

Relation Between Circulating Assets and Firm Reported Profits: An Empirical Exploration

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Abstract: *This research investigates the relationship between circulating assets and firm reported profits of manufacturing firms listed in Nigerian stock exchange between the period 2010 to 2016. Circulating assets or current operating assets are given as cash, inventory and receivables, while profits is measured by Gross profit (GP) and Net Profit (NP). Univariate regression models were specified for testing formulated hypotheses. The hypotheses revealed that Firm profitability and inventory levels held have a positive significant relationship, accounts receivables have a negative significant relationship with net profits while cash has a positive but insignificant relationship with profitability. It was recommended from the findings that to reap the benefits of holding current assets, there must be an optimal investment in them which calls for effective current assets or capital management.*

Keywords: *Bottom Line Performance, Net Profit Margin (NPM), Return on Assets (ROA), Return on Equity (ROE), Triple Bottom Line (TBL) Disclosure.*

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I. Introduction

Profitability is the essence of business without which the business will experience a gradual decline that may eventually lead to its. Profitability is a function of efficient management of the resources and sales (turnover) of a company. Assets are the resources being employed to generate income. This can be divided into two types, namely fixed assets and current assets. Fixed assets are the resources that cannot be converted into cash within an accounting year that is a year. Current assets on the other hand are those resources that are being used up in the course of business operation and can be converted into cash within an accounting period. Hence, they are called current operating and circulating capital because the amount keeps changing year in year out. Examples are cash, debtors, stock (inventories) and prepayment.

According to (Fleuriet, Kehdy and Blanc, 2003, [1]), current assets are divided into current operating asset and current financing asset, mathematically expressed as: $CA = COA + CFA$ Current financial assets include essentially financial elements such as cash, bank, short-term financial investments, etc. This group “does not show, as a consequence, any pre-established behaviour, varying more strictly as a function of the economic situation and of higher or lower risk the firm wishes to take” (Assaf and Silva, 2002, [2]). Current Operating (or Cyclical) Assets (COA) is composed of accounts related to the firms’ operating activities, such as inventories, account receivable, and bad debt provision, being influenced by the business volume or by characteristics of the operating cycle phases, such as inventory management decisions or sales policy.

Circulating assets also determine the liquidity of firms. Liquidity is important for every firm as it virtually affects its overall profitability. Firms involved in the processing of goods (manufacturing companies), usually keep working capital in the form of the cash, marketable securities, cash equivalents and the inventories. There is always trade-off between liquidity and profitability (Eljelly, 2004, [3]). Liquidity and profitability are important goals for any firm and to sacrifice one goal at the cost of other can create severe problems for the firm. Profitability is important for long term survival of firms which helps to maximize the wealth of shareholders. On the other hand liquidity is important to cover its short term obligations like payment to supplier and to protect itself from bankruptcy (Deloof, 2003, Afza and Nazir, 2008 [4]).

Large inventory and a substantial trade credit policy (account receivables) may lead to high sales. Firms kept larger inventory to reduce the risk of a stock out. Trade credit may arouse sales because it allows customers to assess product quality before paying (Long, Maltiz & Ravid, 1993, [5]). Liquidity is concerned with making sure that firms have exactly the right amount of money and lines of credit available to the business at all times. A popular measure of liquidity is cash gap or cash conversion cycle, the time lag between the expenditure for the purchases of raw materials and the collection of sales of finished goods (Deloof, 2003, [4]). The longer this time lag, the larger the investment in working capital. A longer cash gap might increase profitability because it leads to increase in sales of companies. However, corporate profitability might also decrease with the

cash gap.

The primary task of every manager is to keep current assets flowing and use the cash flows to generate profits. Current asset management is the handling of the current assets of a firm. Any asset that a firm has that is the equivalent of cash or can be liquidated into cash in the period of a year is considered a current asset. Typically, current assets are the inventory a company has, as well as the accounts receivables and any current investments it has in place.

The main principle in current asset management is to keep the proper flow of income in balance. Managing current assets also takes into account the non-current investments of a firm, but current asset is important in determining the liquidity of a firm. The measure of liquidity is really the measure of how well and how fast a firm can raise enough cash to pay off its debts. It is within this context that this study explores the relationship between current operating assets and firm's financial performance.

From the foregoing research objective, the following hypotheses are postulated in null form

H1: There is no significant relationship between profitability and cash/bank

H2: There is no significant relationship between profitability and inventory.

H3: There is no significant association between profitability and trade receivables.

II. Literature Review

2.1 Current operating assets

The term current asset is used to designate cash and other asset or resources commonly identified as those which are reasonably expected to be realized in cash or sold or consumed during the normal operating cycle of a business. Thus the term comprehends in general such resources as: Cash available for current operations and items which are the equivalent of cash. Inventories (or stocks) of merchandise, raw material goods in process, finished goods, operating supplies, and ordinary maintenance material and parts (Assaf and Silva, 2002, [2]). Trade accounts notes and acceptance receivable. Receivable from officers, employees, affiliates, and others, if collectible in the ordinary course of business within a year. Instalment or deferred accounts and notes receivable if they conform generally to normal trade practices and terms within the business. Marketable securities representing the investment of cash available for current operations and Prepaid expenses such as insurance, interest rents taxes, unused royalties, current paid advertising service not yet receivable and operating supplies. These forms of current assets are generally grouped into Cash, Accounts and note receivable, Inventories (stocks).

Cash is of course, the ultimate measure of a current asset since current liabilities are paid off in cash. Compensation balance under bank loan agreements cannot in most cases, be regarded as free cash. Cash equivalent represents temporary investment of cash in excess of current requirement made for the purpose of earning must be alert to the valuation of such investments. The mere ability to convert an asset to cash is not the sole determination of its current nature. It is the intention and normal practice that governs. Intention is however, not always enough. Thus, the cost sale should be included in current assets commitment from a buyer to purchase the asset at a given price within the following operating cycle (Osisioma, 1996, [6]).

Accounts receivable (that is debtors) net of provision for uncollectible accounts, are current unless they represent receivable for sales, not in the ordinary course of business, which are due after one year. Instalment receivables from customary sales usually fall within the operating cycle of the company. Financial managers must be alert to the valuation as well as validity of receivable particularly in case such as those where sale are made on consignment or subject to the right of return. Receivables from affiliated companies or from officers and employees can be considered current only if they are collectible in the ordinary course of business within a year or in the case of instalment sales, within the operating circle (Smith, 2011, [7]).

Inventories (or stocks) are considered current assets except in case where they are in from inventories, such as tobacco, which require a long aging cycle (Afza, and Nazir, 2007, [8]). Prepaid expenses are considered current, not because they can be converted into cash but rather because they represent advance payments and service and supplies which would otherwise require the current outlay of cash.

2.2 Profitability

(Kakuru, 2005 [9]) defines profitability as the difference between the revenue generated by corporate firm and expenses incurred during the operation of the business. (Brinker, 2002, [10]) defined profitability as the difference between the revenue generated and the costs incurred to produce the same revenue during a given accounting period. In same regard, (Pandey, 2002, [11]) sees profitability as the difference between revenues and expenses over a period of time (usually a year) where profit is the ultimate output of a company. Both Brinker and Pandey are of the opinion that companies should aim at increasing sales revenue and reduce costs incurred in order to achieve their target profit levels and remain viable in the future because a firm making accumulated losses is doomed to failing in the very near future.

Profitability measures the effectiveness of firms in managing its assets. Prior studies show that profit can be measured in different ways. Profit has been measured as return on assets (ROA), return on equity (ROE), return on capital employed (ROCE), Gross profit margin (GPM), Net profit Margin (NPM), Earnings per share (EPS), amongst others. However, in this study, profitability is measured as gross profit (operating profit) and net profit (profit after tax).

(Horne and Wachowicz, 2006, [12]) indicated that gross profit is the difference between the revenues of the firm which is the amount realized from the sale of a product/service by an organization with the costs the was incurred to produce that revenue in other wards it's the earnings before subtracting depreciation, interest and taxes (EBIDT) that is gross profit = sales - cost of goods sold. A high gross profit margin ration indicates high sales, good management and profitability which higher selling prices, low-costs of goods sold, whereas a low gross profit margin ratio indicates low profitable firm. But he stated that in order to come up with that analysis, the ratio obtained should be compared to the industry average ratio.(Pandey, 2002' [11]) explains that net profit is obtained after subtracting operating expenses like interest, taxes and electricity from the gross profit, hence net profit is a measure of corporate bottom line.

III. Research Methodology

The study employed ex-post facto research design. The ex-post factor research design was used because it involves events that have already taken place in the past. The design fits the proposed study which sought to determine the relationships between variables that is profitability and current operating assets. Further, the design is dependable, valid and generalizable in this kind of a research in that it is good for the purpose of data collection and analysis. The data used is the data of all manufacturing companies quoted in the Nigeria Stock Exchange (NSE) between the period 2010 to 2016, obtained from the annual reports of these firms.

This study used simple linear regression analysis to determine the effect of the current operating assets measured by cash, inventory and receivables on the performance of a firm measured by Gross Profit (GP) and Net Profits (NP). In line with previous work that used regression analysis to study how one or more variables affect changes in another variable, this work adopts regression to explain the association and influence of each current asset item on firm profitability.

By employing the statistical analysis method SPSS (Statistical Package for Social Sciences), descriptive statistics are summarized for all variables employed in the test of hypotheses. In testing the hypotheses, model summaries are examined for coefficient of determination (R^2). The coefficient of determination (R^2) measures the degree to which the dependent variable is explained by independent variables. If all the changes occurring in the dependent variable are derived from the changes that occur in the independent variables, the coefficient of determination will be equal to one. The more the coefficient is close to number one; this will give us an impression that independent variables have a huge impact on the dependent variable. t-statistics are employed in examining the statistical significance of the independent variables in influencing the dependent variables.

The linear regression models used to determine the effect of current asset on performance is as follows

For hypothesis one:

$$GP = \beta_0 + \beta_1 \text{CASH} + \varepsilon \quad \dots\dots\dots (1)$$

$$NP = \beta_0 + \beta_1 \text{CASH} + \varepsilon \quad \dots\dots\dots (2)$$

For hypothesis two:

$$GP = \beta_0 + \beta_1 \text{INV} + \varepsilon \quad \dots\dots\dots (3)$$

$$NP = \beta_0 + \beta_1 \text{INV} + \varepsilon \quad \dots\dots\dots (4)$$

For hypothesis three:

$$GP = \beta_0 + \beta_1 \text{TREC} + \varepsilon \quad \dots\dots\dots (5)$$

$$NP = \beta_0 + \beta_1 \text{INV} + \varepsilon \quad \dots\dots\dots (6)$$

Where the dependent variable profitability is measured by GP and NP;

GP = Gross Profit

NP = Net Profit

Where the independent variable current operating asset is measured by CSH, INV and TREC;

CSH = Cash/Bank

INV = Inventory

TREC = Trade Receivables

β_0 is the constant or intercept, β_1 is the coefficient of independent variable which measures the changes in profitability given a unit change in current operating assets component; and ε = Error term

t-test is used for the test of significance of individual coefficients. The significance of the regression model is determined at 95% confidence interval and 5% level of significance

Decision Criteria:

- a. Accept null hypothesis if:
 - i. T-calculated < T-critical
 - ii. P-value > 5% alpha level
- b. Reject null hypothesis if:
 - i. T-calculated > T-critical
 - ii. P-value < 5% alpha level

IV. Test Of Hypotheses

Hypothesis 1

Table 1: Regression results of Gross profit and net profit as dependent variables (profitability) and cash as independent variable (current asset)

Variables	GROSS PROFIT		NET PROFIT	
CASH (Predictor)	coefficient	0.996	coefficient	0.526
	t-calculated	1.489	t-calculated	1.971
	p-value	0.211	p-value	0.120
	R square	0.357	R square	0.493
	Durbin Watson	1.543	Durbin Watson	1.649

Source: SPSS 24

The coefficient of determination (R square) of 0.357 and 0.493 for gross profit model and net profit model respectively implies that 35.7% and 49.3% variations in gross profit and net profits respectively are explained by the amount of cash available to a firm. This means that about 64.3% variation in gross profit and 50.7% variation in net profit is unexplained by cash availability, that is caused by other variables not included.

The test of autocorrelation using Durbin Watson shows that the D/W values of 1.543 and 1.649 for the models of gross profit and net profit respectively fall within the inconclusive region of the D/W partition curve. Hence, it is clearly concluded that there exists no degree of autocorrelation.

The coefficients representing the coefficients of the independent variable (cash) show values of 0.996 and 0.526 for gross profit and net profit respectively. For every 1 naira change in cash value in the company, Gross profit is expected to change by 996 naira, and for every 1 naira change in cash value in a company, Net profit is expected to change by 526 naira. These values show that cash level has a positive influence on the profitability of firm.

Decision:

H₀: There is no significant relationship between profitability and cash/bank

H₁: There is a significant relationship between profitability and cash/bank

The computed t-statistics of gross profit is 1.489 (p-value = 0.211) while the tabulated or critical t-statistics obtained at n-2 degree of freedom (i.e. 6-2 = 4) @ 5% level of significance is 2.776. Also, the t-statistics of net profit is 1.971 (p-value = 0.120) while the tabulated or critical t-statistics obtained at n-2 degree of freedom (i.e. 6-2 = 4) @ 5% level of significance is 2.776. Since the t-calculated is less than the t-critical or t-tabulated, with p-values of 0.211 and 0.120 greater than 0.05 alpha level, the null hypothesis fails to be rejected. We thus accept the null hypothesis that There is no significant relationship between profitability and cash/bank.

Hypothesis II

Table 2: Regression results of Gross profit and net profit as dependent variables (profitability) and inventory as independent variable (current asset)

Variables	GROSS PROFIT		NET PROFIT	
INVENTORY (Predictor)	coefficient	2.092	coefficient	0.634
	t-calculated	2.850	t-calculated	2.828
	p-value	0.042	p-value	0.043
	R square	0.670	R square	0.287
	Durbin Watson	1.667	Durbin Watson	2.323

Source: SPSS 24

The coefficient of determination (R square) of 0.670 and 0.274 for gross profit model and net profit model respectively implies that 67% and 27.4% variations in gross profit and net profits respectively are explained by the amount of inventory held by a firm. This means that about 33% variation in gross profit and 72.6% variation in net profit is unexplained by inventory levels, that is caused by other variables not included.

The test of autocorrelation using Durbin Watson shows that the D/W value of 1.667 for the gross profit model falls within the inconclusive region of the D/W partition curve. The D/W value of 2.323 for the net profit model falls in the no autocorrelation region. Hence, it is clearly concluded that there exists no degree of autocorrelation.

The coefficients representing the coefficients of the independent variable (inventory) show values of 2.092 and 0.634 for gross profit and net profit respectively. For every 1 naira change in inventory, Gross profit is expected to change by 2092 naira, and for every 1 naira change in inventory, Net profit is expected to change by 634 naira. These values show that inventory level has a positive influence on the profitability of firms.

Decision:

H₀: There is no significant relationship between profitability and inventory.

H₁: There is a significant relationship between profitability and inventory.

The computed t-statistics of gross profit is 2.850 (p-value = 0.042) while the tabulated or critical t-statistics obtained at n-2 degree of freedom (i.e. 6-2 = 4) @ 5% level of significance is 2.776. Also, the t-statistics of net profit is 2.828 (p-value = 0.043) while the tabulated or critical t-statistics obtained at n-2 degree of freedom (i.e. 6-2 = 4) @ 5% level of significance is 2.776. Since the t-calculated is greater than the t-critical or t-tabulated, with p-values of 0.042 and 0.043 less than 0.05 alpha level, the null hypothesis is rejected. We thus accept the alternative hypothesis that there is a significant relationship between profitability and inventory.

Hypothesis III

Table 3: Regression results of Gross profit and net profit as dependent variables (profitability) and Trade Receivables as independent variable (current asset)

Variables	GROSS PROFIT		NET PROFIT	
TRADE RECEIVABLES (Predictor)	coefficient	2.615	coefficient	-1.730
	t-calculated	3.143	t-calculated	2.918
	p-value	0.039	p-value	0.048
	R square	0.643	R square	0.544
	Durbin Watson	1.205	Durbin Watson	2.250

Source: SPSS 24

The coefficient of determination (R square) of 0.643 and 0.544 for gross profit model and net profit model respectively implies that 64.3% and 54.4% variations in gross profit and net profit respectively are explained by the amount of trade receivables. This means that about 35.7% variation in gross profit and 45.6% variation in net profit is unexplained by receivables levels, that is caused by other variables not included.

The test of autocorrelation using Durbin Watson shows that the D/W value of 1.205 for the gross profit model falls within the inconclusive region of the D/W partition curve. The D/W value of 2.250 for the net profit model falls in the no autocorrelation region. Hence, it is clearly concluded that there exists no degree of autocorrelation.

The coefficients representing the coefficients of the independent variable (trade receivables) show values of 2.615 and -1.730 for gross profit and net profit respectively. For every 1 naira change in receivables, Gross profit is expected to change by 2615 naira, and for every 1 naira change in receivables, Net profit is expected to fall by 1730 naira. These values show that receivables has a positive influence on the net profit, but has a negative relationship with net profit

Decision:

H₀: There is no significant association between profitability and trade receivables.

H₁: There is a significant association between profitability and trade receivables.

The computed t-statistics of gross profit is 3.143 (p-value = 0.039) while the tabulated or critical t-statistics obtained at n-2 degree of freedom (i.e. 6-2 = 4) @ 5% level of significance is 2.776. Also, the t-statistics of net profit is 2.918 (p-value = 0.048) while the tabulated or critical t-statistics obtained at n-2 degree of freedom (i.e. 6-2 = 4) @ 5% level of significance is 2.776. Since the t-calculated is greater than the t-critical or t-tabulated, with p-values of 0.039 and 0.048 less than 0.05 alpha level, the null hypothesis is rejected. We thus accept the alternative hypothesis that there is a significant relationship between profitability and trade receivables.

V. Summary/Conclusion

There are three major findings in this study:

1. Firm profitability and inventory levels held have a positive significant relationship which makes sense in a way that higher inventory is needed to meet the higher demand, buying in bulk also reduces the ordering cost and high trade discount is associated with it. Low inventory level might reduce the carrying cost but it

will create problem in case of sudden rise in demand and if a company is not able to satisfy the demand of its customers, the possibility that the customer can switch to the competitors. This will reduce the level of sales and profitability.

2. It was also observed that accounts receivables have a negative significant relationship with net profits. This result is interpreted to mean that as accounts receivables (debtors) increase, profitability decrease. This agrees with the study of (Mathuva, 2009, [13]) where he found out that there was a significant but negative relationship between receivables and profitability. This is because large amounts of trade receivables result in high level of bad debts which significantly deplete gross profit. Hence, though gross profit is positively related to receivables (since granting more credit result in increased turnover, which increases gross profit), the impact of such large credit extension is negative on the net profit, which acts as the bottom line.
3. Cash has a positive relationship with profitability. The efficient management of cash is essential for harvesting the returns of cash investments. However, care must be taken to ensure that too much cash is not held to avoid idle cash, and excess cash should not be expended to avoid cash illiquidity.

This study concludes that the determination of the level of investment in current operating assets represents the exchange process between risk and return. If the ratio of current assets to total assets is high, then companies run the risk of not being able to cover long term liabilities and eventually plunge into bankruptcy. If the investment in current assets level is low, then there will be a negative working capital or low current ratio meaning that the company faces liquidity issues. Hence, to reap the benefits of holding current assets, there must be an optimal investment in them which calls for effective current assets or capital management.

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