ACCOUNT RECEIVABLE AND INVENTORY CONVERSION MANAGEMENT AS DETERMINANTS OF CORPORATE FINANCIAL PERFORMANCE: EVIDENCE FROM PUBLICLY QUOTED NIGERIAN FIRMS

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ABSTRACT

In this study, we examined whether account receivable and inventory conversion management (ICM) serve as a determinant of corporate financial performance. Ex-post facto design was used and sample of seventy-six (76) firms across various non-financial firm’s sectors were employed. Panel data were obtained from 2011-2019; data obtained were analyzed via descriptive (mean, median, standard deviation, minimum and maximum values, kurtosis, skewness and correlation matrix), diagnostic statistics (variance inflation factor, and unit root) and inferential (fixed and random effects model and Hausman specification) statistical tool. Findings of fixed and random effect panel regression revealed that account receivable management (ARM) significantly affects return on asset (Wald Ch2 = 24.63; prob. Chi2 = 0.000 < 0.05) while relationship between inventory conversion management (ICM) significantly affects return on asset (Wald Ch2 = 9.55; prob. Chi2 = 0.0085 < 0.05). Based on the findings, it was recommended that management should enhance accounts receivable and inventory conversion management.
ICM practices as it is vital to enhancing financial performance of non-financial firms. Also, management should initiate appropriate steps to maintain the level of purchasing and sales management in order to reduce losses due to poor inventory controls and to optimize efficient utilization of resources for production. This study contributes to knowledge by filling the gap in literature on the effect of account receivable, ICM and corporate financial performance in Nigeria.

**Keywords:** Account receivables; Inventory management; Inventory conversion management; Corporate performance; Cost of capital; Return on asset; Nigerian firms

**JEL Classification:** G31; M11; M10

### INTRODUCTION

The corporate finance literature recognizes the importance of short-term financial decisions for the survival of a firm. From the global perspective, empirical studies on working capital management (WCM) have attracted series of debate among researchers and management practitioners because of the strategic role it plays in making sure the ideal path for business going concern, survival and sustainability. Improvements in working capital, notably in the handling of accounts receivable and inventory, may liberate €1.3 trillion in cash, which may increase capital investments by 55%, according to a PriceWaterhouseCoopers analysis on all worldwide listed businesses published in 2019. The PWC research also outlined fresh issues that have affected the financial performance of publicly traded firms internationally over the past five years, such as a drop in capital spending, higher costs and more difficult conversions of cash, and only slight improvements in working capital.

As a result of this context, businesses require a working capital culture to support their financial performance. Profitability is used to evaluate how effective and efficient an enterprise has been in deploying its resources, including investment in current assets to generate the required returns. Investment in current assets also comes with a cost as a firm may result to borrowing to finance its operations. Consequently, to attain the desired profit level and make the business a going concern, prior studies (see Baños-Caballero & Pedro, 2020; Ukaegbu, 2014; and Aktas, Croci & Petmezas, 2015) have advocated that efficient WCM is vital due to the fact if the costs of investing in working capital rise more quickly than the advantages of expanding trade credit to clients or stocking up on additional inventory, businesses’ profitability may suffer. However, there is a lack of consensus in the empirical data about the link between account receivable and ICM and company performance.

On the one hand, working capital investments (account receivable and inventory conversion management) are seen to assist development in terms of sales and earnings, which is thought to increase business profitability (Amponsah-Kwatiah, & Asiamah. 2020; Baos-Caballero & Pedro, 2012; and Ukaegbu, 2014). However, excessive expenditures in working capital (such as management of account receivables and inventory conversion) necessitate financing and additional costs. They may also have negative impacts and result in financial losses for shareholders (Aktas, Croci, & Petmezas, 2015). Due to the aforementioned, a quick rise in the cost of working capital investments in comparison to the advantages of maintaining bigger inventories or allowing customers to use trade credit reduces the profitability level of the company. Research (Aktas et al., 2015; and Baos-Caballero & Pedro, 2020) has shown a non-linear relationship between working capital investment and corporate profitability.
Up to a certain point, known as the "optimum level of working capital," the non-linear connection postulates that investments in working capital have a beneficial impact on business profitability or performance (break-even point). Working capital can influence a company's performance negatively if it is over the optimal level. An inverted u-shaped connection is the positive and negative combination with a break-even point (Aktas et al. 2015). There is still considerable work to be done to support or refute current findings since the management literature on the link between WCM and business performance has produced varied results.

We identified one (1) key argument in this study to evaluate the relationship between account receivable and ICM and corporate performance of non-financial enterprises listed in Nigeria. Few studies (see Ukaegbu 2014; Tarurhor, 2017; Nguyen & Nguyen, 2018; Amponsah, Kwatia & Asiamah, 2020; and Tarurhor & Osazevbaru, 2021) on account receivable and ICM and corporate performance conducted in developing nations had failed to take into cognizance whether account receivable and inventory conversion management serve as determinants of corporate performance.

The second reason for conducting this study is that, from the perspective of developed economies, particularly the United States, the United Kingdom, and China, a sizable body of recent research studies has concentrated on account receivable and inventory conversion management as determinants of corporate performance (see Aktas et al. 2015; Dalci et al. 2019). However, only few research have been conducted with an emphasis on emerging and developing economies (see Ukaegbu 2014; Nguyen & Nguyen, 2018; and Amponsah, Kwatia & Asiamah, 2020). More so, the few studies conducted in Nigeria reported divergent and mixed findings necessitating further research on the subject matter which would be empirically address in this study.

**REVIEW OF RELATED LITERATURE**

**Accounts Receivable Management (ARM)**

Accounts receivable is a financial accounting term used to define the amount of money outstanding against customers or clients to whom a company has sold goods or rendered services to on credit. When companies make sales to their customers on credit basis, accounts receivables are created meaning that there will be a future cash flow as a result of present transaction. Accounts receivables or trade debtors are normally listed on a company’s statement of financial position (balance sheet) as current assets hence it is used to measure a firm’s liquidity (Yazdanfar & Öhman, 2014). ARM is a systematic process of making sure that trade debtors and clients settle their debts on time. Effective and efficient ARM enables a company to predict and manage its cash flow and helps in guarding against inadequate working capital at any point in time (Adekola, Samy & Knight, 2017).

Yazdanfar and Öhman (2014) further lists the benefits of effective ARM to include helping to reduce incidence of bad and doubtful debts, strengthening a company’s liquidity and financial position, and helps to mitigate non-payment of long outstanding debts of customers. A good ARM does not only entail reminding and collecting money from customers but also involves investigating and identifying the reasons for such delays in effecting payment and finding ways to remedy such issues. The average collection period (ACP) is an accounting system of measurement that serves as an indicator of the average number of days each time a credit sale is executed and the date the customers’ effects payment. It is usually measured in days, weeks or months (Otuya & Egininwin, 2017).
Mehta (2017) asserted that a firm’s average collection period is an indication of how effective its accounts receivables management practices are. A lesser average collection period which indicates that the company is able to collect its payment quicker is generally more favorable than a higher one. However, this may also imply that the company credit policy is too strict. In effect, when customers perceive a company’s credit policy to be too strict and unfriendly, there is tendency to for such customers to go other manufacturers, sellers or services providers that have more lenient payment terms thereby bringing loss of sales (Yazdanfar & Öhman, 2014). An efficient ARM policy creates the environment for timely collection and prevention of bad debts, for the company.

Firms and industries operate different trade receivable cycles hence each business or industry strives to maintain its trade receivable cycle according per industry standards (Yazdanfar & Öhman, 2014). When a trade receivable period is extended, this will result in an overdue collection of cash, consequently, affecting the CCC of the company. The distinguishing role of trade receivable is paramount as most financial analysts, while assessing a business usually examines the receivables turnover ratio to ascertain the WCM efficiency in collection of payments for credit sales undertaken by the company and also to stem bad debts suffered by the firm (Yazdanfar & Öhman, 2014).

**Inventory Conversion Management (ICM)**

Inventory is defined by Wood and Sangster (2008) as the worth of raw materials, work in progress (WIP), supplies, and finished goods that are stored for further processing or shipment to customers. Supplies, as defined by Wood and Sangster, include items such as coupling components, maintenance, repairs and operating (MRO) parts that do not constitute an element of the finished product. WIP on its part include partly finished or semi-finished goods which are not completed yet for sales to customers while finished goods are completed items ready for shipment.

Pandey (2005) viewed inventories as components of current assets of a firm which are expected to be converted in its physical form within a year into cash or accounts receivables. It forms a significant part of the current assets for the business firms. Pandey further clarifies that stock of inventories are the finished products that are kept in the warehouse and have a reselling value in order to realize some profit on its disposal. Inventories carry the principal costs for the trading companies, wholesale and retail traders and constitute between 20-30 percent of the investment of the total investment of manufacturing companies (Otuya & Egininiwin, 2017; and Torky, 2020).

According to Tarurhor, Aruoren and Owolabi (2022), managing inventory effectually involves the ability of managers to give room for trade-off between ‘under-stocking and overstocking’. As it is the responsibility of finance managers to guide against overstocking of inventories by minimizing or reducing the level of inventories. Inventory management is defined by Yazdanfar and Öhman (2014) as consisting of all the actions aimed at developing and managing the inventory levels of various types of a company’s inventory such as raw materials, WIP or finished good, so as to sustain supplies and make goods always available that the adequate supplies must be always available for production, and sales at a minimal cost. Inventory management implies the coordination of materials controlling, utilization and purchasing. It has also the purpose of getting the ‘right inventory at the right place in the right
time with right quantity’ because it is directly connected with the production (Yazdanfar & Öhman, 2014).

Inventory conversion period (ICP) is among the techniques used to measure effective inventory management. ICP as part of the working capital management model is essential since it enables management ascertain what time it takes right from procurement of raw materials to converting them into finished goods for shipment to clients and customers. Otuya and Eginiwin (2017) define ICP as a time it takes a company to acquire materials from third parties, convert them into finished products (added value) and make them available to customers in form of sales. ICP determines the time lag it takes to change the procured (raw material) inventory into turnover. Put differently, it shows the period from the purchase of the new inventory to the actual sale of the product. ICP period is normally computed in days. It is given as inventory (as obtained in the statement of financial position) scaled by average turnover or (cost of sales) and multiplied by 365 so as to ascertain how long it takes to turn inventory into sales.

For effective WCM, the management literature (Torky, 2020) contended that shorter inventory conversion timeframe is more desirable by companies. The argument is that with a shorter ICP, a company can purchase more raw materials, process into finished products and pay debts quickly. On the other hand, a high conversion period indicates the slow CCC and inventory money block. Conversion period improves a company’s cash conversion cycles removes unnecessary blockage of money.

**RESEARCH METHODS**

This study used the *ex-post facto* design and the study population comprised all listed firms outside the financial service sector on the floor of Nigerian Exchange Group. By December 31, 2021, the number of listed firms in the non-financial service sector stood at one hundred and seven (107). Given the population of the study, purposive sampling technique was used in selecting seventy-six (76) firms from 2011-2019.

Data were collected from financial statement of listed non-financial firms in Nigeria. Data obtained were analyzed using descriptive (mean, median, standard deviation, minimum and maximum values, kurtosis, skewness and correlation matrix), diagnostic statistics (variance inflation factor and unit root) and inferential (fixed and random effect, and Hausman specification) statistical tools. The statistical analyses were done using STATA 13.0. The study’s model was to examine the extent to which ARM and ICM determines corporate performance. The model is expressed as:

\[
ROA_t = f (ARM) \quad - \quad - \quad - \quad - \quad - \quad - \quad - \quad (1)
\]

\[
ROA_t = f (ICM) \quad - \quad - \quad - \quad - \quad - \quad - \quad - \quad (2)
\]

Equations 1 and 2 are the implicit form of the regression models; also, we re-estimated equations 3-4 in their explicit forms:

\[
ROA_{it} = \beta_0 + \beta_1 ARM_{it} + \epsilon_{it} \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad (3)
\]

\[
ROA_{it} = \beta_0 + \beta_1 ICM_{it} + \epsilon_{it} \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad (4)
\]

Where: ROA = return on assets (proxy for corporate performance); ICM = inventory conversion management; ARM = Accounts receivables management; \( \beta_1, \beta_2 \) are unknown coefficient of the variables; \( i \) = number of companies (1,2, 3, ….. 76); \( t \) = time period (1,2, 3, …..9).
RESULTS AND DISCUSSION

Table 1

Summary of Descriptive Statistics of the Variables of Study

<table>
<thead>
<tr>
<th>Variable(s)</th>
<th>Obs.</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min. Val.</th>
<th>Max. Val.</th>
<th>Kurtosis</th>
<th>Skewness</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROA</td>
<td>684</td>
<td>1.9124</td>
<td>16.9656</td>
<td>-179.9173</td>
<td>176.266</td>
<td>44.9400</td>
<td>-1.6636</td>
</tr>
<tr>
<td>ARM</td>
<td>684</td>
<td>132.24</td>
<td>262.858</td>
<td>0.03</td>
<td>5282.42</td>
<td>224.089</td>
<td>12.354</td>
</tr>
<tr>
<td>ICM</td>
<td>684</td>
<td>130.14</td>
<td>203.227</td>
<td>0</td>
<td>2349.07</td>
<td>50.1465</td>
<td>5.8094</td>
</tr>
</tbody>
</table>


Table 1 presents the summary of descriptive statistics of the variables of the study. From the results, ROA recorded a mean score of 1.9124 with a corresponding standard deviation of 16.9656. ROA ranged from -179.9173 (minimum) to 176.266 (maximum). ARM and ICM recorded average values of 132.24 and 130.14 with corresponding standard deviations of 262.858 and 203.227. While the minimum and maximum values of ARM stood at 0.03 and 5282.42 respectively, that of ICM was 0 and 2349.07.

The skewness values for ROA(-1.6636) is negative except ARM(12.354), and ICM (5.8094) that are positive. This result suggests that ARM and ICM moved in similar direction except ROA that moved in the opposite direction. Also, kurtosis values for ROA (44.9400), ARM (224.089), and ICM (50.1465) were greater than 3; an indication of leptokurtic distribution.

Table 2

Pearson Correlation Matrix

<table>
<thead>
<tr>
<th>Variables</th>
<th>ROA</th>
<th>ARM</th>
<th>ICM</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROA</td>
<td>1.0000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ARM</td>
<td>0.1726</td>
<td>1.0000</td>
<td></td>
</tr>
<tr>
<td>ICM</td>
<td>-0.0950</td>
<td>0.2264</td>
<td>1.0000</td>
</tr>
</tbody>
</table>


In table 2, it was discovered that there is a positive relationship between ROA and ARM while ICM is negative obtained negative coefficient of -0.0950, implying that the relationship with ROA is negative. The positive coefficient of 0.1726 for ARM implies that a unit increase in ARM may likely increase the value of ROA by approximately 0.1726 units. An increase in one unit of ICM will likely result to decrease in ROA by 0.0950; also, the Pearson correlation results showed that there is absence of multi-collinearity between pairs of the independent variable, since the Pearson coefficients did not exceed 0.8

Table 3

Variance Inflation Factor (VIF)

<table>
<thead>
<tr>
<th>Variable</th>
<th>VIF</th>
<th>1/VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICM</td>
<td>1.08</td>
<td>0.925654</td>
</tr>
<tr>
<td>ARM</td>
<td>1.05</td>
<td>0.948118</td>
</tr>
<tr>
<td>MEAN VIF</td>
<td>1.07</td>
<td></td>
</tr>
</tbody>
</table>


As shown in Table 3, the mean VIF did not go above the maximum threshold. Observably, VIF scores ranged from 1.05(ARM) to 1.08 (ICM); the mean VIF obtained was 1.07, which shows that the independent variables are not multicollinear.
Table 4
Results of the Panel Unit-Root Tests

<table>
<thead>
<tr>
<th>Variables</th>
<th>Hadri-LM-Test Statistics</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROA</td>
<td>6.4111*</td>
<td>0.0000</td>
</tr>
<tr>
<td>ARM</td>
<td>10.8781*</td>
<td>0.0000</td>
</tr>
<tr>
<td>ICM</td>
<td>3.2456*</td>
<td>0.0006</td>
</tr>
</tbody>
</table>

Note: *significant at <1% levels.

In Table 4, we observed that the statistics for ROA, ARM, and ICM were 6.4111, 10.8781, and 3.2456 with corresponding p-values of 0.0000, 0.0000, and 0.0006 respectively. Our argument is that the models used are fit and that the fixed and random effect results are reliable.

Table 5
Fixed and Random Effects Regression for ARM and ROA

<table>
<thead>
<tr>
<th>Estimator(s)</th>
<th>Fixed Effect (FE)</th>
<th>Random Effect (RE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable(s)</td>
<td>Coefficient</td>
<td>Prob.</td>
</tr>
<tr>
<td>ARM</td>
<td>0.0118 (4.85)</td>
<td>0.000</td>
</tr>
<tr>
<td>_cons.</td>
<td>0.8493 (1.09)</td>
<td>0.277 (1.31)</td>
</tr>
<tr>
<td>F-value</td>
<td>(df =2, 672) =12.92</td>
<td></td>
</tr>
<tr>
<td>R-Squared (within)</td>
<td>0.0370</td>
<td>0.0368</td>
</tr>
<tr>
<td>R-Squared (between)</td>
<td>0.0392</td>
<td>0.0189</td>
</tr>
<tr>
<td>R-Squared (overall)</td>
<td>0.0348</td>
<td>0.0350</td>
</tr>
<tr>
<td>Wald Ch2(2)</td>
<td></td>
<td>24.63</td>
</tr>
<tr>
<td>Prob. Ch2</td>
<td></td>
<td>0.0000</td>
</tr>
<tr>
<td>Hausman Test</td>
<td>Chi2(2) = 15.11</td>
<td>Prob&gt;Chi2= 0.0005</td>
</tr>
</tbody>
</table>

Source: Computation by the Researchers (2022);

The fixed and random effects panel regression for accounts receivable management (ARM), and corporate performance (ROA) of the non-financial firms in Nigeria was presented in Table 5. The RE result revealed that the coefficients are 0.0112(ARM) indicating that the sampled non-financial firms’ ARM in Nigeria will result to approximately 0.012% (increase) changes in ROA. Also, ARM significantly affect ROA; this situation was similar to what was obtained in FE result. Also, the t-test results (t= 4.61; prob.=0.0000) revealed that ARM is statistically significant in explaining the effect on return on assets.

Besides, the overall $R^2$ is 0.0392 for FE and 0.0368 for RE; this indicates that accounts receivable management cycle explained about 3.68% variation in ROA. The result of Hausman test (Prob>Chi2= 0.0005 < 0.05) indicates that RE is more efficient than FE. Furthermore, results (Wald Ch2=24.63; prob. Chi2 = 0.000<0.05) offers support that a significant connection exists between ARM and corporate performance of non-financial firms in Nigeria.

Table 6
Fixed and Random Effects Regression for ICM and ROA

<table>
<thead>
<tr>
<th>Estimator(s)</th>
<th>Fixed Effect (FE)</th>
<th>Random Effect (RE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable(s)</td>
<td>Coefficient</td>
<td>Prob.</td>
</tr>
<tr>
<td>ICM</td>
<td>-0.0078 (-2.46)</td>
<td>0.014</td>
</tr>
<tr>
<td>_cons.</td>
<td>3.4146 (4.10)</td>
<td>0.000</td>
</tr>
<tr>
<td>F-value</td>
<td>(F, 2, 672) =4.18</td>
<td></td>
</tr>
</tbody>
</table>

Tarurhor & Owolabi, P.No. 271-280
Table 6 showed the fixed and random effects panel regression for inventory conversion management (ICM), and ROA of the non-financial firms in Nigeria. The RE result revealed that the coefficient is -0.0079 (ICM), indicating that the sampled non-financial firms’ ICM in Nigeria will result to approximately -0.79% (decrease) changes in ROA. Also, inventory conversion management significantly affects return on assets. Also, the t-test results of ICM (t=-2.51; prob. =0.0079) revealed that ICM is statistically significant in explaining the effect on return on assets.

Besides, the overall $R^2$ is 0.0138 for FE and 0.0138 for RE; this indicates that inventory conversion management explained about 1.38% variation in ROA. The result of Hausman test (Prob>Chi2= 0.0102 < 0.05) indicates that FE is less effective than RE. The results (Wald Ch2 = 9.55 and prob. Chi2 = 0.0138 < 0.05) offers support that inventory conversion management significantly affect corporate performance of non-financial firms in Nigeria.

Accounts receivables management focuses on the average time it takes a company to collect cash from customers to whom products or services are sold to on credit. Pandey (2005) believed that accounts receivable is created when companies sell their products or services without receiving immediate payments for them. With the above in mind, we tested whether accounts receivable management determines return on asset (ROA). Observably, ARM obtained a coefficient of about 0.0112, which showed that ARM has positive relationship with return on asset (ROA) of listed Nigerian firms. The consequence is that for every unit rise in ARM, ROA will also increase by 0.0112 units. This finding justifies why Manyo and Ike (2013) maintained that since there are risks related to the future and has greater economic value, account receivables need efficient management. Notably, risks faced by companies in this regards include the potential risk of default in the future since the amount is collectible at future. Noteworthy, our result corroborates the position of earlier studies (Manyo et. Al, 2013; and Lazaridis & Tryfonidis, 2016), argued that a strong correlation exist between profitability and the duration of accounts receivable. The implication is that the lengthier the receivables collection period, the more the investments required by the firm in accounts receivable leading to the availability of less cash to cover cash outflows, such as payable obligations; this however exert inverse effect on profitability.

Predominantly, inventory management entails the management function or task of understanding the stock (raw materials, semi-finished goods and finished goods) mix of the firm and the different demands on that stock. Inventory is described by Wood and Sangster (2008) as the value of raw materials, work-in-progress, and supplies of finished items that are kept in storage for further processing or distribution to consumers. According to Pandey (2005), inventories are a company's present assets that are expected to be physically transformed into cash or accounts receivable within a year. It makes up a large portion of the company’s existing...
assets. In view of the above, we tested whether inventory conversion management (ICM) affects return on asset (ROA) of non-financial firms. Observably, ICM obtained a coefficient of about -0.0079, it demonstrated a negative correlation between ICM and ROA for listed Nigerian firms. The implication is that a unit increase in ICM will result to a decrease in ROA by 0.0079 units. This finding agrees with the result of Lazaridis and Tryfonidis (2016), which maintained that inventory management and business performance are significantly related.

CONCLUSION AND RECOMMENDATIONS

Given the above discuss, this study has comprehensively examined whether accounts receivable and ICM determine the performance of non-financial firms quoted on the floor of Nigeria Exchange Group. Despite the aforesaid documented evidence, there is empirical evidence suggesting that firms are beginning to undertake proactive initiatives in their decision-making process by highlighting the import of complying with WCM strategies believed to have impact on performance indices. The research findings imply, in conclusion, that there is a considerable connection between accounts receivable and ICM and business profitability.

Based on the findings, the study recommended that management should enhance accounts receivable and ICM practices as it is vital to enhancing financial performance of non-financial firms in Nigeria. More so, management should initiate appropriate steps to maintain the level of purchasing and sales management in order to reduce losses due to poor inventory controls and to optimize efficient utilization of resource for production. Finally, management should develop and adopt a world class talent management strategy in order to ensure attraction and retention of talented, reliable and dedicated employees as this will go a long way in influencing their working capital management practices.

References


