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THE IMPACT OF WORKING CAPITAL MANAGEMENT ON PROFITABILITY OF SMALL AND MEDIUM SCALE ENTERPRISES IN KADUNA METROPOLIS

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Abstract
A major factor in the growth and development of an economy is the role played by the Small and medium scale enterprises over time. Nigeria as a nation cannot be exceptional and Kaduna state in particular is a good reference point. Short term assets and liabilities are important components of the total assets of the SMEs, hence need for their carefully analysis, because, it plays an important role in firm's profitability, risk as well as ensuring maximization of the firm's value (Smith, 1980). Efficient management of working capital is important in creating the shareholders' value, keeping in mind that an optimal level of working capital will maximize the firms. The main objective of this paper is to analyze the impact of working capital management on profitability of selected SMEs firms within Kaduna metropolis. The research design is ex post factor research design. 84 samples of SMEs were selected using the stratified simple random sampling technique. The multiple regression models were used in analyzing the data. The result shows that aggressive investment working capital policies of SMEs within Kaduna Metropolis have a positive significant impact on profitability measured by return on assets (ROA) of the firms.

Keywords: *Working Capital Management, Profitability, Kaduna Metropolis SMEs.*

Background to the Study

Small and medium scale enterprises over time have been attributed to be the driving force of economic development of any country. Nigeria as a nation cannot be exceptional and Kaduna state in particular is a good reference point. Short term assets and liabilities are important components of the total assets of the firm hence; need for their carefully analysis. The management of these short-term assets and liabilities warrants a careful investigation since it plays an important role in firm's profitability, risk as well as ensuring maximization of the firm's value (Smith, 1980). Efficient management of working capital is thus a fundamental part of the overall corporate strategy of the firm in creating the shareholders' value, keeping in mind that an optimal level of working capital will maximize the firms' value (Deloof, 2003; Howorth and Westhead, 2003).

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Working capital is an investment which is tied up into the inventories and accounts receivable and which is released with accounts payable. Due to the current business landscape with tightened financial conditions and finance markets, organizations emphasize efficient working capital management. With efficient working capital management, a company can reduce the need of finance, free up cash, increase profitability, improve liquidity, increase the efficiency of operations, and decrease (financing) costs. From the perspective of an individual company, efficient working capital management means decreasing inventory levels by shortening the cycle time of inventories, decreasing accounts receivable by shortening the trade credit terms and effective collection procedures, and increasing the level of accounts payable by paying the suppliers later (Monto, 2013).

Lack of liquidity (or illiquidity) in extreme situations can lead to firm's insolvency (Pandey, 2007). However, a conflict exists between profitability and liquidity while managing the current assets of the firm. Where the firm does not invest sufficient funds in current assets, it may become illiquid and therefore risky and could lose profitability as idle current assets would not earn anything, hence, a proper trade-off must be achieved between profitability and liquidity. This requires the development of sound techniques of managing the working capital. There are two main types of working capital policies of the firm viz: aggressive and conservative working capital policies. While the aggressive working capital policies is said to be followed by the firm when it uses more short-term financing than warranted by the matching plan, the firm uses funds for permanent fixed assets for short-term financing, the conservative approach involves and depends more on long-term funds for the financing needs of the firm (Pandey, 2007).

Statement of the Problem

Available records showed that SMEs in Kaduna have very poor longevity (State Ministry of Commerce). One of the main reasons adduced is the inability of the SMEs to manage the difference between current assets and current liabilities i.e. shortening the time of collecting receivables, deferring payment and keeping a minimal inventory. There is also the problem of cash management in terms of how to invest cash fund without losing out on liquidity. Having seen what working capital is, the question arising therefore is: could efficient working capital management improve profitability of SMEs in Kaduna Metropolis?

Objective of the Study

The main objective of this paper is to empirically examine the impact of working capital management on profitability of SMEs within Kaduna Metropolis.

Methodology

This paper therefore adopted the aggressive working capital approach and against this background examines the impact of working capital management on the profitability of SMEs firms within Kaduna Metropolis for the period 2006-2012 using return on assets as a measure of profitability; and the aggressive investment policy as used by Weinraub and Visscher (1998) and the aggressive financing policy (Nazir and Afza, 2009) as proxies for working capital management. This paper is organized into six sections. Section one contains the abstract. Section two is the introduction. Section three presents related literature. Section four contains the methodology. Section five shows the empirical analysis of the impact of working capital management on profitability of selected SMEs firms within Kaduna metropolis. Finally, section six contains the policy implications and conclusion.

Literature Review

Working capital management refers to the administration of all components of working capital such as cash, marketable securities, debtors and stock receivables, etc (Pandey, 2007). The importance of the working capital management function of

the firm is crucial to the firm because it involves time, investment as well as growth prospects of the firm. Financial managers place much premium on its proper management though much emphasis has been placed in corporate finance literature on the study of long-term financial decisions, particularly investments, capital structure, dividends and company valuation decisions. Several Research though limited have also been carried out in this important area of corporate finance. Also, Olowe (2009) described working capital as the capital available for running the day to day operations of an organization. It is defined as current assets less current liabilities. Current assets include mainly cash, debtors and stock while current liabilities include mainly creditors. Working capital management refers to the management of all aspects of current assets and current liabilities.

Eljelly (2004) empirically examined the relationship between profitability and liquidity, as measured by current ratio and cash gap (cash conversion cycle) on a sample of 929 joint stock companies in Saudi Arabia. Using correlation and regression analysis, he found significant negative relationship between the firm profitability and liquidity level, as measured by current ratio. This relationship is more pronounced for firms with high current ratios and long cash conversion cycles. At the industry level, however, he found that the cash conversion cycle or the cash gap is of more importance as a measure of liquidity than current ratio that affects profitability. The firm size variable was also found to have significant effect on profitability at the industry level. Lazaridis and Tryfonidis (2006) conducted a cross sectional study using a sample of 131 firms listed on the Athens Stock Exchange for the period of 2001-2004 and found statistically significant relationship between profitability, measured through gross operating profit; and the cash conversion cycle and its components (accounts receivables, accounts payables, and inventory). Based on the results of analysis of annual data by using correlation and regression tests, they suggest that managers can create profits for their companies by correctly handling the cash conversion cycle and by keeping each component of the conversion cycle (accounts receivables, accounts payables, and inventory) at an optimal level.

A typical balance sheet has items of current assets such as cash and cash equivalents, marketable securities, accounts receivable, inventories and prepaid expenses. Current liabilities can be divided into items such as short-term debt, accounts payable and accrued liabilities (White et al., 1997)

Raheman and Nasr (2007) argue that working capital management has its effect on liquidity as well on profitability of the firm and hence studied the effect of different variables of working capital management including the average collection period, inventory turnover in days, average payment period, cash conversion cycle and current ratio on the net operating profitability of Pakistani firms. Debt ratio, size of the firm (measured in terms of natural logarithm of sales) and financial assets to total assets ratio were used as control variables. Their results showed strong negative relationship between variables of the working capital management and profitability of the firm. It means that as the cash conversion cycle increases it will lead to decreasing profitability of the firm, and managers can create a positive value for the shareholders by reducing the cash conversion cycle to a possible minimum level. They also found that there is a significant negative relationship between liquidity and profitability; that there is a positive relationship between size of the firm and its profitability; and significant negative relationship between debt used by the firm and its profitability.

Saleem and Rehman (2011) posit that every firm has to maintain relationship while in conducting day to day operations hence they studied the impact of liquidity ratios on profitability of oil and gas companies in Pakistan. The results showed that there is a significant impact of only liquid ratio on ROA while insignificant on ROE and ROI. The results also showed that ROE is not significant affected by three ratios: current

ratio, quick ratio and liquid ratio while ROI is greatly affected by current ratios, quick ratios and liquid ratio. The main results of the study demonstrate that each ratio (variable) has a significant effect on the financial positions of enterprises with differing amounts and along with the liquidity ratios in the first place. The study, therefore, recommended that companies need to maintain adequate liquidity as some portion of the firms' profitability will be divided to shareholders.

Filbeck and Krueger (2005) highlighted the importance of efficient working capital management by analyzing the working capital management policies of 32 non-financial industries in the United States of America (USA). According to their findings, significant differences exist among industries in working capital practices overtime. Moreover, these working capital practices, themselves, change significantly within industries.

Weinraub and Visscher (1998) discussed the issue of aggressive and conservative working capital management policies by using quarterly data for the period 1984-93 of the US firms. Their study considered 10 diverse industry groups to examine the relative relationship between their aggressive/conservative working capital policies. Their study concluded that the industries had distinctive and significantly different working capital management policies.

Moreover, the relative nature of the working capital management policies exhibited remarkable stability over the 10-year study period. The study also showed a high and significant negative correlation between industry asset and liability policies and found that when relatively aggressive working capital asset policies are followed, they are balanced by relatively conservative working capital financial policies.

Soenen (1993) investigated the relationship between the net trade cycle as a measure of working capital and return on investment in the USA firms. The results of chi-square test indicated a negative relationship between the length of net trade cycle and return on assets. Furthermore, this inverse relationship was found different, across industries depending on the type of industry. A significant relationship for about half of the industries studied indicated that results might vary from industry to industry.

Lambers on (1995) studied how small firms respond to changes in economic activities by changing their working capital requirements and level of current assets and liabilities. Current ratio, current assets to total assets ratio and inventory to total assets ratio were used as a measure of working capital requirement, while the index of annual average coincident economic indicator was used as a measure of economic activity. Contrary to the expectations, the study found that there is a very small relationship between changes in economic conditions and changes in working capital.

Determinants of Working Capital Management

Moss and Stine (1993) found out that size matters in working capital management. Larger companies had shorter cycle times of working capital than smaller ones. In the 2000s, more variables derived from the financial statements and publicly available data were added into studies observing factors influencing working capital management and the length of the CCC. Statistical analyses have examined the connections between working capital variables and the bunch of independent variables. Chiou et al. (2006) examined how external (business indicator, industry) and internal (debt ratio, operating profit, growth rate, size) factors affect working capital management. Both net working capital and operational working capital were considered through different variables (net liquid balance measured net working capital management and working capital requirements, WCR, operational working capital). As a result, only debt ratio and operating profit had a statistically significant effect on working capital management.

Hill et al. (2010) analyzed the determinants of working capital management further. They tested how working capital management is related to the operation conditions and financing ability of a company. Their results indicate that increases in sales growth and sales volatility cause firms to manage working capital more aggressively. In other words, companies with higher sales growth and sales volatility have shorter CCCs. Financing capabilities affect the management strategy of working capital as well. Firms with weaker internal financing ability (limited capital market access, and greater costs of external financing) use accounts payable more aggressively. Hill et al. (2010) suggest that the optimal level of working capital depends more on a firm's financial characteristics than on industry related factors. Baños-Caballero et al. (2010) and Akinlo (2012) have reached partly similar conclusions. In the study of Baños- Caballero et al. (2010) on Spanish SMEs, greater leverage, growth opportunities, investments in fixed assets and return on assets were connected to aggressive working capital policies, and companies with better access to capital markets maintain more conservative working capital policies. Akinlo (2012) found a positive relation between the WCR and sales growth.

The studies of the determinants of working capital management attempt to increase the understanding of working capital requirements and help companies find optimal working capital levels. However, consistent results have not been achieved. To some extent, the inconsistent results have been explained by different contexts (Akinlo, 2012). The other problem is that variables used in studies vary even if they measure the same issue and are named similarly. Studies reviewed in this section have adopted the viewpoint that working capital management is a dependent variable and examined how it is affected by the other conditions and factors. Next, working capital management is considered as an independent variable, and the impact of it on profitability is observed.

Methodology

This paper relied on historic accounting data obtained from the financial statements and accounts of 84 SME firms within Kaduna metropolis from 2006 to 2012, hence, the adoption of the *ex-post facto* research design (Onwumere, 2009). The 84 samples of SMEs were selected using the stratified simple random sampling technique from the following sub sectors;-

Data Analysis

TABLE I: Grouping of Industries

S/N	INDUSTRIES	NUMBER OF FIRMS
1	Agriculture	4
2	Automobile spare parts	5
3	Building materials	5
4	Chemical and Paints	3
5	Commercial Services	5
6	Computer and Office Equipments	4
7	Construction (road and building)	3
8	Engineering Technology	3
9	Super markets	6
10	Food, Beverages	6
11	Health Care	4
12	Hotel and Tourism	6
13	Industrial Products;	3
14	Information and Communication Technology	4
15	Leasing	2
16	Machinery and Marketing	3
17	Media	2
18	Packaging	4
19	Petroleum	4
20	Printing and Publishing	4
21	Road Transportation and Textiles sales and distribution	4

Source: Authors' Survey Conducted (2013)

The multiple regression technique was used in analyzing the models stated. The ideas behind regression analysis are the statistical dependence of one variable, the dependent variable in this case return on assets (ROA), on one or more variables, the independent or explanatory variables and also, our objectives to estimate and/or predict the mean or average value of the dependent variable on the basis of the known or fixed values of the explanatory variables (aggressive investment policy and aggressive financing policy) of working capital along with two control variables; size of the firm and financial leverage

The general form for a multiple regression analysis is given in the form below:

$Y=a_0+ a_1X_1+ a_2X_2+ a_3X_3+ a_4X_{4+}\ldots +a_nX_n+ \mu$..... (i)

Where Y=dependent variable
a_0=equation constant
$a_1, a_2, a_3, a_4 \ldots a_n$=coefficients of explanatory variables
$X_1 X_2, X_3, X_4 \ldots X_n$=independent or explanatory variables
e=error term

In this particular equation, the constants, $a_2, a_3, a_4 \ldots a_n$ determine the slope or gradient of the line and the constant term a_0 determines the point at which the line crosses the Y-axis, otherwise known as the Y-intercept (see, Gujarati, 1995).

For model 1: $ROA=a_0+ a_1TCA/TA+ a_2SIZE+ a_3LEVRG+e$.....(ii)

model 2 $ROA=a_0+ a_1TCL/TA + a_2SIZE + a_3LEVRG+e$.....(ii)

Where ROA=Return on Assets
TCA=Total Current Assets
TCL=Total Current Liabilities
TA=Total Assets
Size=Natural Log of Total Assets
LEVRG=Debt / Equity Ratio

Description of Variables
Dependent Variable
Return on Assets (ROA)
The impact of working capital policies on the profitability has been analyzed through accounting measures of profitability as well as market measures of profitability, i.e., Return on Assets(ROA) and To bin's*q* ((Nazir and Afza, 2009), Net Operating Profitability (NOP) (Raheman and Nasr, 2007), However as stated earlier, this paper used return on assets (ROA) as proxy for working capital. Another name for it is return on investment and it was measured by:

ROA=PAT / NA..... (V)

Where
PAT=Profit after Tax
NA=Net Assets

Independent Variables
Aggressive Investment Policy (AIP)
Nazir and Afza (2009) posit that Aggressive Investment Policy (AIP) results in minimal level of investment in current assets versus fixed assets. In contrast, a conservative investment policy places a greater proportion of capital in liquid assets with the opportunity cost of less profitability. If the level of current assets increases in proportion to the total assets of the firm, the management is said to be more conservative in managing the current assets of the firm. In order to measure the degree of aggressiveness of working capital investment policy, we adopted Weinraub and Visscher (1998) ratio for aggressive investment policy of firms, hence;
AIP=Total Current Assets TCA / Total Assets (TA)..... (Iii)

Aggressive Financing Policy (AFP)
An Aggressive Financing Policy (AFP) utilizes higher levels of current liabilities and less long-term debt. In contrast, a conservative financing policy uses more long-term debt and capital and less current liabilities. The firms are more aggressive in terms of current liabilities management if they are concentrating on the use of more current liabilities which put their liquidity on risk(Nazir and Afza, 2009).It is represented as;
AFP=Total Current Liabilities (TCL) / Total Assets (TA).....(iv)

Control Variables
Size
The sizes of the firm (SIZE) is measured by the natural logarithm of its total assets, as the original large value of total assets may disturb the analysis (see, Nazir and Afza, 2009;Padachi, 2006; Alam, Ali, Rehman and Akram (2011).
Therefore, the size of the firms is represented as;
Size=Natural logarithm of Total Assets..... (Vi)

Levrg
This is the relationship that described the lenders' contribution for each owner's contribution. It is, therefore, a financial leverage ratio and a proxy for gearing. It was

calculated by dividing total debt by net worth (total net assets or total assets less current liabilities) of each firm for the whole sample period (see, Nazir and Afza, 2009; Padachi, 2006; Alam, Ali, Rehman and Akram, 2011).
LEVRG=Total Debt/Total Net Assets..... (Viii)

Note: 84 firms were considered for this analysis

Year	TCA	TCL	TA	Turnover	TD	NA	PAT
2006	31,533,735.3	28,535,985.8	54,760,903	70,885,417.5	30,498,237	26,224,917.3	4,844,9`03.5
2007	35,258,652.3	30,533,947.5	63,081,720.8	85,619,755	30,737,888.3	32,547,773.3	4,840,594
2008	39,160,219	34,788,333	74,144,637.8	93,557,974.5	35,081883.5	39,356304.8	5,120,408.3
2009	49,259,224.5	55,141,884	89,327,234.8	111,396,163.8	56,084,667.5	34,185,350.8	6,570,230
2010	65,362,551	69,445,566.3	115,808,332.8	137,132,757.3	71,388,976.7	46,362,766.5	10,537,396
2011	74,300,124	76,545,700.9	124,768,978.7	144,224,100.3	92,123,903.7	51,213,237.5	12,680,165
2012	82,120,289	80,675,208.9	125,908,456.8	156,764,890.3	95,342,807.7	53,561,273.5	15,917,153

Source: The financial statement and accounts of 84 firms for 7 years

Computed Model Proxies

Year	ROA	TCA/TA	TCL/TA	SIZE	LEVRG
2006	0.18474	0.57584	0.52110	7.73847	1.162948
2007	0.14872	0.55893	0.55893	7.79990	0.944392
2008	0.13010	0.52815	0.52815	7.87007	0.891391
2009	0.19219	0.55144	0.55144	7.95098	1.640605
2010	0.22728	0.56440	0.56440	8.06373	1.539791
2011	0.24759	0.59550	0.59550	8.096105	1.798829
2012	0.29717	0.65222	0.65222	8.10005	1.780069

SPSS Model Results

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	F Change	t - value	Beta	Durbin Watson
1	.870	.756	.648	.031253	10.238	-	-	2.8916
2	.894	.799	.703	.021457	6.2282	-	-	1.1154
AIP*	-	-	-	-	-	3.112	.916	-
SIZE*	-	-	-	-	-	1.998	.723	-
LEVRG*	-	-	-	-	-	1.563	.557	-
AFP	-	-	-	-	-	.915	.983	-
SIZE	-	-	-	-	-	-1.104	-1.203	-
LEVRG	-	-	-	-	-	.107	-2.041	-

Model Equation
Model 1:D
ROA=-1.218 + 1.730(AIP) + 0.376(SIZE) + 0.051(LEVRG) + e_i
Model 2:
ROA=-0.451 + 1.172(AFP) - 0.056(SIZE) 0.324(LEVRG) + e_i

From the model 1,
Aggressive investment working capital policies of 84 SMEs within Kaduna Metropolis have a positive significant impact on profitability measured by return on assets (ROA) of the firms. The coefficient of Aggressive investment policy (AIP) was 1.730 and t-value = 3.112. In the control variables SIZE and LEVERAGE, the result was positive and this was not significant. The coefficient of Size = 0.376 (SIZE) with t-value =1.998 and coefficient of LEVRG = 0.051 (LEVERAGE) with t-value = 1.563. The result also revealed that the correlation (correlation matrix) between the model proxies the (aggressive investment policies, size and leverage) and profitability was positive for the period. The beta coefficients of the independent variables were found to be positive (0.916, 0.723 and 0.557 respectively). The coefficient of determination (R^2) of 75.6% indicating that about 75.6% of the total variations in the dependent variable ROA is being explained by the three independent variables in question. While only 24.4% of the variations were unexplained. The Durbin Watson (d) test statistic was 2.8916

From the model 2,
Aggressive investment working capital policies of 84 SMEs in Kaduna Metropolis have a positive significant impact on profitability measured by return on assets (ROA) of SMEs in Kaduna Metropolis. The coefficient of Aggressive financial policy (AFP) was 1.172 and t-value = .915. In the control variables SIZE and LEVERAGE, the result was positive and this was not significant. The coefficient of Size = - 0.056 (SIZE), t-value = -1.104 and coefficient of LEVRG = 0.324 (LEVERAGE), t-value = .107. The result also revealed that the correlation (correlation matrix) between the model proxies the (aggressive financial policies, size and leverage) and profitability was positive for the period under study. The beta coefficients of the independent variables were found to be negative except AFP which is positive (0.983, -1.203 and -2.041 respectively). The coefficient of determination (R^2) of 79.9% indicating that about 79.9% of the total variations in the dependent variable (ROA) is being explained by the three independent variables in question. While only 20.1% of the variations were unexplained. The Durbin Watson (d) test statistic was 1.1154.

Conclusion / Recommendation
The findings from this study could be such a huge contribution to aiding further study in similar area, and above all a great benefit to the survival of SMEs in Kaduna Metropolis. The result from this study has shown that a positive relationship exist between both aggressive investment and financing working capital policies and profitability of SMEs in Kaduna Metropolis. What this means is that as long as more short-term funds are utilized for investment and financing decisions, the profitability of the firms increases. This study is therefore concluded on this note; SMEs in Kaduna Metropolis in particular and other firms in general can improve their profitability by more efficient working capital management, i.e. by shortening the cycle time of working capital (e.g. Shin and Soenen, 1998: Deloof, 2003; Lazaridis and Tryfonidis, 2006; Garcia-teruel and Martinez-Solano, 2007; Talha et al, 2010)

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