



WORKING CAPITAL MANAGEMENT AND PROFITABILITY OF DANGOTE SUGAR COMPANY LISTED ON THE NSE

Lyndon M. Etale 

Department of Accounting, Faculty of Management Sciences, Niger Delta University,
Wilberforce Island, Bayelsa State, Nigeria
lyndonetale@yahoo.com

Godspower T. Oweibi

Department of Accounting, Faculty of Management Sciences, Niger Delta University,
Wilberforce Island, Bayelsa State, Nigeria

Abstract

This study examined the relationship between working capital management and profitability with a focus on Dangote Sugar Refining Company in a case study. The study adopted net working capital (NWC) and inflation (INF) as the independent variables, while profit after tax (PAT) representing profitability was adopted as the dependent variable. Secondary data for the selected study variables were obtained through content analysis of the annual reports of DSR for the period 2009 to 2018. The study employed descriptive statistics and multiple regression analysis based on the E-view 10 software as techniques for data analysis. The results revealed that all the independent variables had positive relationship with profit after tax, but only net working capital was significant at 5% level. The regression results also showed that the coefficient of determination (R-squared) value of approximately 0.93 indicating that 93% of changes in the dependent variable were accounted for by the combined effect of changes in the independent variables. The combined effect of variations of the explanatory variables significantly explained changes in the dependent variable with probability of F-statistic value of 0.000089 (at 5% level of significance). Furthermore, the adjusted R-squared value of 0.91 indicates that the model used for the analysis is a proper and good fit. The study concluded that working capital management is significant positive relationship with profitability. Based on the

findings of the study it was recommended that the management of DSR should maintain the current working capital management policies, but closely observe their liquidity position at all times.

Keywords: Inflation, Management, Net Working Capital, Profit, Profitability

INTRODUCTION

Working capital management of a firm deals with the control and management of current assets and current liabilities to achieve a balance of liquidity and profitability. This is an important area in financial management that deals with a firm's investment in short term assets. Pandey (2005) classified working capital into gross working capital and net working capital. He defined gross working capital as the firm investment in current assets which can be converted into cash within a short period of time. These include cash, short term securities, receivables and inventories. On the hand, net working capital refers to the difference between current assets and current liabilities. Current liabilities are those obligations tied to outsiders' claims which are expected to mature for payment in less than a year. It is important that a firm should always keep sufficient working capital position to enable the organization run its business activities on a day-to-day basis while maintaining a balance between profitability and liquidity. A situation whereby a firm has excess working capital or has inadequate working capital is dangerous. Excessive working capital position means holding idle funds which will generate no income for the business the cost of which will reduce earnings; while inadequate working capital position renders the firm unable to meet maturing obligations and inability to take advantage new short term business opportunities promising good prospects.

The objective of working capital management in strategic financial management is to maintain efficient levels of current assets and current liabilities to ensure that a firm has sufficient cash flow to meet its short term maturing obligations (Akoto, Awunyo-Vitor & Angmor, 2013). This means the most important issue in working capital management is to maintain liquidity in the daily operations of the company. This is necessary to prevent trade creditors and suppliers whose claims falls due from putting undue pressure on the firm and therefore ensure the smooth running of the company as a going concern. An efficient working capital management can create value for stakeholders, doing otherwise would affect the business poorly and this may lead to financial distress. Working capital management entails planning and controlling current assets and current liabilities in such a way that eliminates the risk of inability to meet due short term obligations and to avoid excessive investment in these assets (Eljelly 2004).

Manufacturing companies by the nature of their business invests large amount of funds in raw materials inventory and goods-in-production process which are major components of working capital; hence a proper management of these resources is important for the financial success of the company. This would make it possible to avoid a situation where a firm would accumulate idle resources that may incur losses to the firm and therefore prevent the shortage of financial resources to meet maturing short term commitments (Akoto et al, 2013). Moreover the decision which regards the level of different working capital management components becomes frequent, repetitive and time consuming. Most firms emerging markets do not hold the exact amount of working capital due to global financial crisis whereby credit is so expensive to obtain and this has been a hindrance to business performance. This together with the recent liquidity crisis has highlighted the importance of efficient working capital management by every firm to attain an optimal working capital and by so doing strike a balance between profitability and liquidity trade-off.

This study examined the relationship between working capital management and profitability using Dangote Sugar Refinery (DSR) Company as a case study. DSR commenced business in March 2000 as the sugar division of Dangote Industries Limited. The sugar refining factory located in Apapa, Lagos seaport area was commissioned in 2001 with an initial installed capacity to process 600,000 MT of raw sugar per annum. In December 2007, DSR successfully exported its first consignment of 1500MT of sugar to Ghana. DSR is a public company listed on the Nigerian Stock Exchange (NSE). The company's shares were listed on the NSE on March 8, 2007 at N18/Share following the divestment of 25 percent holdings of Dangote Industries (the holding company) via an initial public offering of N10 billion shares in November/December 2007. Today DSR is a company listed under the consumer goods sector of the Nigerian Stock Exchange.

DSR engages in refining and marketing of sugar. The company's raw sugar from Brazil is refined into Vitamin A fortified white sugar and Vitamin A unfortified white sugar, which are sold as finished products under the brand name of Dangote Sugar across Nigeria and other African countries. The company has two categories of customers, super industrial who are largely blue chip companies, which account for about 18 percent of its sales revenue. The other group is the distributors who service the retail end of the market, this group trades in wholesale white sugar and is responsible for nearly 82 percent of DSR sales revenue. The company unfortified sugar is a specially processed sugar grade mainly for industrial used by pharmaceutical, food and beverage manufacturing companies. Whereas its fortified white sugar is packaged in approximately one kilogram bags for direct consumption. Dangote Group today is holding a large market share in Africa and it's a popular household name.

Efficient management of working capital is fundamentally important to the success of a firm and in meeting the overall corporate strategy in creating wealth for shareholders. Many studies have been conducted both in developed economies and in emerging markets to examine the relationship between working capital management and firm profitability. However, researchers have not been able to arrive at a consensus in their research findings. This was evident from the review of empirical literature for this study. For example, the studies of Vartak and Hotchandani (2019), Kasozi (2017) and Tariq et al (2013) revealed mixed findings. Others like the studies of Wang et al (2020) and Kajola et al (2014) found negative relationship between working capital management and performance. Yet Khalid et al (2018) and Agha (2014) in their study findings positively linked working capital management to profitability of firms. These inconsistencies in the findings of previous researchers point to the fact that there exists a research gap, which means further study is required on this topic in an attempt to find common ground. Therefore, this study aimed to examine the relationship between working capital management and profitability with Gangote Sugar Refining Company in a case study to contribute to the research gap. The study adopted net working capital (NWC) to proxy working capital management and the independent variable; and inflation (INF) was introduced as a moderating independent variable; while profit after tax (PAT) was used as the dependent variable representing profitability.

The broad objective of this study was to examine the relationship between working capital management and firm profitability (with inflation as a moderating variable) using DSR as a case study. This objective form the basis of the research questions addressed and hypotheses tested in the study. This study is significant in the sense that it provided useful insight for the management of DSR on how to maintain an optimal balance between profitability and liquidity by the efficient management of the company's working capital. Even though the study used DSR as a case study, the fresh insight provided by the study would equally be useful for managers of similar manufacturing companies who by the nature of their business invests large amount of money on inventory of raw materials, goods-in-process and finished goods.

The rest of the paper is organized into five sections. The general introduction is presented in section one. Section two deals with the review of related literature; where some conceptual issues, theoretical framework and review of past empirical studies are treated. The methodology adopted for carrying out the study is covered in section three, sections four and five deals with the results of data analysis and discussion of findings; and the summary, conclusion and recommendations respectively.

REVIEW OF RELATED LITERATURE

Conceptual Clarifications

Working Capital

The term working capital is commonly used for the capital required for day-to-day running of a business, such as for purchasing raw material, for meeting day-to-day expenditure on salaries, wages, rents rates, advertising and the like. Working capital is defined by (Brigham & Houston 2007), as the manner in which the permanent and temporary current assets of a firm are being financed. (Ashiq, 2011) sees working capital as the relative mix of short- and long-term funds in financing working capital. According to (Nobanee, Abdullatif, & AlHajjar, 2011) define working capital as the funds locked up in materials, work in progress, finished goods, receivables, and cash and cash equivalent. Thus, they defined working capital as capital invested in current assets, which are those assets that can be converted into cash within a short period of time and the cash received is again invested into the assets. However, working capital is divided into Gross and net; gross working capital refers to the amount of funds invested in current assets that are employed in the business process while, net working capital refers to the difference between current assets and current liabilities (Cyprian & Tobias, 2014).

Working Capital Management

According to (Jeng-Ren, Li & Han-Wen, 2006), working capital management involves the application of strategies and policies in the utilization of a firm's current assets and liabilities in such a way that an optimum level of working capital is maintained. In essence, the goal of working capital management is to promote a satisfying profitability and maximizes shareholders' value without losing sight of the need to maintain liquidity in order to stay solvent. Current assets and liabilities, that is, assets and liabilities with maturities of less than one year, need to be carefully managed if the firm desires to remain profitable while maintaining a sound liquidity position at the same time. Working capital management if properly handled should bring about equilibrium between the income-generating and resource-purchasing activities of a company (Zdenek, & Dana, 2014). In summary, working capital management deals with the act of planning, organizing and controlling the components of working capital (current asset and liability) like cash, bank balance, inventory, receivables, payables, overdraft and short term loans.

Working Capital Cycle

To understand working capital one has to understand the working capital cycle which is described as the core for working capital management. (Arnold, 2008) said that the working

capital cycle includes all the major dimensions of business operations. It is quite clear that a bad management of a single account in this cycle might cause a big trouble for the corporate legal entity which might leads to it being insolvent or bankrupt. The time between the purchase of inventory items for the production and their conversion into cash is known as or working capital cycle (also called operating cycle or cash conversion cycle. The working capital cycle begins with the procurement of raw materials either paid for with cash or on credit. The cycle is completed when debtors pay cash for goods purchased on credit or cash is received immediately upon the sale of goods. The cash conversion cycle or operating cycle is the length of time a firm purchase inventory and the receipts of cash from cash receivables. Sometimes operating cycle includes the time of placement an order until arrival of the inventory (Ross, Westerfield & Jaffe, 1996).

Inflation

Inflation can be defined as a sustained significant increase in the general price of goods and services. It responds to the forces of demand and supply. The demand pressure arises from changes in monetary aggregates, while the supply pressure comes from the existing structural conditions in the economy. Some of the macroeconomic factors giving rise to inflation include increase in prices of goods and services, income levels, capital inflow, persistent deficit budgeting and increase in money supply (Ujuju & Etale, 2016).

The increase in inflation reflects unstable macroeconomic conditions associated emerging and developing economies like Nigeria. High inflation may worsen market conditions during times of financial crisis and may erode the purchasing power of a firm's net earnings. The impact of increasing inflation would even portend deadly consequences for a company that is dependent on imported raw materials, with the result that high cost of raw materials would lead to lower profits. It was for this reason that inflation was introduced as a moderating variable in this study.

Profitability

Profitability can be defined as the ability of the company to efficiently utilize its resources to generate earnings over and above all associated costs and interest. Most times the firm is interested in what is due to shareholders in which case profit is determined after all related costs, interest and taxes. The net result is the base for most performance indicators like return on assets, return on equity, return on investment, return on capital employed, earnings per share, net profit margin, among others.

Profit after tax is the earnings of a business after all income taxes have been deducted. This is the final residual amount of profit generated by an organization. The profit after tax figure is considered the best measure of the ability of an entity to generate returns, since it incorporates both operating income and income from other sources, such as interest income. The profit after tax margin is closely watched by investors to see if the income generating ability of a firm is volatile.

Theoretical Frameworks

This study is anchored on two theories: the agency theory and the resources based theory.

Agency Theory

The agency theory was propounded by Stephen, Ross and Barry Mitnick in (1972). Agency theory is a management and economic theory that explains the various relationship and areas of self interest in firms. Agency describes the relationship between principals (owners) and agents (managers) as well as the delegation of control (Tipuric, 2008). Agency is a useful framework of designing governance and control in an organization which helps management to evaluate a firm's strength and weakness. The relevance of agency theory to working capital management could be viewed from the perspective of financial manager, who in most cases is an agent to the owner of a firm, and who takes all the most vital decisions regarding short term assets and liabilities of a firm (Palombini & Nakaruma, 2012). An agency relationship is defined as one, where one or more persons engages another to perform some task or services on their behalf which has to do with delegating some authority in terms of decision making.

Resource Based Theory

Resources are the basic factors of production that ensure business survival and firm performance. The resource could either be human or material. When taking stock of a firm's resources, a distinction needs to be made between resources and capabilities. Resources are inputs into the production process and they are considered as the fundamental unit of analysis. The resources of a firm include items such as capital equipment, patents and brand names, the skill associated with individuals, employees, and finance. Independently, few resources are productive. Any productive activity must require the coordination and cooperation of teams of resources, while capability is to perform certain activity or task. Therefore, by implication resources are the source of a given firm's capability. Resources based theory is used in this study to include the cognitive ability of managers of business to ensure effective management of the short term assets of the business (Alvarez & Busenitz, 2001). This therefore connotes that

managers have individual specific resources that facilitate and ensures the recognition of new opportunities effective assembling of resources, as well as the psyche of making payments, and recovering receivable as and when due to ensure effective management.

Empirical Review

This section reports the review of past research studies on the association between working capital management and organizational performance to provide justification or motivation for this study. The effect of working capital management on organizational performance is an issue of considerable debate. Prior studies reported that working capital management have had mixed effects on firm performance, indicating a research gap.

Wang, Akbar and Akbar (2020) examined the impact of working capital management on financial performance of non-financial listed companies across 12 industrial sectors in Pakistan. Secondary data was collected from the annual reports of 291 sampled firms, among other sources, for the period 2005 to 2014. They employed hierarchical linear mixed (HLM) estimator to analyze data for the study. The overall findings revealed that working capital management had a negative relationship with firm performance. Siraj, Mubeen and Sarwat (2019) investigated the effect of working capital management on the performance of non-financial firms listed on the Pakistan Stock Exchange for the period 2000 to 2016. Secondary data was collected from the financial statements of 280 sampled companies and the database of Thomson Reuters. The study employed the multiple regression technique using the fixed effects model and Hausman test for data analysis. The results revealed that working capital management had significant impact on profitability in Pakistan.

Vartak and Hotchandani (2019) examined the impact of working capital management on firms financial performance in India using a sample of 14 companies listed on the Bombay Stock Exchange for the period 2009 to 2018. The study adopted cash conversion cycle, average collection period, inventory turnover and average payment period as some of the independent variables representing working capital management, while return on assets (considered as an appropriate measure of management's efficiency in utilizing all assets in generating income for a firm) was used as proxy for firms financial performance and the dependent variable. Secondary data for the study variables were collected from annual reports of 14 sampled companies. They employed Pearson's correlation and multiple regression technique for data analysis. The results showed that: average collection period had significant negative relationship with ROA; inventory turnover and cash conversion cycle were found to have significant positive link with ROA; but average payment period had no relationship with ROA. Khalid, Saif, Gondal and Sarfraz (2018) examined the impact of working capital management on

profitability of electrical equipment firms in Pakistan for the period 2007 to 2012. ROA was used as the measure of profitability (the dependent variable), while the proxies for working capital management (independent variables) included among others current ratio and inventory turnover. Secondary data was obtained from the financial statements of sampled companies listed on the Karachi Stock Exchange. The study employed descriptive statistics and OLS regression technique for the analysis of data. They found that working capital management had significant positive impact on firm profitability in Pakistan.

Kasozi (2017) investigated the effect of working capital management on financial performance of manufacturing firms listed on the Johannesburg Stock Exchange, South Africa for the period 2007 to 2016. The study used cash conversion cycle, average collection period, average payment period and inventory turnover as components of working capital management; while ROA was adopted to represent financial performance (the independent variable). The study sample include 69 firms representing a wide range of industries covering food and beverage; clothing and textile; paper printing, chemical and non-metallic; metal manufacturing, computer electronics, and furniture companies. Secondary data was collected from the financial statements of sampled firms available on Orbis – a flagship of the Bureau Van Dijk (BvD) database. The researcher employed multiple regression estimator techniques to analyze data. The study reported the following findings; average collection period and average payment period had significant negative effect of profitability; inventory turnover had significant positive influence on profitability; and cash conversion cycle had very weak relationship with profitability. Etale and Bingilar (2016) investigated the effect of working capital management on profitability of cement companies in Nigeria for the period 2005 to 2014. Secondary data collected from published annual reports and accounts of 5 sampled cement companies listed on the NSE were analyzed using multiple regression technique based on windows SPSS 20 version. The study found that average collection period had negative effect on ROA (profitability) but not significant; inventory conversion period had significant negative effect on ROA; and average payment period had not significant but positive effect on ROA.

Kajola, Nwaobia and Adedeji (2014) examined the impact of working capital management on financial performance of 30 manufacturing firms listed on the Nigerian Stock Exchange for the period 2004 to 2010. Secondary data for the study was collected from annual reports of sampled companies. They employed pooled OLS regression techniques for data analysis. The results revealed that working capital management had significant negative association with financial performance. Agha (2014) investigated the impact of working capital management on profitability of Glaxo Smith Kline pharmaceutical company listed on the Karachi Stock Exchange for the period 1996 to 2011. The study adopted return on assets (proxy for

profitability and the dependent variable), while current ratio, average collection period, average payment period and inventory turnover were used to represent working capital management (the independent variables). Secondary data collected from the annual reports of the company for the period of the study were tested using multiple regression techniques. The results show that all the working capital management variables except current ratio had significant positive relationship with profitability. Current ratio showed positive association with ROA, though not significant at 5% level.

Tariq, Mumtaz and Rehan (2013) examined the effect of working capital management on the financial performance of cement companies listed on the Karachi Stock Exchange in Pakistan. Secondary data was collected from published financial reports of 20 listed cement companies for the period 2007 to 2011. The study employed descriptive statistics, Hausman test and fixed effects regression techniques for data analysis. The results showed mixed effects; cash conversion cycle, net trading cycle and average payment period had significant positive link with performance (ROA); average collection period had significant negative effect on performance; while inventory turnover had a weak positive association with performance. Akoto, Awunyo-Vitor and Angmor (2013) investigated the association between working capital management practices and profitability of listed manufacturing companies in Ghana for the period 2005 to 2009. Secondary data was collected from published annual financial reports of 13 sampled firms. They employed descriptive statistics and multiple regression methods for data analysis. The results showed that; accounts receivable days had significant negative link with ROE (the adopted measure of profitability); cash conversion cycle, current ratio and inventory turnover had significant positive relation with ROE; and accounts payable days had a very weak positive association with ROE.

Makori, and Jagongo (2013) in their study analyzed the effect of working capital management on profitability of manufacturing and construction firms listed on the Nairobi Securities Exchange in Kenya. Secondary data was collected from the financial statements of 10 sampled companies for the period 2003 to 2012. The study employed descriptive statistics, Pearson's correlation and OLS regression methods for data analysis. The results revealed that: accounts receivable and cash conversion cycle had negative effect on ROA (profitability); inventory turnover and accounts payable had positive association with ROA. Gill, Biger, and Mathur (2010) examined the relationship between working capital management and profitability of companies listed on the New York Stock Exchange in the US for the period 2005 to 2007. The independent variables used to represent working capital management include accounts receivable, accounts payable, inventory turnover, cash conversion cycle among others, while gross operating profit was used as the dependent variable proxy for profitability. Secondary data

was collected from the annual reports of sampled 88 firms as were available. They employed descriptive statistics, Pearson's correlation and weighted least squares regression methods for data analysis. Their findings indicated; a negative relation between accounts receivable and profitability; and a positive relation between cash conversion cycle and profitability.

Gap in empirical literature

The review of empirical studies showed a lack consistency in the findings of past researchers on this topic. For example, the studies of Vartak and Hotchandani (2019), Kasozi (2017) and Tariq et al (2013) revealed mixed findings. Others like the studies of Wang et al (2020) and Kajola et al (2014) found negative relationship between working capital management and performance. Yet Khalid et al (2018) and Agha (2014) in their study findings positively linked working capital management to profitability of firms. These inconsistencies in past research findings points to the fact that there is a research gap, which means more studies are required on this topic.

METHODOLOGY

Research Design

This study is a case study of Dangote Sugar Refining (DSR) Company based on the ex post facto research design. The study therefore made use of already existing secondary data. This design ensures the reliability of data since the data was outside the researcher's manipulation.

Source of Data

Secondary data for the study was collected through content analysis of the annual reports of DSR for the period covering 2009 to 2018. The particular date time series was selected based on the availability of uniform set of financial statements available on the company and NSE websites from where data was collected for the study. The company's annual reports were downloaded from NSE and DSR's websites. Therefore the number of years covered by the study was influenced by the availability of the needed information on the internet.

Model Specification

This study adopted profit after tax (PAT) representing profitability as the dependent variable; while net working capital (NWC) and inflation (INF) were used as the independent variables. For ease of analysis, the following model which has been widely used by past researchers such as Etale and Bingilar (2016) was adopted:

$$PAT = f(NWC, INF)$$

The above model was translated into an econometric equation in the form of;

$$PAT = \alpha + \beta_1 NWC + \beta_2 INF + e \quad \text{Equation 1}$$

Where,

PAT = Profit after tax, proxy for profitability, the dependent variable.

NWC = Net working capital one of the independent variables.

INF = Inflation employed as moderating variable (and the second independent variable).

α = is the intercept or constant

β_1 and β_2 = are the coefficients of the independent variables to be determined, that is, the extent of the relationship between the dependent variable and the independent variables.

e = is the error term of the equation.

Methods of Data Analysis

This study employed descriptive statistics and multiple regression technique based on the E-view 10 software, following the model specified above, as the methods of data analysis. This technique is efficient and consistent and possesses the unique properties of best linear estimator compared to other estimation techniques.

ANALYSIS AND DISCUSSION OF FINDINGS

Presentation of Data

Annual data for the study variables generated through content analysis of Dangote Sugar Refining Company's annual reports are presented in Table 1. Profit after tax (*PAT*) and net working capital (*NWC*) are stated in billions of Nigerian Naira, while inflation is indicated as a rate. Secondary data collected covered 10 years period 2009 to 2018.

Table 1: Annual Figures of the Study Variables

Year	Dependent Variable	Independent Variables	
	<i>PAT</i>	<i>NWC</i>	<i>INF</i>
2009	7.4	25.7	15.1
2010	10.8	26.0	13.9
2011	11.3	26.2	11.8
2012	11.9	29.2	10.3
2013	12.7	29.7	12.0
2014	13.2	31.8	8.0
2015	13.5	36.9	8.0
2016	14.2	46.2	9.6
2017	25.8	64.8	15.7
2018	37.8	78.1	16.5

Source: Researchers' computation from Annual Reports of DSR

Descriptive Statistics

Table 2 shows that PAT, NWC and INF have mean of 15.86, 39.46 and 12.09 respectively. On the other hand, the maximum values of PAT, NWC and INF are 37.80, 78.10 and 16.50 respectively. While there minimum values are 7.40, 25.70 and 8.00. Table 2 further shows that the standard deviation of PAT, NWC and INF are 9.06, 18.24 and 3.12 respectively. The indication is that NWC is the most dispersed variable among the variables in the study, while INF is the least dispersed among the variables. The Jarque-Bera statistics and the associated probability values also shows that PAT, NWC and INF are normally distributed with probabilities of 0.06, 0.27 and 0.67 (which are greater than 5 per cent), respectively.

Table 2: Descriptive Statistics

	PAT	NWC	INF
Mean	15.86000	39.46000	12.09000
Median	12.95000	30.75000	11.90000
Maximum	37.80000	78.10000	16.50000
Minimum	7.400000	25.70000	8.000000
Std. Dev.	9.062769	18.23514	3.122837
Skewness	1.665210	1.244264	0.030682
Kurtosis	4.540768	3.089273	1.621695
Jarque-Bera	5.610693	2.583643	0.793121
Probability	0.060486	0.274770	0.672629
Sum	158.6000	394.6000	120.9000
Sum Sq. Dev.	739.2040	2992.684	87.76900
Observations	10	10	10

Source: E-views 10 output

Regression Results

Table 3: Multiple Regression Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-4.918794	3.619020	-1.359151	0.2163
NWC	0.460739	0.056399	8.169290	0.0001
INF	0.214891	0.329329	0.652511	0.5349
R-squared	0.930323	Mean dependent var.		15.86000
Adjusted R-squared	0.910415	S.D. dependent var.		9.062769
S.E. of regression	2.712554	Akaike info criterion		5.076983
Sum squared resid	51.50565	Schwarz criterion		5.167759
F-statistic	46.73166	Hannan-Quinn criter.		4.977403
Prob.(F-statistic)	0.000089	Durbin-Watson stat		1.932252

Source: E-views 10 Output

Discussion of Findings

Table 3 shows the results of the multiple regression analysis. From the results, the independent variables combined significantly explained changes in the dependent variable with probability of F-statistic value of 0.000089 (at 5% level of significance). Secondly, the coefficient of determination (R-squared) value of 0.930323 indicates that 93% of changes in the dependent variable are accounted for by the combined effect of variations in the independent variables. Also, the adjusted R-squared value of 0.910415 indicates that the model used is a proper and good fit for testing the hypotheses of the study. This provides a high confidence level (at approximately 91% for acceptance of the goodness of the study model). Furthermore, the Durbin-Watson statistics value of 1.932252 is approximately equal to the 2.0 benchmark, which indicates the non-existence of serial auto correlation among the independent variables.

Overall, the regression results used to verify the relationship between working capital management, (NWC) and profitability (PAT) indicated strong significant relationship between the independent variable (NWC) with p-value of 0.0001 and dependent variable (PAT). Also, the probability of F-statistic value (0.000089) of the regression model used implies that working capital management of Dangote Sugar Company has a strong statistically significant positive relationship with profitability (with beta value of NWC equal to 0.460739). The regression results have shown that working capital management has a positive statistically significant relationship with profitability. The findings of this study are in agreement with the study findings of Khalid et al (2018), Etale and Bingilar (2016), and Agha (2014).

Test of hypotheses

The calculated values of the co-efficient of the independent variables were used in testing the study hypotheses in the following sections.

Net working capital (NWC) and Profit after Tax (PAT)

There is no significant relationship between NWC and PAT. From Table 3, the coefficient of NWC is 0.460739 with a P-value of 0.0001. This means that NWC has a positive significant relationship with PAT (5% level of significance). Therefore, the null hypothesis is rejected. The implication is that a unit change in NWC will lead to 0.46 unit change in PAT.

Inflation (INF) and Profit after Tax (PAT)

There is no significant relationship between INF and PAT. Again, from Table 3 the coefficient of INF is 0.214891 with P-value of 0.5349. This means INF has a positive relationship with PAT, but the relationship is significant at 5% level (based on the p-value of 0.5349). In this case the

null hypothesis is accepted. The economic interpretation is that a unit change in INF will bring about 0.21 unit change in PAT.

This study has shown that working capital management has significant positive association with profitability of DSR a Nigerian Stock Exchange listed consumer goods sector company. This shows that DSR has in place an efficient working capital management system.

SUMMARY

This study examined the relationship between working capital management and profitability using Dangote Sugar Refining Company as a case study. Net working capital (NWC) and inflation (INF), were used as the independent variables; while profit after tax (PAT) was used as proxy for profitability (the dependent variable). The findings of the study are summarized as follows:

1. Net working capital (NWC) had positive statistically significant link with profit after tax (PAT) with p-value of 0.0001 and co-efficient of determination of about 0.46.
2. Inflation (INF) had positive relationship with profit after tax (PAT), but the relationship is not significant (with a p-value of 0.5349).
3. The study revealed that working capital management has significant positive association with profitability of DSR, which by implication means that DSR has in place an efficient working capital management system.

CONCLUSION

This study examined the relationship between working capital management and profitability with a focus on Dangote Sugar Refining Company in a case study. The study adopted net working capital (NWC) and inflation (INF) as the independent variables, while profit after tax (PAT) representing profitability was adopted as the dependent variable. Secondary data for the selected study variables were obtained through content analysis of the annual reports of DSR for the period 2009 to 2018. The study employed descriptive statistics and multiple regression analysis based on the E-view 10 software as techniques for data analysis. The results revealed that all the independent variables had positive relationship with profit after tax, but only net working capital was significant at 5% level. The regression results also showed that the coefficient of determination (R-squared) value of approximately 0.93 indicating that 93% of changes in the dependent variable were accounted for by the combined effect of changes in the independent variables. The combined effect of variations of the explanatory variables significantly explained changes in the dependent variable with probability of F-statistic value of 0.000089 (at 5% level of significance). Furthermore, the adjusted R- squared value of 0.91

indicates that the model used for the analysis is a proper and good fit. The study concluded that working capital management is significant positive relationship with profitability.

RECOMMENDATIONS

Based on the findings of this study it is recommended that:

1. The management of DSR should maintain the current working capital management policies, but closely observe their liquidity position at all times. The good working capital management system of the company is a sign of success and growth that the company can sustain in the long term; and
2. Since working capital management is critically important to the success and survival of any company managers of firms should put in place a mechanism to edge against the effect of inflation on components of working capital.

CONTRIBUTION TO KNOWLEDGE

The study contributed to knowledge by incorporating the effect of inflation into working capital management which is a major deviation from previous studies. This study has extended the frontiers of existing literature by demonstrating the effect of inflation on managing components of working capital. Future researchers would therefore find this study as a useful reference material.

SCOPE FOR FURTHER STUDIES

It is suggested that future studies on this topic shall be carried out using different companies and industrial sector. It is also suggested that future studies should extend the period covered in order to establish the long run relationship between the variables.

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