	8.060000
Std. Dev.	7.691258	75.03605	22.16666	33.62438	3.179506
Jarque-Bera	915.4987	2.464441	0.644269	9.659495	2.688030
Probability	0.369854	0.291644	0.724601	0.070989	0.260796
Observations	30	30	30	30	30

Source: E-View 10.0 Result Output, 2022

For the dependent and independent variables, descriptive statistics are shown in Table 1. ROA, the dependent variable, has a mean value of -1.373457 and a minimum value of -42.08000 for all of the companies included in the research. The maximum value of the dependent variable (ROA) is 0.264900, which represents the maximum return on asset for the companies under investigation. The dependent variable's standard deviation is 7.691258, as seen in the summary statistics. While the maximum value at 240.0000 days and the minimum

at 7.000000 days are both within the range of the average, the standard deviation for the APP is 75.03605.

There is a mean of 69.13333 days of inventory turnover, (INV) with a maximum and minimum value of 110.0000 and 8.000000 days correspondingly. Standard error of measurement is 22.16666. The standard deviation for AR is 33.62438 days, with an average of 48.76667 days and a maximum and minimum of 146.0000 and 6.000000 days, respectively. There is a mean value of 12.13167, a maximum value of 16.55000, and a minimum value of 8.060000 for the control variable, interest rate (INT). The standard deviation was calculated to be 3.179506. According to the Jarque Bera statistics, it is possible to determine whether or not a time series data set is normal or not. If the probability of the Jarque–Bera test results is more than the 0.05 critical level ($p>0.05$), it indicates that data utilized in the study is normally distributed and can be used to model an empirically significant connection.

4.2 Regression analysis and Discussion of Result

Fixed effect panel least square regression analysis was used to model the relationship between the study's variables. The results are shown below:

Table 8: Fixed Effect Regression Result Coefficients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
APP	-0.080122	0.017648	- 4.540008	0.0083
INV	-0.092623	0.023554	- 3.932367	0.0418
ACR	0.029433	0.091469	0.321779	0.7508
INT	0.112048	0.489550	0.228879	0.8212
C	2.252561	10.74026	0.209731	0.8359
R-squared	0.751181	Mean dependent var		-1.373457
Prob(F-statistic)	0.027894			

Source: E-views 10.0 Result Output, 2021

A fixed effect regression model, indicated by the probability value of the Wald test of the coefficient's restriction estimate, is presented in Table 9. Profitability in Nigerian consumer products companies is negatively affected by account payable (APP), as evidenced by the regression coefficients, and this effect is statistically significant ($p<0.05$) and consistent with a priori expectations. Listed consumer products companies in Nigeria will see a 0.080122 percent drop in return on asset (ROA) for every unit increase in account payable (APP). We reject the null hypothesis based on the estimate's probability value ($p <$ critical value). At the 5% level of significance, we accept the significance of b1's estimate. This suggests that the time of accounts payables has a major impact on the profitability of listed Nigerian consumer goods companies. Contrary to what Athambawa (2015) found when he looked at the effects of working capital management on the profitability of Sri Lankan manufacturing companies from 2008 to 2013, the latter discovered a negative correlation between accounts payable and profitability, supporting the idea that less profitable companies are more likely to delay paying their bills.

The result of the second specific objectives of the study indicates that inventory turnover has a negative impact on the return on assets of Nigerian consumer goods companies listed on the stock exchange, according to the study's second particular aim, and the effect is statistically significant ($p<0.05$) and contrary to expectations. For listed Nigerian consumer goods businesses, this indicates that a 1.19 percent increase in inventory turnover will have a similar fall in the return on asset. We rule out the null hypothesis based on the p value. At the 5% level of significance, we accept the significance of b_2's estimate. This suggests that the profitability of Nigerian consumer products companies listed on the stock exchange is strongly influenced by inventory turnover. The inefficiency of the listed companies' management is evidenced by a poor inventory turnover and/or an excess of inventory. Inventory turnover can be improved by a variety of methods, including an increase in sales. Contrary to Sharma & Kumar (2011)'s findings, which studied the impact of working capital on the profitability of an Indian firm, this research shows a positive correlation between a company's profitability and the number of days' inventory and accounts receivable. The study's findings suggest that managerial practices and other sales-related issues may be to blame for the unfavourable impact.

As the outcome of the fixed effect regression analysis indicates for the third specific objectives of the study, accounts receivable has a positive effect on the return on asset of publicly traded consumer goods companies in Nigeria. While the effect is not statistically significant ($p>0.05$), it is consistent with a priori expectations. This suggests that for every unit rise in accounts receivable, the return on asset (ROA) of listed consumer products companies in Nigeria will improve by a factor of 0.029433. We reject the null hypothesis based on the p value of the estimate. That is, we accept the statistical significance of the estimate b_3 at the 5% level of significance. This means that the receivables period has a sizable impact on the profitability of publicly traded consumer products companies in Nigeria. This finding is consistent with Adamu (2016), who evaluated the influence of working capital management on the financial performance of pharmaceutical enterprises in Nigeria and discovered that account receivables have a beneficial effect on financial performance. The study's favourable effect on accounts receivable could suggest that listed consumer goods companies in Nigeria sold more cash items than they did on credit. This could suggest that the month's profit or loss comprises sales for which cash receipts or payment have been collected.

The control variable interest rate has a positive effect on profitability of the consumer goods companies in Nigeria but not statistically significant ($p > 0.05$), which was consistent with the *a priori* hypothesis. This means that when interest rates are increased by one, the return on assets of publicly traded consumer goods companies in Nigeria increases by a factor of 0.944813 unit. We accept the null hypothesis based on the p value. This means that we accept the fact that the estimate b_4 is not statistically significant at the 5% level of significance. This means that, while interest rates are positive, they have little effect on the profitability of Nigeria's publicly traded consumer products companies. The relationship between working capital and a positive interest rate is that working capital may increase as a result of increased interest rates causing a drop in output, which results in an unexpected decline in sales, reducing collections and unexpectedly rising inventories. The correlation coefficient is 0.751181. This means that the explanatory variables explained 75.12 percent of the variation in the dependent variable, whereas the stochastic term caught 24.88 percent of the variation. The F statistics

probability (0.027894) indicates that it is smaller than the critical value. This demonstrates that the study's model is fit.

5.0 Conclusion

Account payable, inventory turnover, and account receivable were utilised as proxies for working capital management, and interest rate was employed as a control variable to moderate these other variables. Account receivable was found to be a positive determinant of profitability for the selected listed companies, while account payable and inventory turnover were shown to be negative determinants with account payable period and inventory turnover statistically significant. The interest rate was a positive but insignificant control variable. Generally, this study implies that the profitability of listed consumer products businesses in Nigeria is influenced by working capital management proxies.

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