



An Empirical study on Working Capital Management Policies and Firms Performance: A Study of Selected Manufacturing Firms in Nigeria.

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Abstract

This study examined the effect of working capital management policies on the performance of selected manufacturing firms for the periods 2015 – 2019. The objective of the study is to determine the effect of Aggressive Investment Policy (AIP) and Aggressive Financing Policy (AFP) on Return on Assets (ROA), Return on Equity (ROE) and Tobin-Q. To achieve the set objective, the study was guided by two research questions and two research hypotheses. The study utilized secondary data obtained from the published financial statements, which were readily available at the NSE, the CMA libraries and the Internet. The data were analyzed using descriptive analysis while the multiple regression analysis was used to test the research hypotheses. The analyses were run on E-view statistical application software. The study found significant effect of aggressive investment policy on firms' performance (ROA, ROE and Tobin-Q). Also, the study established significant but negative effect of aggressive financial policy on organization's performance (ROA, ROE and Tobin-Q). The study recommends that manufacturing firms in Nigeria should adopt aggressive investment policy. Also, the study cautioned the manufacturing firms from adopting aggressive financial policy, which was found to be reducing the firms' performance.

Keyword: Working Capital, Working capital management policies, Firm Performance, Return on Assets, Aggressive Financing Policy and Aggressive Investment Policy.

INTRODUCTION

Working capital acts as a pillar in business. So, all firms cannot work without working capital. Insufficient working capital means shortage of inputs, whereas excess of it leads to extra cost. Working capital management policy mainly pays attention on the liquidity of current assets to meet current liabilities. Liquidity is very important because, if the level of liquidity is too high then a company has lot of idle resources and it has to bear the cost of these idle resources. Not paying sufficient attention to the working capital management by any firm may lead to bankruptcy. However, in determining how a company is performing, the return on assets of the firm is the best indicator for financial performance. However, if liquidity is too low then it will face lack of resources to meet its current financial liabilities (Arnold, 2008). Current assets are key component of working capital and the Working capital policy also relied on the level of current assets against the level of current liabilities. Working capital policy can be best described as a strategy, which provides the guideline to manage the current assets and current liabilities in such a way that it reduces the risk of default (Afza and Nazir, 2007). Different approaches can be employed for the management of working capital. Two basic policies of working capital management are namely aggressive working capital management policy and conservative working capital management policy. Any industry that is faced with the problem of inadequate working capital will be experiencing shortage of inputs for its daily activities while those that have access to excessive working capital will be expressing extra cost. In nutshell, quantum of working capital in every firm should be neither more nor less than what is actually required. Likewise, the return on equity can be used to measure how well a company uses investments to generate earnings growth. Under this approach, the business concern can adopt a financial plan which matches the expected life of assets with the expected life of the sources of funds raised to finance assets (Paramasivan and Subramanian, 2009). Defensive policy reduces the risk by reducing the current liabilities but it also affects profitability because long-term debt offers high interest rate, which will increase the cost of financing (Arnold, 2008). This means a company is not willing to take risk and feel it appropriate to keep cash or near cash balances, higher inventories and generous credit terms. Mostly companies that are operating in an uncertain environment prefer to adopt such a policy because they are not sure about the future prices, demand and short-term interest rate. In

such situation it is better to have a high level of current assets. Which means, keeping higher level of inventory in the stock, to meet sudden rise in demand and to avoid the risk of stoppage in production. Hence, this policy might reduce the profitability and the cost of following this policy might exceed the benefits of the policy (Arnold, 2008).

OBJECTIVE

The specific objectives of the study are:

To determine whether Aggressive Investment Policy affects firm's performance.

To examine whether Aggressive Financing Policy affects firm's performance

HYPOTHESES

The study formulated the following hypotheses:

H₁: There is no significant impact of Aggressive Investment Policy (AIP) on firm's performance.

H₂: There is no significant impact of Aggressive Financing Policy (AFP) on firm's performance.

Working Capital

Working capital refers to the short term or current assets used for daily operations by a firm. It is funds or money utilized by business firms in their daily activities or operations. Working capital is the available capital for conducting day-to-day operations of an organization represented by its net current assets (Nobanee, 2009). In the same vein, Afza (2009), described working capital as the items that are required for the day-to-day production of goods to be sold by a company.

Pandey (2009), distinguished between gross working capital and net working capital thus: Gross working capital refers to the firm's investment in current assets. Current assets can be converted into cash within an accounting year (or operating cycle) and include cash, short-term securities, debtors, bills receivable and stock (inventory). Net working capital refers to the difference between current assets and current liabilities. Current liabilities are those claims of outsiders, which are expected to mature for payment within an accounting year and include creditors (accounts payable), bills payable, and outstanding expenses. The most common definition of Net Working Capital (NWC) is the difference between current assets and current liabilities. The Net Working Capital (NWC) as a measure of liquidity is not very useful for comparing the performance of different companies, but it is very helpful

for internal control. The NWC contributes enormously while comparing the liquidity of the same company overtime. Weinraub, and Visscher (1998), developed a cash management model focusing on cash flows and argued that cash collection and cash payment processes should be handled independently.

Working capital management

Working capital management refers to ways or means of making current assets adequate to meet the daily needs or obligations of the firm as the fall due. it refers to measures that could be adopted to minimize financial risk which may manifest as a result of efforts made to meet current liabilities. Working capital management is the determination of the amount of investment in working capital and how it should be utilized to meet the daily commitments of the firm. It is usually guided by working capital management policies of the firm.

Working capital management policies and profitability

To reduce the cash conversion cycle and maximize firm's profitability, owners and managers must formulate and implement appropriate working capital policy (Nyabuti and Alala, 2014). Several researchers reported a significant relationship between working capital policy and firm's profitability (Afza, 2009; Ali, 2011; Al-Shubiri, 2011; Ojeka, 2012; Al-Mwalla, 2012). Firms may finance their working capital through either short-term or long-term debt (Al-Mwalla, 2012). Firms may adopt an aggressive or conservative working capital policy, depending on the nature of their internal operations, cash flow volatility and external market conditions (Agyemang and Asiedu, 2013).

The Operating Cycle Theory of Working Capital

The operating cycle is the length of time between the cash outflow for the purchase of input resources and the cash inflow from sales (Richards and Laughlin, 1980). The operating cycle theory integrates accounts receivable and inventories into working capital (Shin and Seonen, 1998). Unlike the static view, which focuses only on statement of financial position activities, the operating cycle theory combines statement of financial position and income statement measures (Richard and Laughlin, 1980). The operating cycle theory also allows researchers to consider firms as going concerns (Falope and Ajilore, 2009). However, unlike the cash conversion cycle, the operating cycle excludes accounts payable from

liquidity analysis, as a result, the operating cycle does not provide the net working capital cycle (Richards and Laughlin, 1980).

Cash Conversion Cycle (CCC) Theory

The cash conversion cycle is a dynamic measure of ongoing liquidity management that combines data from the financial position and income statement to create a time dimension measurement (Jose, Lancaster and Stevens, 1996; Zawaira and Mutenheri, 2014). Richards and Laughlin (1980) stated that the cash conversion cycle establishes the period required to convert a dollar of cash disbursements back into a dollar of cash inflow from a firm's regular business operations. Shin and Soenen (1998) stated that the cash conversion cycle begins with the payment for raw materials and moves through the transformation process to the collection of outstanding credits sales. Mathuva (2010) acknowledged that the cash conversion cycle is a dynamic theory in explaining the effect of working capital on firm's profitability. Nyabuti and Alala (2014) argued that optimization of the cash conversion cycle affects profitability and cash flow and influences the amount of external finance needed for running day-to-day operations.

Research design

The research design adopted for this study is the ex-post factor research design. This is because, it involves events that have already taken place in the past. A descriptive and inferential statistical analytical method was employed to analyze the data collected for this study. The descriptive methods include the use of tables, frequencies table, minimum, maximum, mean and standard deviation, while the inferential statistical methods include correlation analysis and regression analysis using E-view application.

Description of research variables

The choice of research variables is primarily guided by previous empirical studies along this line.

Dependent Variables (firm performance)

i. Return on Equity (ROE) - Return on equity (ROE) is the amount of net income returned as a percentage of shareholders' equity. It measures a corporation's profitability by

revealing how much profit a company generates with the money shareholders have invested.

$$\text{ROE} = \frac{\text{Profit for the year}}{\text{Total equity}} \dots\dots\dots(1)$$

ii. Return on Assets (ROA) - Return on Assets gives an idea as to how efficient management is at using its assets to generate earnings. The return on assets ratio formula is calculated by dividing net income by total assets.

$$\text{ROA} = \frac{\text{Profit for the year}}{\text{Total Assets}} \dots\dots\dots 2$$

iii. Tobin Q - Tobin's Q, or the Q ratio, is the ratio of the market value of a company's assets (as measured by the market value of its outstanding stock and debt) divided by the replacement cost of the company's assets (book value).

$$\text{Tobin's Q} = \frac{\text{Total market value}}{\text{Total assets}} \dots\dots\dots 3$$

Independent variables (working capital policies)

Aggressive Investment Policy (AIP) results in minimal level of investment in current assets versus non-current assets. In contrast, a defensive investment policy places a greater proportion of capital in liquid assets with the opportunity cost of lesser profitability. In order to measure the degree of aggressiveness, the following ratio will be used:

$$\text{AIP} = \frac{\text{Total current assets (TCA)}}{\text{Total assets (TA)}} \dots\dots\dots 2$$

Where a lower ratio means a relatively aggressive policy.

Aggressive Financing Policy (AFP) Utilizes higher levels of current liabilities and less long- term debt. In contrast, a defensive financing policy uses more long-term debt and capital. The degree of aggressiveness of a financing policy adopted by a firm will be measured by:

$$\text{AFP} = \frac{\text{Total Current Liabilities (TCL)}}{\text{Total Assets (TA)}} \dots\dots\dots 3$$

Where a higher ratio means a relatively aggressive policy.

Model Specification

The effect of working capital policies on the profitability of firms was analyzed through frequently used profitability measures i.e. Return on Assets (ROA) and Return on Equity (ROE) as well as market measure (Tobin's q) by running cross-sectional regressions. The regression models are:

$$ROA_{it} = \alpha + \beta_1 (AIP)_{it} + \beta_2 (AFP)_{it} + \beta_3 (FSIZE)_{it} + \varepsilon \dots\dots\dots (1)$$

$$ROE_{it} = \alpha + \beta_1 (AIP)_{it} + \beta_2 (AFP)_{it} + \beta_3 (FSIZE)_{it} + \varepsilon \dots\dots\dots (2)$$

$$Tobin's\ q_{it} = \alpha + \beta_1 (AIP)_{it} + \beta_2 (AFP)_{it} + \beta_3 (FSIZE)_{it} + \varepsilon \dots\dots\dots (3)$$

Where:

ROA_{it} = Return on Assets of Firm i for time period t

ROE_{it} = Return on Equity of Firm i for time period t

Tobin's q_{it} = Value of Q of Firm i for time period t

AIP_{it} = Aggressive Investment Policy of Firm i for time period t

AFP_{it} = Aggressive Financing Policy of Firm i for time period t

$FSIZE_{it}$ = firm size for firm I for time period I (control variable)

α = intercept

ε = error term of the model

PRESENTATION AND ANALYSIS OF RESULTS

Table 1. Testing Multicollinearity using Variance Inflation Factor

Variable	Coefficient of Variance	Centered VIF
ROE	0.413	1.137
ROA	0.363	2.356
TOBIN_Q	0.626	3.202
AFP	0.443	2.772
AIP	0.296	3.533
FSIZE	0.064	2.855

Sources: field work 2020

In order to assess the multicollinearity of the variables used in this study. The Variance Inflation Factor (VIF) test is applied and the results are presented in Table 4.2. The variance inflation factor test shows how much of the variance of a coefficient estimate of a regressor has been inflated due to collinearity with the other regressors. Thus, the table indicated VIF values for ROE (1.13), ROA (2.3), TOBIN_Q (3.2), AFP (2.7), AIP (3.5) and FSIZE (2.8), which all affirmed the complete absence of multicollinearity among the variables, since all values are consistently lower than ten (10) as suggested by Landau and Everitt (2003).

Table 2. Correlations Analysis among the Independent Variables

WCP Variables	AFP	AIP	FSIZE
AFP	1.00000		
AIP	0.47314	1.00000	
FSIZE	-0.35936	0.53336	1.00000

Sources: field work 2020

The relationships that exist among the independent variables for the models in this study were determined using Pearson Product Moment Correlation. The results as presented in the Table showed that aggressive financing policy is positively correlated with Aggressive investment policy (0.47314). However, aggressive financial policy of firms is negatively correlated with Firm Size (0.3594). Furthermore, the results showed that the correlation coefficient of aggressive investment policy is also positively correlated with Firm Size (0.5334). These results show the significant relationship that exists among AFP and AIP and also between AIP and FSIZE. However, the results indicate that the correlation coefficients for all variables were less than 0.8 implying that the study data did not exhibit severe multicollinearity as recommended by (Gujarati, 2003; Cooper & Schindler, 2008)

Results of Regression Analysis of Working Capital on firms' Performance

Table 3. Regression Analysis of WCP and Return on Assets

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.355556	0.193258	1.839800	0.0716
AFP	-0.138804	0.064439	-2.154032	0.0360
AIP	0.239165	0.098857	2.419302	0.0192
FSIZE	-0.006404	0.021430	-0.298820	0.7663
R-squared	0.276739	Mean dependent var		0.168965
Adjusted R-squared	0.234194	S.D. dependent var		0.073547
S.E. of regression	0.064361	Akaike info criterion		-2.578669
Sum squared residual	0.211260	Schwarz criterion		-2.432681
Log likelihood	74.91340	Hannan-Quinn criter.		-2.522214
F-statistic	6.504653	Durbin-Watson stat		1.491798
Prob(F-statistic)	0.000822			

Sources: Author computation 2020

Return on assets (ROA) has been estimated for 10 firms for the period 2015-2017 and results are reported in Table 4.4. Independent (AFP, AIP) and control variable (Firm size) have been regressed against returns on assets (depend variable). The model F-value and the Durbin-Watson statistics indicate overall best fit of the models. If significance value of $F > 0.05$ then it means that model is not acceptable and variation illustrated by the model is by chance. Hence, the results on Table 4.4 revealed the significance value of F is 0.0008, which is less than 0.05. This means that the model for working capital policy on ROA is acceptable and this also established that variation explained by this model is not just due to chance. Whereas, Durbin-Watson statistics (1.49) < 2 , indicate strong correlation among the independent variables of the regressions models.

DISCUSSION

The outcomes of this study indicate that aggressive investment policy has significant positive effect on firm performance. Variables used in this study (ROA, ROE and Tobin-Q). This study results are consistent with Deloof (2003), Eljelly (2004), Teruel and Solano (2005) and Afza and Nazir (2007). Their studies reported a negative relationship between the aggressiveness of working capital management policies and firm performance and market measures of profitability.

The implication of our finding is that the increase in aggressive investment policy is leading to remarkable increase in return on assets and market values. However, the finding of this study is at variance to the outcome of the study of Ogundipe et al (2012) who concluded that aggressive investment policy has no significant relationship with market value (Tobin-Q), but it is in line with the result of the studies of Nor Edi and Noriza (2010) who found significant positive relationship with market value (Tobin Q). More so, our finding is different from the results of the works carried out by (Afza, 2009; ALShubiri, 2011; Palani and Mohideen, 2012) in Pakistan, Jordan, and India respectively where it was revealed that aggressive investment policy (ratio of current assets to total assets) has significant negative relationship with market value (Tobin Q).

This study found a significant but negative relationship between working capital financial policy and firm performance (ROA, ROE and Tobin-Q). This is consistent with the study of Wajhat and Syed-Hammad (2010), which found inverse relationship between financial policy and firm performance, but differed from the study of Amarjit and Gill (2010), which found no significant relationship. Also, the study by Paramasivan and Subramanian (2009), found positive but weak relationship between working capital aggressive financial policy and firm performance and market values (Tobin-Q). More so, Mathuva (2010) reported insignificant correlation between aggressive working capital financial policy and firm market value, while the study by Nyabuti and Alala (2014), found strong but inversely correlation between aggressive financial policy and firm's return on assets and market values.

Conclusion

In financial management, investment policy is regarding the management of current assets of the business while the financing policy is concerned about the management of current liabilities mainly. In aggressive working capital investment policy more resources are expected to be invested in current assets than noncurrent assets to gain more profits, just as in aggressive working capital financing policy where more current liabilities are used than long-term debts. The impact of working capital investment and the financing policies has been examined using panel data regression models between working capital policies and profitability of manufacturing firms in Nigeria. Moreover, the results show a positive correlation between investing policy and firm performance, while financing policy of working capital relate negatively with firms' performance. It is therefore necessary for the manufacturing firms in Nigeria to be aware that the firms cannot maximize its profit as well as shareholders' wealth without paying proper attention to the management of the various components of its working capital policies.

REFERENCES

- Afza, M. S. (2009). Impact of Aggressive Working Capital Management Policy on Firms Profitability. *The IUP Journal of Applied Finance*, Vol. 1. No. 3
- Afza, T and Nazir, M S (2007). Is it better to be aggressive or Conservative in Managing Working Capital? *Journal of Quality and Technology Management*, Vol 3 (2), pp 11-21.
- Ali, S. (2011). Working capital management and the profitability of the manufacturing sector: A Case Study of Pakistan's Textile Industry. *The Lahore Journal of Economics*, 141-178.
- ALShubiri, F. N. (2011). The effect of working capital practices on risk management: evidence from Jordan. *Global Journal of Business Research*, 5(1),39-54
- Amarjit, M. and Gill, N. B. (2010). The relationship between working capital management and profitability: evidence from the united states. *Business and Economics Journal*. Vol. 2, issue 3.
- Arnold, G. (2008). Corporate financial management 3rd Edition. England Pearson Education Limited

- Cooper, R. D., & Schindker, S. P. (2008). Business research methods. India: Tata McGraw-Hill
- Deloof, M. (2003), Does working capital management affect profitability of belgian firms? *Journal of Business, Finance and Accounting*, Vol. 30 (3&4) - April/May, pp. 573-587.
- Eljeljy, A.M.A (2004). Liquidity-profitability tradeoff: an empirical investigation in an emerging market. *International Journal of Commerce and Management* 14(2): 48-61.
- Falope, O. I. and Ajilore, O. T. (2009). Working capital management and corporate profitability: evidence from panel data analysis of selected quoted companies in Nigeria, *Research Journal of Business Management*, Vol 3 (3), pp. 73-84, ISSN 1819-1932.
- Gujarati,D. (2003) .Basic Econometrics 4th ed. NewYork:McGraw Hill,pp.638-640
- Jose, M. L., Lancaster, C. and Stevens, J. L. (1996), Corporate returns and CCC. *Journal of Economics and Finance*, Vol 20 (1), pp. 33-46.
- Landau S. and Everitt B.S. (2003). Handbook on statistical analysis using SPSS. CRC Press Company Boca Raton London New York Washington, D.C.
- Mathuva, M. D. (2010). The influence of working capital management components on corporate profitability: a survey on Kenyan listed firms. *Research Journal of Business Management*, Vol.4, No. 1, pp. 1-11.
- Nobanee, H. (2009), Working capital management and firm's profitability: an optimal cash conversion cycle. Available at SSRN: <http://ssrn.com/abstract=1471230>
- NorEdi, A. B. M. & Noriza, B. M. S. (2010). Working capital management: The effect of market valuation and profitability in Malaysia. *International Journal of Business and Management*, 5(11), 140-147.
- Nyabuti, W. M and Alala, O, B. (2014). The relationship between working capital management policy and financial performance of companies quoted at Nairobi securities exchange, Kenya. *International Journal of Economics, Finance and Management Sciences*, 2(3): 212 – 219.
- Ogundipe, E. S. Idowu, A. & Ogundipe, O. L. (2012). Working capital management, firms' performance and market valuation in Nigeria. *International journal of social, behavioral, educational, economic, business and industrial engineering*, Vol:6, No:1,
- Ojeka, S. A. (2012), Credit Policy and its Effect on Liquidity: A Study of Selected Manufacturing Companies in Nigeria, *International Journal of Research in Commerce, Economics and Management*, Vol. 2 (6), June 2011, pp. 25-30.
- Palani, A. & Mohideen, A.P. (2012). Impact of aggressive working capital management policy on firms' profitability. *International Journal of Research in Commerce & Management*, 3(3), 49 – 54

- Pandey, I. M. (2009), Financial management, Ninth Edition, Vikas Publishing House, New Delhi
- Paramasivan, C. and Subramanian, T. (2009). Financial management", Published by New Age.
- Richards, V. D, and Laughlin, E. J. (1980), A cash conversion cycle approach to liquidity analysis. *Financial Management*, Vol 9 (1), Spring 1980, pp. 32-38.
- Shin, H. H. and Soenen, L. (1998), Efficiency of working capital and corporate profitability. *Financial Practice and Education*, Fall/Winter 1998, pp. 37-45
- Teruel, P.J.G. and Solan, P.M. (2005). Effects of working capital management on SME profitability. *Working Papers Series. Dept. Organización de Empresas y Finanzas, Facultad de Economía y Empresa, Universidad de Murcia, Campus Espinardo, Spain*
- Wajahat A. and Syed-Hammad U.H. (2010). Relationship between profitability and working capital policy of Swedish companies. Essays retrieved on 12th November, 2016 from <http://www.Swedish University Essays>
- Weinraub, H. J. and Visscher, S. (1998), Industry practice relating to aggressive conservative working capital policies. *Journal of Financial and Strategic Decision*, Vol. 11(2), Fall-1998, pp. 11-18.
- Zawaira, T. and Mutenheri, E. (2014). The association between working capital management and profitability of non-financial companies listed on the Zimbabwe stock Exchange. *International Journal of Research in Social Sciences*, Vol. 3, No.8, 114.

APPENDICES

Appendix 1

Dependent Variable: ROA

Method: Least Squares

Date: 22/05/20 Time: 10:26

Sample: 1 55

Included observations: 55

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.355556	0.193258	1.839800	0.0716
AFP	-0.138804	0.064439	-2.154032	0.0360
AIP	0.239165	0.098857	2.419302	0.0192
FSIZE	-0.006404	0.021430	-0.298820	0.7663
R-squared	0.276739	Mean dependent var		0.168965
Adjusted R-squared	0.234194	S.D. dependent var		0.073547
S.E. of regression	0.064361	Akaike info criterion		-2.578669
Sum squared resid	0.211260	Schwarz criterion		-2.432681
Log likelihood	74.91340	Hannan-Quinn criter.		-2.522214
F-statistic	6.504653	Durbin-Watson stat		1.491798
Prob(F-statistic)	0.000822			

Appendix 2

ROA

Testing of Serial Correlation

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.448321	Prob. F(2,44)	0.6416
Obs*R-squared	0.998563	Prob. Chi-Square(2)	0.6070