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WORKING CAPITAL MANAGEMENT AND PROFITABILITY OF LISTED MANUFACTURING FIRMS IN NIGERIA

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Abstract
This study investigated working capital management and profitability of listed manufacturing firms in Nigeria. The aim of the study was to determine the influence of working capital management on firms' performance. Relevant literature were critically reviewed in order to achieve the objective of the study. The study had provided evidence that there is significant positive relationship between working capital management and profitability of listed manufacturing firms in Nigeria. Correlation research design was adopted to justify relationship between working capital and firms' profitability. Secondary source of data was used to source for information. Data were analyzed using regression analysis. It was revealed that a coefficient 0.0548 of Cash Conversion Cycle has a positive influence on firms' profitability; a probability of 0.464 shows a positive influence on firm profitability. This implies that there was significant relationship between inventory turnover and the profitability of listed conglomerate firms in Nigeria during the period under review.
Keywords: Working capital, Working capital management, Profitability, Manufacturing firms

Introduction

Working capital is as old as business itself and is considered an everyday affair in the scheme of business and banking operations. It is an ingredient that a business cannot do without, particularly in an era of economic downturn. Working capital is a financial metric which shows the operating liquidity available to a business and governmental entities. Alongside with fixed assets, such as plant and equipment, working capital is considered a part of operating capital.

Adeniyi (2008) saw working capital as the capital available for conducting the day-to-day operations of organizations represented by its net current assets. The working capital is the life blood and nerve center of a business firm. It refers to firms' investment in short-term assets or current assets. Current assets are assets that can be converted into cash within an accounting year. Similarly, Akinsulire (2008) referred to working capital as the items that are required for the day-to-day production of goods to be sold by a company. Thus, working capital is the life-line of the business and requires deliberateness on the management to manage their working capital if the business must thrive and survive.

The management of working capital involves the management of current assets of the business which involves cash, stocks and the like. Current assets are managed so that the firm does not come to debt with its current liabilities exceeding its current assets. This debt could occur when a firm takes more risk by investing, but it is a known fact as seen in the risk and return theory that the more is the risk, the more the return. This means that the business will make more profits if it takes more risks by investing but, will also exercise caution so that it does not come to debts or have to go borrowing to carry out its day-to-day activities. Hence, the need for management of working capital.

Working capital management requires maintaining optimum balance of receivables, inventories and payables, with the resultant effects on the day-to-day operations of the business (Kolapo, Oke and Ajayi, 2015).

Eljelly (2004) stated that working capital management involved planning and controlling current assets and current liabilities in a manner that eliminates risk of inability to meet short-term obligations on one hand and avoid excessive investments in these assets on the other hand. This, therefore, underscores that efficient management of working capital is very important because it impacts on firms' profitability (Saptarshi, 2018). It has been well established that return on investment is one of the most predominant profitability ratios (Encyclopedia 2019). However, its use in literature, particularly in area of working capital management and financial performance researches, has been scarce.

In the words of Farounbi (2005), working capital refers to the amount of capital, which is readily available to an organization, that is, the difference between resources in cash or readily convertible into cash (current assets) and the organizational commitments for which cash will soon be required (current liabilities). Working capital simply means the resources which a firm has at hand to run its daily operations. It provides a measure of business's liquidity, or its ability to meet its short-term obligations as they come due (Emery, Finnerty and Stowe 2004; Amarjit, Nahum and Neil, 2010).

One can then say that decisions relating to working capital must not be taken for granted. To this end, Farounbi (2005), asserted that if there is too little working capital, it results in inventories, finished goods and customer credit not being available in sufficient quantity. On the other hand, if there are excessive levels of working capital, the firm has unnecessary additional cost: the cost of tying up funds plus the storage, ordering and handling costs of being overburdened with stock. This creates a sort of imbalance in the working capital components, making their management difficult which in practice is a situation that firms (both small and fast growing ones, even multinationals) are confronted with. As a result therefore, the ultimate goal of working capital management is to ensure that firms are able to continue their operations with sufficient cash flow that will service their long-term debts and satisfy both maturing short-term obligations (debt) and upcoming operational expenses. Hence, Organizations should try as much as possible to meet up with this goal so as to avoid being caught up in the trap of ineffective management of working capital components.

An ideal business needs sufficient resources to keep it going and to ensure that such resources are maximally utilized to enhance its profitability and overall performance. It has, however, been discovered that some methods that bank 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 and 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.

The aim of this study is to examine the impact of working capital management and profitability of listed manufacturing firms in Nigeria. The study is very significant in the sense that it centers on the working capital management which plays a critical role in the short-term liquidity position of firms. The study's findings may help the conglomerate firms in Nigeria and other companies in general to improve on their financial decision making so as to optimize the value of the shareholders and maintain a favourable trade-off between liquidity and profitability.

Literature Review

Concept of Working Capital

In financial management, two important decisions are very vital and crucial. They are decisions regarding fixed assets/ capital and working/current assets. Fixed capital refers to the funds invested in fixed or permanent assets as land, building, and machinery and so on, whereas working capital refers to the funds locked up in materials, work-in-progress, finished goods, receivables, and cash (Kantudu, 2009). Thus, in very simple words, working capital may be defined as "capital invested in current assets'' (Kurawa, 2009). Here, current assets are those assets which can be converted into cash within a short period of time. Hence, working capital is also known as circulating or floating capital.

Akinsulere (2008) defined working capital as the amounts invested in assets that are expected to be realized within a year's trading. It is not a permanent investment but, an investment which is continuous in nature and can be turned over severally during a year. Alipour (2011) viewed working capital as the amount of capital which is readily available to an organization. That is, the difference between resources in cash or readily convertible to cash (current assets) and the organizational commitment for which cash will soon be required current liabilities. Kurawa (2009) posited that working capital provides a measure of firm's liquidity or its ability to meet its short-term obligations as they become due. Adeniyi (2008) described working capital as the capital available for the day-to-day operations of an organization represented by its current assets.

According to Kantudu (2009) working capital can be referred to as circulating assets which consist of stocks, accounts payable and receivable, cash and short-term securities. The

stocks acquired through purchases create accounts payable. The finished goods in turn are sold out and create accounts receivable. The accounts receivable are converted into cash which is used to settle the accounts payable. To Alipour (2011), working capital is the excess of current assets over current liabilities. It is, therefore, concerned with the availability of fund to run a business.

Working Capital Management

Working capital management has to do with the workings, inter-relations, interactions of the current assets and current liabilities of the firm, in order to make maximum use of both to achieve the desired goal of the organization, which is geared towards liquidity and profitability. Eljelly (2004) described effective working capital management as the capacity to manage current assets and current liabilities in a way and the firm must be in the position to easily pay all the uncertain obligations whenever it is urgently required.

According to Napompech (2012), working capital management refers to the planning and controlling of current assets and current liabilities in a manner that eliminates the risk of inability to meet short-term obligations on one hand and exclude excessive investments in current assets on the other. Working capital management is an accounting strategy focusing on maintaining efficient levels of current assets and current liabilities in respect to each other. Vineet and Sukhdev (2013) saw working capital management from efficiency perspective and that can be measured and achieved through the cash conversion efficiency, days operating cycle and days working capital. Working capital management is very instrumental to the liquidity and profitability of any organization, which suggests the reason for their being the objectives of working capital management and the two variables are vital in checking the performance and ultimately deciding the survival of the organization.

Components of Working Capital Management

Working capital management deals with the determination of optimum balance of each component of working capital to ensure that firms have sufficient funds to satisfy their short-term obligations and upcoming operational expenses. Thus, the basic components of working capital management include inventory management, account receivable management, cash management and accounts payable management (Kantudu, 2009).

Determinants of Working Capital

A large number of factors influence the working capital needs of firms. All factors are of different importance and therefore, an analysis of the relevant factors should be made in order to determine the total investment in working capital. Generally, the following factors influence the working capital requirement of the firm.

i. **Nature and size of the business:** The nature and the working capital requirement of firms are interlinked. In practice, the manufacturing industry has a long cycle of operation of the working capital, the same would be short in enterprises involved in providing services.
ii. **Sales and Demand condition:** There is a relationship between volume of sales and working capital needs of an organization. Though, it may be difficult to precisely determine the relationship between volumes of sales and working capital needs. In practice, current assets will have to be employed.
iii. **Price level changes:** Generally, raising price level requires a higher investment in the working capital. With increasing prices, the same levels of current assets need enhanced investment.
iv. **Credit granted by suppliers:** The working capital requirements of a firm are also affected by credit terms granted by its creditors. A firm will need less working capital if liberal terms are available to it. Similarly, the availability of credit from banks also influences the working capital needs of a firm (Alipour, 2011).

Concept of Profitability

Every investor undertakes investment carefully with the motive of earning returns on his investment. One of the main objectives of a firm, therefore, is to make good profit. Profit backed up with cash will make it possible for management to distribute dividends to the investors (Kurawa, 2009). Kurawa (2009) further asserted that profitability can be best measured in terms of return on assets (ROA), return on earnings (ROE) as well as return on capital employed (ROCE).

According to (Kurawa, 2009), profitability refers to the ability of a firm to earn returns on investment made in its assets that has a positive

net present value. A financial action that has a positive net present value will create wealth for shareholders and is, therefore, desirable. A financial action resulting in a negative net present value should be dropped because it will endanger share holders' wealth.

Hill, Biger and Mathur (2012) described firm's profitability as the ability to generate revenue in excess of the cost of generating such revenue. It is a relative term measurable in terms of profit and its relation with other elements that can directly influence the profit. Profitability measures management efficiency in the use of organizational resources in adding value to the business.

In the words of Raheman and Nasir (2007), "every business is most concerned with its profitability". They defined profitability as the ability to make profit from all the business activities of an organization, firm or an enterprise. Additionally, it shows how efficiently the management can make profit by using all the resources available at market. They also said that one of the most frequently used tools of financial ratio analysis is profitability ratios which are used to determine the company's success. They maintained that the basic purpose of managing working capital is to control the financial resources of a firm in such a way that a balance is created between profitability of the firm and risk associated with that profitability.

Raheman and Nasir (2007) argued that a company should earn profit to survive and grow over a long period of time. They, however said that, though profits are essential, all management decisions should not be profit centered at the expense of the concerns for the customers, employees, suppliers or social responsibilities. Deloof (2003) held that profitability refers to the ability of an enterprise to generate profit from its investment. According to him, the management of cash, debtors, and stocks affects the level of profit made by the organization.

Methodology

This study adopted correlation research design. This is justified since it sought to establish the relationship between working capital and firms' profitability. The population of the study consisted of the 6 conglomerate companies listed on the floor of Nigerian Stock Exchange as at 31st December, 2022. The study used secondary data from secondary source; that is the financial statements of all the sampled firms of the study for the period of eleven years (2011-2022). The use of secondary data in this study is informed by the fact that the study was based on the quantitative research methodology that required quantitative data to test the research hypotheses. The data of the study were collected from audited financial statements of the listed conglomerate firms. The various data were sourced based on the parameters of the variables, and the respective ratios or percentages taken.

Data were gathered from the published financial statements of 32 out of the non-financial firms listed on the Nigerian Stock Exchange (NSE). A panel data multiple regression analysis was used as the tool of analysis. The use of panel data regression methodology in this study is based on the fact that the data used were cross sectional and time series. This was also used by Ikpefan and Owolabi (2014). In order to examine the relationship between working capital and profitability of listed manufacturing firms in Nigeria, two linear regression models were built as follows:

Model 1: $ROA_{it} = \alpha + \beta_1 DTR_{it} + \beta_2 ITR_{it} + \beta_3 CCC_{it} + \beta_4 ROI_{it} + \beta_5 PF_{it} + e_{it}$

Model 2: $ROE_{it} = \alpha + \beta_1 DTR_{it} + \beta_2 ITR_{it} + \beta_3 CCC_{it} + \beta_4 ROI_{it} + \beta_5 PF_{it} + e_{it}$

Where:

DTR =	Debtors turnover ratio
ITR =	Inventory turnover ratio
CCC=	Cash conversion cycle
ROI=	Return on Investment
PF =	Profitability

Data Presentation and Analysis
DescriptiveStatistics

Table 1: The descriptive statistics of the dependent and independent variables where minimum, maximum, mean, standard deviation, kurtosis, skewness are reported.

Variable	Mean	SD	Min	Max	Obs
ROE	-0.783	40.143	-268.25	54.33	32
ROA	2.450	6.793	-17.175	25.234	32

DTR	23.066	15.126	3.589	61.453	32
CCC	60.830	33.810	3.076	139.53	32
ITR	21.817	11.017	3.646	55.718	32
LEV	57.705	16.746	17.51	94.27	32
SZ	6.787	0.567	5.9	8.04	32

Source: Author's Computation (2023) using STATA

Table1 revealed that on average, the firms included in our sample generated Return on Equity (ROE) of about -0.783 and a standard deviation of 40.143. This means that the value of the ROE can deviate from mean to both sides by 40.143. The maximum and minimum values of ROE are 54.33 and -268.25 respectively. However, a Return on Asset (ROA) of 2.450 was generated on the average, with a minimum and maximum value of -17.175 and 25.234 respectively.

The descriptive statistics results also show that the average debtors' turnover ratio (DTR) of the sampled conglomerate firms is 23.066, with standard deviation of 15.126 and minimum value of 3.589 and 61.453 as the maximum value. The standard deviation of 15.126 implies that the data deviate from both side of the mean value by 15.13%, implying that the data were moderately dispersed from the mean because the standard deviation is high.

Moreover, the results from the table show that the average cash conversion cycle (CCC) of the sampled conglomerate firms is 60.83 days, with standard deviation of 33.810 and minimum value of 3.076 and 139.537 days as the maximum value respectively. This means that the average days of cash conversion cycle of the sampled firms is 60 days; with the maximum days of 139days and minimum of 3days. The standard deviation of 33.810 implies that the data deviate from both side of the mean value by 33.81%, implying that the data were moderately dispersed from the mean. The results also indicate that the average inventory turnover (ITR) of the sampled conglomerate firms is 21.817 with standard deviation 11.017; the minimum and maximum value of 3.646 and 55.718 respectively. The standard deviation of 11.017 implies that there is no substantial dispersion of the mean.

Table 2: Correlation Analysis

VAR	ROE	ROA	DTR	CCC	ITR	LEV	SIZ
ROE	1						
ROA	0.7477	1					
	(0.0000)						
DTR	0.0129	-0.1793	1				
	(0.9223)	(0.1704)					
CCC	0.1127	0 .2039	0.3168	1	1		
	(0.3913)	(0.1182)	(0.0137)				
ITR	0.0172	0 .0325	0.0593	0 .2028	1		
	(0.8964)	(0.8051)	(0.6529)	(0.1202)			
LEV	-0.4052	-0.4636	0.2865	0 .0815	0.2223		
	(0.0013)	(0.0002)	(0.0265)	(0.5361)	(0.0877)	1	
SZ	0.0290	0 .0078	-0.1358	-0.0193	-0.1119	-0.4330	1
	(0.8260)	(0.9526)	(0.3007)	(0.8837)	(0.3946)	(0.0005)	

Source: Author's Computation (2023) using STATA

Table 2 presents the correlation results between working capital management variables (debtor's turnover ratio, cash conversion circle and inventory turnover ratio) and the profitability (Return on Equity and Return on Assets) of the listed conglomerate firms in Nigeria. It can be

seen from the results that there is a positive relationship between ROE and DTR from the correlation coefficient of 0.0129 which is not significant from the p-value of 0.9223. This relationship suggests that the lower the DTR, the lower the profitability. Furthermore, there is a negative relationship between debtors' turnover ratio (DTR) of the sampled conglomerate firms and return on assets (ROA) from the correlation coefficients of 0.1793 which is not significant from the p-value of 0.1704. This relationship suggests that the higher the debtors' turnover ratio, the lower the profitability.

Table 2, on the other hand, shows a positive relationship between cash conversion cycle (CCC) of the sampled conglomerate firms' return on equity (ROE) and return on assets (ROA) from the correlation coefficient of 0.1127 and 0.2039 respectively. None of the relationship is statistically significant from the p-values of 0.3913 and 0.1182 respectively. This relationship suggests that the profitability of the listed conglomerate firms in Nigeria increases with longer cash conversion cycle.

Table 3: Interpretation of Regression Results

Variables	Coefficients	T-statistics	P-Values
DTR	-0.0632	-1.16	0.250
CCC	0.0548	2.30	0.025
ITR	0.0524	0.74	0.464
LEV	-0.2311	-4.43	0.000
SZ	-2.9158	-1.99	0.052

Source: Author's Computation (2023) using STATA

Table 3 shows the regression procedure which uses the individual significance test (t-test) and the overall significance test (F-test). The goodness of fit on the model is tested using the coefficient of determination. The estimation of these statistics is done using the STATA computer software. The main focus of testing in this study is to examine the significance of effects on the dependent variable by the explanatory variables.

Discussion of Result

This study investigated the impact of working capital management on the profitability of listed firms in Nigeria. The results and findings from the analysis have implications to policy makers and management of the listed firms in Nigeria. The findings implied that if policy makers adopt adequate and effective policies in respect of working capital management, profitability and the liquidity improvement could be achieved. This will go a long way to giving way to stability to the economic condition of the Nigerian state. Moreover, the findings implied that restrictiveness in the trade credit policy (by the listed conglomerate firms' management) to customers with less time to make payments will improve the profitability. A coefficient -0.0632 of debtor's turnover has a negative influence on profitability; a probability of 0.250 shows a positive influence of profitability is significant at 5%. This means that debtor's turnover has significant impact on firm profitability of listed manufacturing firms in Nigeria.

A coefficient 0.0524 of Inventory turnover has a positive influence on firms' profitability; a probability of 0.464 shows a positive influence on firm's profitability is significant at 5%. This implies that there is significant relationship between cash conversion cycle and the profitability of the sampled firms. A coefficient 0.0548 of Cash Conversion Cycle has a positive influence on firm's profitability; a probability of 0.464 shows a positive influence on firm's profitability. This implies that there is significant relationship between inventory turnover and the profitability of listed conglomerate firms in Nigeria.

Conclusion

Based on the key findings of this research, the study concludes that there is significant relationship that exists between a component of the working capital and profitability of the sampled firms; some of them have significant relationship. Specifically, cash conversion cycle has a significant relationship with the profitability of listed conglomerate firms in Nigeria during the period under review. However, there is no significant relationship between debtor turnover and inventory turnover and profitability of the listed conglomerate firms in Nigeria during the period under review.

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