

An Investigation of the Effect of Aggressive Working Capital Technique on the Performance of Manufacturing Firms in Nigeria

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Abstract

Increased financial flexibility and value creation can be achieved through effective management of working capital when companies sharply reduce their dependence on external funding and can use the available cash for further investments or acquisitions. By “aggressively” collecting receivables, ruthlessly delaying payments to suppliers and cutting inventories across the board manufacturers can run away from high working capital ratios. The study examined the relationship between working capital aggressiveness and financial performance of manufacturing firms in Nigeria. The study was based on secondary data collected from ten listed-manufacturing firms in Nigeria Stock Market for the period 2006 to 2010 with an attempt to investigate whether a relationship exists between their performances (Return on Assets and Return on Equity) and aggressive working capital variables (Aggressive Investing Variable; Current Assets/Total Assets and Aggressive Financing Variable; Current Liabilities/Total Assets). The relationships were measured using multiple linear regressions-MLR- statistical tool of analysis. The manufacturing companies were selected using convenience sampling. The findings show that there is ‘higher’ return on assets (ROA) but ‘lower’ risk involved when total assets are financed by aggressive current assets (CA/TA) but higher risks with lower return when financed by aggressive current liabilities (CL/TA) hence, inversely correlated. The results also depict that both aggressive current assets and liabilities will bring lower returns on equity (ROE), hence negatively correlated whereby higher risks involved for aggressive current assets and a lower risks involved for aggressive current liabilities respectively. The study recommended that an appropriate level of current assets should be established in financing the assets of firms in which return on equity will not be negatively affected and return on assets would not be reduced and hence, those short-term liabilities should not be delayed in making payments to those they are due to.

Keywords: Aggressive; Working Capital; ROA; ROE; Manufacturing Firms; Nigeria

1. Introduction

Presently, financial managers are concerned about the financial stability of their organizations particularly in the areas of financing, dividend policy, investment decisions and working capital policies. Managers consider these decisions as determining factors of the state and profitability of the organization. The profitability of a company can be measured using regression analysis or traditional financial ratios for analysis and prediction. However, the predictive power of these financial ratios has been a recurring subject of analysis, and researchers have also focused on grouping ratios into useful classifications (Chen and Shimerda, 1981).

The assets of any company can be categorized mainly into two: fixed and current assets. Yusuf (2002) noted that fixed assets are acquired and held permanently for the purpose of creating production capacity while the current assets are owned by the business with the intention of turning them into cash for the day to day effective running and utilization of firms fixed assets. Though, current assets can be used for the maintenance of these fixed assets but cannot be used for further investments to increase the profitability, growth and competitive strength of an organization. Hence, the need for additional dependence on external funding for more available cash in place. In essence, organizations must source for short-term and long-term liabilities.

The relationship between the short-term liabilities (current liabilities) and current assets determines the liquidity position of firms. This linear position can also be called working capital which, is regarded as the lifeblood of a business enterprise. It refers to that part of the firm's capital, which is required for financing short-term activities (Dong and Su, 2010). The management of this working capital is known as working capital management.

The basic objective of working capital management is to manage firm's current assets and current liabilities, in such a way, that working capital are maintained, at a satisfactory level. The working capital should be neither more nor less, but just adequate. Working capital management plays an important role in a firm's profitability and risk as well as its value (Smith, 1980). There are a lot of reasons for implementing working capital management. For a typical manufacturing firm, the current assets account for over half of its total assets. For a distribution company, they account for even more. Excessive levels of current assets can easily result in a firm's realizing a substandard return on investment. However, Van Horne and Wachowicz (2004) point out that excessive level of current assets may have a negative effect on a firm's profitability, whereas a low level of current assets may lead to lowering of liquidity and stock-outs, resulting in difficulties in maintaining smooth operations.

In many organizations today, liquidity position is thus a major issue that must be put into consideration by financial managers. This liquidity state can be identified by their risk-return characteristics (Weinraub and Visscher, 1998). Therefore, risk and return tradeoffs are inherent in alternative working capital policies. High risk, high return working capital investment and financing strategies are referred to as aggressive; lower risk and return strategies are called moderate or matching; still lower risk and return is called conservative (Moyer et al. (2005); Pinches (1991); Brigham and Gapenski, 1987).

A firm may choose an aggressive working capital management policy with a low level of current assets as percentage of total assets, or it may also be used for the financing decisions of the firm in the form of high level of current liabilities as percentage of total liabilities (Afza and Nazir, 2009). Keeping an optimal balance among each of the working capital components is the main objective of working capital management. Business success heavily depends on the ability of the financial managers to effectively manage receivables, inventory, and payables (Filbeck and Krueger, 2005). Aggressive asset management results in capital being minimized in current assets versus long-term investments. This has the expectation of higher profitability but greater liquidity risk. To measure the degree of aggressiveness the current asset to total asset ratio is used, with a lower ratio meaning a relatively more aggressive policy.

Aggressive financing policies utilize higher levels of normally lower cost short-term debt and less long-term capital. Although lowering capital costs, this increases the risk of a short-term liquidity problem. The total current liability to total asset ratio is used to measure the degree of aggressive financing policy, with a high ratio being relatively more aggressive (Afza and Nazir, 2007).

The present study is expected to better contribute to the studies of working capital aggressiveness and its effects on profitability using the Nigerian manufacturing industry as the focal point.

2. Literature Review ... Working Capital Defined

Working capital is defined as the firm's short-term or current assets and liabilities. *Net working capital* represents the excess of current assets over current liabilities and is an indicator of the firm's ability to meet its short term financial obligations (Brealey and Myers, 2002). From a financing perspective, working capital refers to the firm's investment in two types of assets. In one instance, working capital means a business's investment in short-term assets needed to operate over a normal business cycle. This meaning corresponds to the required investment in cash, accounts receivable, inventory, and other items listed as current assets on the firm's balance sheet. It represents a broader view of a firm's capital needs that includes both current assets and other non-fixed asset investments related to its operations.

2.1. Management of Working Capital

The aim of working capital management is to optimize the return to the shareholders through the risk-return trade-off. Thus, a sound working capital policy would attempt to determine the optimum level of investments in current assets and how they are financed. It is conventional to finance short-term assets with short-term liabilities, as disregard to this rule will amount to tenor mismatch which has a lot of implications for financial management. To harmonize this point, therefore, it is the function of the financial manager to make decisions to determine the optimum level of investments in current assets and how they should be financed in such a way to help him maximize the wealth of the shareholders.

Neveu (1985) agreed by defining working capital management as the management of a corporation's sources and uses of working capital so as to advance the financial welfare of its stockholders. There are two concepts of working capital that are commonly used: the net working capital and the gross working capital. The net working capital is the difference between the firm's current assets and current liabilities. On the other hand, the gross working capital constitutes the total funds invested in current assets that will be used in firm's operations. At any point in time, a business enterprise that does not have sufficient working capital is said to be over-trading (Akinsulire, 2006).

2.2. Aggressive Strategy of Managing Working Capital

This emphasizes higher profitability and minimum possible liquidity while meeting short-term requirements. The aggressive financial manager in this instant accepts higher risk of illiquidity and/or insolvency in a bid to realize higher earnings for the firm. Strategies congregating round the aggressive policies are usually referred to as high-risk, high-return approaches to working capital management (Baridam, 1995).

An aggressive current assets management strategy would attempt to reduce the amounts put in cash and marketable securities to their barest minimum. An extreme case would even seek to minimize the amounts of funds allocated to stock. The extreme strategy has the effect of increasing the risk of loss of profit emanating from stock-outs, while reducing amounts in cash, and marketable securities. It tends to increase the risk of default as well as the risk of loss of sales occasioned by the inability of the firm to finance unexpected demand with liquid resources. Financial managers that favour the aggressive current assets strategy try to offset the potential lost sales and profits by using cash and marketable securities to finance the firm's fixed assets, which it is assumed, attract higher return than the cash items.

Taking current asset management policies as given, an aggressive current liability strategy tries to increase the level of short-term liabilities needed to meet short-term assets needs. It assumes that long-term liabilities should be used solely to finance long-term or fixed assets. This will increase the risk complexion of the firm in respect of meeting short-term obligations. There is also the possibility of increased returns in so far as the cost of short-term debts remains less than that of the long-term or permanent capital.

An optimal working capital policy is the one that contributes to the maximization of shareholders' wealth. It is usual for financial management to attempt reducing this optimal policy to stated ratios. However, this is not a very easy task, since in a good number of situations the financial manager would need to consider other qualitative and environmental factors in addition to the ratios before determining what should be the optimal working capital requirement of the firm (Baridam, 1995).

2.3. Current Assets and Financial Management Implications

- **Management of Cash and Marketable Securities**

The management of cash and marketable securities is the ultimate concern of the corporate treasure. To be seen as efficient, Baridam (1995) suggested a number of strategies which include:

- (i) Stretching accounts payable by trying to delay accounts payable as long as possible without demanding the credit rating of the firm. Taking advantage of any favourable discount is also an offshoot of this strategy.
- (ii) Efficient inventory-production management. Here stock should be turned over as quickly as possible while avoiding stock-out conditions. Helpful way of achieving this could be to increase the raw materials turnover through decreasing the production cycle or increasing finished goods inventory.
- (iii) Speeding of the collection of accounts receivable.
- (iv) Invest any seeming idle cash suitably in marketable securities or in more income-yielding outlets. Risk marketability, yield, ease of convertibility, etc must be taken into consideration in the management of marketable securities.

- **Accounts Receivables Management**

Firms are expected to evolve a credit management policy that will include the following:

- (i) Setting up of credit standards and procedures. This specifies the criteria for granting such credits. Five cannons are common to financiers' character, capacity, capital, conditions and collaterals, otherwise referred to as the 5Cs of credit analysis.
- (ii) Establishing the terms of credit. Credit terms contain two important variables, namely, the credit period and the cash discount terms.
- (iii) Instituting workable collection policy to ensure that accounts receivables are made as they fall due or where default arises, ensuring appropriate actions are effected to recover the overdue debts. Gitman (1974) posited that the effectiveness of the organization's collection policy can be partially evaluated by looking at the level of bad debt expenses.

- **Management of Inventory**

The main objective of good inventory management is to maintain sufficient stock for continued uninterrupted operations of the firm while at the same time avoiding carrying excessive levels. Financial managers should consider the following strategies to help the firm realizes the goal of wealth maximization (Pandey and Parera, 1997).

- (i) Ensuring steady supply of raw materials to facilitate uninterrupted operation;
- (ii) Maintain sufficient stock of such materials during times of shortages, scarcity and anticipated price hike;
- (iii) Maintain adequate level of finished goods inventory for smooth sales operations and efficient consumer service;
- (iv) Minimize carrying costs and time; and

- (v) Control investment in inventories and keep it at an optimum level.

2.4. Uses of Working Capital

Just as working capital has several meanings, firms use it in many ways. Most fundamentally, working capital investment is the lifeblood of a company. Without it, a firm cannot stay in business. Thus, the first, and most critical, use of working capital is providing the ongoing investment in short-term assets that a company needs to operate. A business requires a minimum cash balance to meet basic day-to-day expenses and to provide a reserve for unexpected costs. It also needs working capital for prepaid business costs, such as licenses, insurance policies, or security deposits. Without some amount of working capital finance, businesses could not open and operate.

A second purpose of working capital is addressing seasonal or cyclical financing needs. Here, working capital finance supports the buildup of short-term assets needed to generate revenue, but which come before the receipt of cash. For example, a toy manufacturer must produce and ship its products for the holiday shopping season several months before it receives cash payment from stores. Since most businesses do not receive prepayment for goods and services, they need to finance these purchase, production, sales, and collection costs prior to receiving payment from customers. Another way to view this function of working capital is providing liquidity. Adequate and appropriate working capital financing ensures that a firm has sufficient cash flow to pay its bills as it awaits the full collection of revenue. When working capital is not sufficiently or appropriately financed, a firm can run out of cash and face bankruptcy. A profitable firm with competitive goods or services can still be forced into bankruptcy if it has not adequately financed its working capital needs and runs out of cash.

Working capital is also needed to sustain a firm's growth. As a business grows, it needs larger investments in inventory, accounts receivable, personnel, and other items to realize increased sales. New facilities and equipment are not the only assets required for growth; firms also must finance the working capital needed to support sales growth.

A final use of working capital is to undertake activities to improve business operations and remain competitive, such as product development, ongoing product and process improvements, and cultivating new markets. With firms facing heightened competition, these improvements often need to be integrated into operations on a continuous basis. Consequently, they are more likely to be incurred as small repeated costs than as large infrequent investments. This is especially true for small firms that cannot afford the cost and risks of large fixed investments in research and development projects or new facilities. Ongoing investments in product and process improvement and market expansion, therefore, often must be addressed through working capital financing.

2.5. Underwriting Issues in Working Capital Financing

In underwriting working capital loans, repayment is closely linked to short-term cash flow, especially for cyclical working capital loans, finance practitioners need to scrutinize these projections in detail. Borrowers will need to provide monthly or quarterly cash flow projections for the next 1 to 2 years to facilitate this analysis. Moreover, this requirement helps assess how carefully the firm plans and monitors cash flow and helps identify weaknesses in this key management area.

Detailed monthly projections can also uncover ways to improve cash flow that may reduce borrowing needs and improve the firm's capacity to repay and qualify for a loan. For example, a firm may be able to reduce its inventory, offer incentives for more rapid payment of invoices, or improve supplier credit terms. For working capital loans, lenders will pay special attention to liquidity ratios and the quality of current assets since these factors are most critical to loan repayment.

Finally, the underwriting analysis needs to evaluate the applicant's need for permanent versus cyclical working capital debt. Small businesses with limited long-term capital are under heavy pressure to meet short-term cash flow needs. Adding short-term working capital loans does not address this problem and may make matters worse. Thus, it is important to analyze why the firm is seeking debt, what purpose the loan will serve, and how these relate to short-term cyclical needs versus long-term

permanent working capital needs. In some cases, practitioners need to revise the borrower’s loan request and structure debt that better reflects the firm’s needs. This might entail proposing a term loan in place of a line of credit when the business needs permanent working capital or combining short-term and medium-term debt instruments to create a good balance between cyclical and permanent working capital debt. These alternatives can improve a firm’s cash flow and liquidity to partially offset the greater repayment risk that results from extending loan repayment.

Loan guarantees and subordinate debt can reduce this additional risk and help convince conventional lenders to both supply credit and provide it on terms that fit a borrower’s financial needs.

3. Survey Methodology

Secondary data were obtained from ten manufacturing firms in Nigeria. The secondary data for the study include yearly levels of shareholders funds, current liabilities, current assets, total assets, and profit-after-tax of ten listed-manufacturing firms between 2006 and 2010. The ten manufacturing companies are quoted on the Nigerian Stock Exchange, with a total of 50 (5years X 10companies) in the final sample.

All data were obtained from the published financial statements of the ten manufacturing companies. Data were collected with a view to investigate whether a relationship exists between their performances and aggressive working capital. The manufacturing companies were selected using convenience sampling.

The study used aggressive investment policy (CA/TA) and aggressive financing policy as measuring variables of working capital management (CL/TA). Performances of the sampled manufacturing firms were analyzed through frequently used profitability measures i.e. Return on Assets (ROA) and Return on Equity (ROE), meaning that the level of returns is measured by these two variables.

The level of risks involved is measured by the use of standard deviation (SD). Multiple Regression statistical tool of analysis was used to measure the relationship between working capital variables (aggressive investing variable; CA/TA, and aggressive financing variable; CL/TA) and performance variables (Return on Assets; ROA, and Return on Equity; ROE). The regression models to be estimated are:

Return Regression Models

$$ROA_{xt} = a + b_1 (CA/TA_{xt}) + b_2 (CL/TA_{xt}) + e \dots\dots\dots (1)$$

$$ROE_{xt} = a + b_1 (CA/TA_{xt}) + b_2 (CL/TA_{xt}) + e \dots\dots\dots (2)$$

Risk Regression Models

$$SD_{ROAx} = a + b_1 (CA/TA_x) + b_2 (CL/TA_x) + e \dots\dots\dots (3)$$

$$SD_{ROEx} = a + b_1 (CA/TA_x) + b_2 (CL/TA_x) + e \dots\dots\dots (4)$$

Where:

ROA_{xt} = Return on Assets of Firm x for time period t

ROE_{xt} = Return on Equity of Firm x for time period t

CA/TA_{xt} = Current Assets to Total Assets Ratio of Firm x for time period t

CL/TA_{xt} = Current Liabilities to Total Assets Ratio of Firm x for time period t

SD_{ROAx} = Standard Deviation of ROA representing risk of Firm x

SD_{ROEx} = Standard Deviation of ROE representing risk of Firm x

a = intercept

e = error term of the model

4. Data Analysis and Empirical Findings

In this section, tables of the collected variables (ROA, ROE, CA/TA, and CL/TA) are shown. All variables were calculated using the book value in the respective published financial statements of the sampled listed-manufacturing firms (WAPCO Cement, Paints and Coating Manufacturers, Flour Mills, Vitafoam, CCNN Cement, Cadbury Plc., PZ Nigeria Plc, Nestle Foods, Honeywell and Dangote Cement). In addition, the measurement of profitability (ROA and ROE were adopted) was based on income statement values, and balance sheet statement values for period year 2006 to year 2010. Total observations come to $10 \times 5 = 50$.

Tables of pearson bivariate correlation; and simple least square regression estimate, were presented to show the relationship between the measurement of aggressive working capital variables (CA/TA and CL/TA) and performance of the sampled manufacturing firms; specifically ratios that are of concern to all stakeholders of a company i.e. Return on Assets (ROA) and Return on Equity/Capital Employed (ROE).

Table 1: Pearson Bivariate Correlation Analysis.

	ROA	ROE	CA/TA	CL/TA
ROA	1.000	-	0.7000	0.387
ROE	-	1.000	-0.274	-0.027
CA/TA	-		1.0000	-0.374
CL/TA			-	1.000

** Significant at 5% level

Source: Field Study, 2012

Table 1 presents the Pearson correlation for the variables that we used in the regression model. Pearson's correlation analysis is used for data to find the relationship between return on assets (ROA) and CA/TA; and CL/TA. We found that the ROA is positively correlated with the CA/TA and CL/TA. The positive correlation between CA/TA and CL/TA indicates that if more current assets are used to finance the total assets of companies especially capital project for the creation of more wealth, it will have a positive impact on the profitability (Return on Assets).

The 0.7000 value correlation between return on assets and CA/TA means that little total current assets are kept by selected companies in relation to the total assets of the firms putting the firms in an aggressive position. This is an attempt to reduce the amounts put in cash and marketable securities to their barest minimum. An extreme case would even seek to minimize the amounts of funds allocated to stock. The extreme strategy has the effect of increasing the risk of loss of profit emanating from stock-outs, while reducing amounts in cash, and marketable securities increase the risk of default as well as the risk of loss of sales occasioned by the inability of the firm to finance unexpected demand with liquid resources.

Financial managers that favour the aggressive current assets strategy try to offset the potential lost sales and profits by using cash and marketable securities to finance the firm's fixed assets, which it is assumed, attract higher return than the cash items. This is shown with the 0.7000 strong relationships with the return on assets.

The correlation coefficient between current assets to total assets (CA/TA) and return on equity (ROE) is -0.274 and p value is 0.000. It also shows a high significance at one per cent. It explains the reason why when a firm takes more time in selling inventory or trying to reduce their working capital to the barest minimum, it will adversely affect its profitability i.e. the total equity per share of the company will be affected. On the other hand, correlation result between current assets to total asset (CL/TA) and return on equity (ROE) also shows a negative relationship with a correlations coefficient of -0.027 which is highly significant at one per cent.

This shows that delaying payment of suppliers especially when the payment period is more than the appropriate creditors collection period, will affect highly current liabilities (creditors falling due within one year) and put the company in a practice of under-trading thereby not making them to be productive. This will definitely affect the creation of more wealth and will reduce available profits that

can be rationed to the total equity of the firm, therefore showing a negative relationship between the two variables.

This result is in line with the result of Deloof (2003) and Raheman and Nasr (2007) where they analyzed that the components of working capital management has negative relationships with the profitability of firms. But, this is in contrast to the study of Lazaridis and Tryfonidis (2006) and Dong and Su (2010) where their results show a relationship between current liabilities and profitability of firms. Hence, this study confirms a lower return on equity.

Table 2: SLS Regression estimates on AWC factors affecting profitability (ROA). a, b, c

$R^2 = 0.980$; S.E.E = 0.736; F = 24.475							
Regression Equation (1) $ROA = -25.233 + 48.164(CA/TA) + 4.496 (CL/TA)$							
	Un-standardized B	Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.	Collinearity Tolerance	Statistics VIF
Constant	-25.233	4.725		-5.341	0.118		
CA/TA	48.164	7.480	0.983	6.439	0.098	0.860	1.163
CL/TA	4.496	0.909	0.755	4.948	0.127	0.860	1.163

a Dependent Variable: Return on Assets

b Independent Variables: CA/TA, and CL/TA

c Simple Least Squares (SLS) Regression

S.E.E. = Standard Error of the Estimate

AWC = Aggressive Working Capital

Source: Field Study, 2012

Table 2 depicted the empirical findings on the relationship between returns (CA/TA and CL/TA) and profitability (ROA) of the selected listed-manufacturing firms in Nigeria. Simple average model was used with cross section years of nine companies (WAPCO Cement, Paints and Coating Manufacturers, Flour Mills, Vitafoam, CCNN Cement, Cadbury Plc., PZ Nigeria Plc, Nestle Foods, Honeywell and Dangote Cement). In this regression, the common intercept was calculated for all variables.

The results of regression equation "1" indicate that the coefficient of CA/TA is positive; that is, an increase in CA/TA will significantly affect the return on assets of the firms. This means when little current assets are kept, through increasing the debtors' collection period, ensuring that stocks are quickly sold out and that cash and bank balances are used effectively, there will be increase in return on assets of firms.

We used CL/TA ratio to show the kind of return relationship (either higher or lower return) with the dependent variable (ROA), the results gave a low coefficient value of 4.496 indicating that, as more current liabilities are used to finance the assets of the companies bringing low coefficient value of 4.496 in relation to the return on Assets. When there is increase in the current liabilities that would be used in financing the assets of the companies, it will favourably affect its profitability.

Table 3: SLS Regression estimates on AWC factors affecting profitability (ROE). a, b, c

$R^2 = 0.094$; Adjusted $R^2 = -1.717$; S.E.E = 184.657; F = 0.052							
Regression Equation (2) $ROE = 321.570 - 603.339(CA/TA) - 33.468 (CL/TA)$							
	Un-standardized B	Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.	Collinearity Tolerance	Statistics VIF
Constant	321.570	1184.681		0.271	0.831		
CA/TA	-603.339	1875.426	-0.330	-0.322	0.802	0.860	1.163
CL/TA	-33.468	227.815	-0.151	-0.147	0.907	0.860	1.163

a Dependent Variable: Return on Equity

b Independent Variables: CA/TA, and CL/TA

c Simple Least Squares (SLS) Regression

S.E.E. = Standard Error of the Estimate

AWC = Aggressive Working Capital

Source: Field Study, 2012

In regression equation 2 (table 3), we use return on equity (ROE) as a dependent variable. Current assets to total assets (CA/TA) and current liabilities to total assets (CL/TA) are used as independent variables and as control variables. The result of this regression indicates that the coefficient of CA/TA and CL/TA are negative with -0.603.339 and -33.468 respectively and respective p-values are 0.831 and 0.802. This implies that the increases in either the current assets to total assets (CA/TA) or current liabilities to total assets (CL/TA) will reduce the value of return on equity of firms. This means the relationship between the CA/TA and CL/TA and profitability variables are negatively slope.

The adjusted R^2 , also called the coefficient of multiple determinations, is the percent of the variance in the dependent explained uniquely or jointly by the independent variables and is 171.7%. The F statistic is used to test significant of R. From result of SPSS, we see that the model is fit with Fstatistics 0.052 but not well linearly correlated. This is shown in the p-value which gave respective values of 0.831 and 0.802, which are not in line with the decision value less than 0.05.

Therefore, we can conclude that increases in aggressive investing and aggressive financing will not lead to significant increase in return on equity but high increase in the two variables might bring about low return on equity attributable to members of a company. This means that when there is increase in current assets without ensuring their usage, capital will be tied down thereby reducing the capitalization of more items of plant, property and equipment available for the creation of more profit, whereas, these current assets were financed by the current liabilities bringing about high current liabilities and putting the company at a lower profitability.

Table 4: SLS Regression estimates on AWC factors affecting profitability (SDROA). a, b, c

$R^2 = 0.985$; S.E.E = 0.220; F = 32.729							
Regression Equation (3) SDROA = 6.704 + 0.442(CA/TA) - 2.019(CL/TA)							
	Un-standardized B	Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.	Collinearity Tolerance	Statistics VIF
Constant	6.704	1.414		4.741	0.132		
CA/TA	0.442	2.238	0.026	0.197	0.876	0.860	1.163
CL/TA	-2.019	0.272	-0.982	-7.426	0.085	0.860	1.163

a Dependent Variable: STANDARD DEVIATION of Return on Assets

b Independent Variables: CA/TA, and CL/TA

c Simple Least Squares (SLS) Regression

S.E.E. = Standard Error of the Estimate

AWC = Aggressive Working Capital

Source: Field Study, 2012

Another relationship examined was to show the risk element inherent in the return on assets. From table 4 (regression equation 3), the results showed that CA/TA is positively slope to the risk of return on assets while CL/TA is negative slope to the risk inherent in return of assets. With the positive coefficient value of CA/TA, of which the current assets is low when compared to the total assets, it means there is a low risk involved. However, with the negative coefficient value of CL/TA, it means higher risk involved. This can be interpreted that the selected manufacturing firms financed most of their fixed assets with lesser current liabilities and more current assets bringing about higher risk though normally current liabilities would have been used in financing short-term obligations while long-term liabilities should be used to finance non-current assets.

We examined here that more current liabilities are used to finance the fixed assets which corresponds to our results here of having a negative coefficient, hence higher risk involved. This in turn will bring about higher returns. This is shown in table 2 where the relationship between CL/TA and return on assets (ROA) were measured. It was established that when there is increase in the current liabilities that would be used in financing the assets of the companies, it will favourably affect its profitability.

Table 5: SLS Regression estimates on AWC factors affecting profitability (SDROE). a, b, c

R² = 0.073; S.E.E = 246.488; F = 0.039							
Regression Equation (4) SDROE = 138.810 – 515.544(CA/TA) + 30.116(CL/TA)							
	Un-standardized B	Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.	Collinearity Tolerance	Statistics VIF
Constant	138.810	1581.368		0.088	0.944		
CA/TA	-515.544	2503.409	-0.214	-0.206	0.871	0.860	1.163
CL/TA	30.116	304.099	0.103	0.099	0.937	0.860	1.163

a Dependent Variable: STANDARD DEVIATION of Return on Equity

b Independent Variables: CA/TA, and CL/TA

c Simple Least Squares (SLS) Regression

S.E.E. = Standard Error of the Estimate

AWC = Aggressive Working Capital

Source: Field Study, 2012

Table 5 established the relationship between return on equity (ROE) and the risk involved. This result contradicts the risk involved with the return on assets (ROA) in table 4. It was established here that financing of assets of the firms with short-term obligations has greater risks involved with the return on equity but lower risk involved when the assets are financed with short-term liabilities (current liabilities). Therefore, higher risk involved in the return on assets (ROA) when assets are financed with current liabilities but lower risk involved in the return on equity (ROE) when assets are financed with the same current liabilities.

All regression models were tested for multicollinearity. The variance inflation factor (VIF) or the tolerances of the explanatory variables is used to detect whether one predictor has a strong linear association with the remaining predictors. VIF measures how much the variance of an estimated regression coefficient increases if your predictor are correlation (multicollinearity). The largest VIF among all predictors is often used as an indicator of multicollinearity. All predictors had a variance inflation factor of 1.163, which is less than 2 which indicates that there is presence of multicollinearity between the predictors in the regression models. The tolerance coefficients of all four regressions are 0.860 which is greater than 0.5.

5. Conclusions and Recommendations

This paper established a relationship between return on assets (ROA); and equity (ROE) and aggressive current assets (CA/TA); and aggressive current liabilities (CL/TA) in the study on the impact of aggressive working capital management on profitability of firms. This paper established the nature of returns and risks involved in both aggressive current assets (CA/TA); and aggressive current liabilities (CL/TA) which are used to finance the assets of firms.

This paper established positive correlation coefficients between return on assets (ROA) and aggressive current assets (CA/TA); and aggressive current liabilities (CL/TA) while they both have negative correlation coefficients with return on equity (ROE) of firms. It was established that 'higher' return on assets (ROA) but 'lower' risks are involved when financed with aggressive current assets (CA/TA) but higher risks with lower returns are involved when financed with aggressive current liabilities (CL/TA).

We also found that both aggressive current assets and liabilities will bring lower returns on equity (ROE), hence negatively correlated whereby higher risks are involved for aggressive current assets and a lower risks involved for aggressive current liabilities. These results are in line with the study of Afza and Nazir (2009) where they found a negative relationship between the profitability measures of firms and degree of aggressiveness of working capital investment and financing policies. However, is not in line with the findings of Weinraub and Visscher (1998) on their study on industry practice relating to aggressive conservative working capital policies. They suggested that relatively aggressive working capital asset policies should be followed with a balance by relatively conservative working capital financial policies.

It is recommended that an appropriate level of current assets should be established in financing the assets of firms where return on equity will not be negatively affected and return on assets would not be reduced and hence, those short-term liabilities should not be too delayed in making payments to those they are due to.

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