

# Determinants of Accounts Receivable of Listed Consumer Goods Companies in Nigeria

Ofilu Ugwudioha, Lucky Onmonya \*

Department of Accounting, Faculty of Management Sciences, Nile University of Nigeria, Abuja, Nigeria

Received September 22, 2021; Revised February 8, 2022; Accepted March 7, 2022

## Cite This Paper in the following Citation Styles

(a): [1] Ofilu Ugwudioha, Lucky Onmonya , "Determinants of Accounts receivable of Listed Consumer Goods Companies in Nigeria," *Universal Journal of Accounting and Finance*, Vol. 10, No. 4, pp. 793 - 802, 2022. DOI: 10.13189/ujaf.2022.100401.

(b): Ofilu Ugwudioha, Lucky Onmonya (2022). *Determinants of Accounts receivable of Listed Consumer Goods Companies in Nigeria*. *Universal Journal of Accounting and Finance*, 10(4), 793 - 802. DOI: 10.13189/ujaf.2022.100401.

Copyright©2022 by authors, all rights reserved. Authors agree that this article remains permanently open access under the terms of the Creative Commons Attribution License 4.0 International License

**Abstract** The management of accounts receivable is usually done not just to reduce inventory, improve sales and profitability, but also to improve liquidity and short-term solvency. These and other factors affect the level of accounts receivable in different ways depending on the industry's nature. This study examines the determinants of accounts receivable in consumer goods manufacturing companies listed on the stock exchange in Nigeria. The study population consists of 14 consumer goods companies listed on the Nigerian stock exchange as of November, 2020. It is a longitudinal study using ex post facto research design. Census sampling method was used to consider all listed consumer goods manufacturing companies. Data were collected from 2014 to 2019 annual reports of the 14 companies. Accounts for these years were prepared to comply with the International Financial Reporting Standards (IFRS). The dependent variable is accounts receivable represented by the Receivables Collection Period. Firm size, profitability, inventory, liquidity, leverage and age of companies are independent variables. The study used panel data analysis with its various elements of Pool, Fixed and Random effects. Robustness tests conducted include Variance Inflation Factor (VIF) Test, Hausman test, Lagrange Multiplier test. The result shows profitability and age has significant impact on accounts receivable. Firm size, inventory, liquidity and leverage have no significant impact on Receivable Collection Period. This suggests that profitability and age of companies have significant impact on receivables of consumer goods manufacturing companies in Nigeria. This implies that key determinants of account receivable in

these companies are the quest to make profit. It also suggests that older firms know their customers better and might have vast experience in handling accounts receivable.

**Keywords** Accounts Receivable, Determinants of Accounts Receivable, Consumer Goods Companies

---

## 1. Introduction

Accounts receivable arise when trade credits are given to customers who purchase a company's goods and services. It is done to increase revenue by attracting potential customers and giving the company a competitive advantage over rivals. Accounts receivable are usually due within a short time, usually a year and appear as a current liability in a firm Statement of Financial Position. Accounts receivables are vital components of working capital because they represent huge investment in assets and high volume of transactions, especially in the manufacturing industry. A careful analysis and management of accounts receivable is needed since a substantial amount are tied-up in these assets [1]. Accounts receivable have an impact on a company's profitability and risk, and thus on its value [2]. Emery et al. [3] stated that management of accounts receivables maximizes shareholder wealth because they are significant investments in a business's asset that stimulates sales. This can improve profitability but with a high risk of default if

not managed properly. Hence they should be trade-off between profitability arising from sale and risk of default which usually results in reduced liquidity.

Businesses must remain profitable and have adequate liquidity by ensuring proper management of their accounts receivable. There will be an adverse effect on liquidity when customers default in payment for receivables as at when due. Paul and Boden [4] state that trade credit management is a critical strategic opportunity to improve the performance, liquidity, and profitability of firms. A firm may be very profitable but not liquid because not all credit sales are realized in cash. Effective management of accounts receivable is not just a short-term activity but a strategic one because it affects the long term financial performance of a business and its value [5].

The key objective of accounts receivable is to achieve an optimum level between components of cash flow management [6]. Net cash flow is a vital measure of financial health for any business [7]. Accounts receivable as a significant part of cash flow affects firms' profitability. The cash flow management process tracks and analyses changes in inflow and outflow of all money in a business. It is used for future prediction of how money is available in the business to meet obligations such as payment of debts and other expenses as well as purchase of assets and materials. Timely collection of accounts receivable improved cash flow just as the given of account receivable reduces inventory and improves revenue. Joshi [8] stated that cash flow involves managing accounts payable, inventory, accounts receivables, and cash flow planning. Account receivable management, if properly done, can increase revenue as well as increase stock turnover rate. This can improve profitability of the business while an optimal cash flow can be maintained to keep the business solvent.

Many studies have been conducted on account receivable management in many countries using different methodologies and findings are mixed and inconclusive [9, 10, 5, 11]. Petersen and Rajan [12] argued that larger firms invest more on accounts receivable because of their access to other sources of fund and economies of scale. Ngugi [13] used firm size and age as determinants of receivable while Zericho and Dilip [14] stated that the use of debt factoring firm can influence investment in account receivable. Studies in Nigeria focus more on accounts receivable and profitability [15, 16, 17]. None also deal exhaustively with an entire manufacturing companies in an industry group as classified by the Nigeria Stock Exchange. This study examines the determinants of accounts receivable of consumer goods firms listed on the Nigeria Stock Exchange using factors such as size, profitability, inventory, liquidity, leverage and age of companies.

## 2. Literature Review

Mukhoma [18] explains that accounts receivable is an enforceable claim for compensation for goods supplied or

services rendered on credit. Munene [19] emphasizes accounts receivable is a term that refers to money due to a business in exchange for goods or services previously provided or rendered. Adenuba, Adekoya and Kesinro [15] also stated that accounts receivable is a credit for the provision of goods or services to a business on agreed terms and conditions where payments are to be made on a future date without interest. It is usually reported as a current asset and is considered an essential part of a firm's working capital [18].

Shehzad and Smith [20] explain that businesses typically sell products on credit to generate revenue rather than requiring immediate payment; thus, creating accounts receivable. It is a non-interest credit given to a customer where payment is to be made at a later day based on an agreed term and condition. Adenugba, et al., [15] describe accounts receivable as an enforceable claim for payment from a business to its customers for goods supplied or services rendered in completing of the customer's order. Account receivable involves enormous investment in current assets, and the risk of default can threaten the solvency of a business. However, it is necessary to make the business competitive, increase revenues and hence profitability. There should be trade-off between profitability, liquidity and liquidity. Ezejiofor et al. [17] point out that accounts receivables will build up to excessive levels resulting in declining cash flows if not properly managed and if it results in bad debts, profitability will be negatively affected.

Account receivable presents many advantages such as convenience, flexibility, and availability. Moreso, guarantees are usually not required; it can conveniently be obtained as a usual part of the company's operations; relatively cheap source of financing for current activity and it increases the profit of the provider for good sold [21].

To manage account receivables, there must be standard credit policies and procedures. These involve setting credit standard criteria to determine the types of customers to be given credit; specify credit term indicating duration of credit and terms of payment by customers; and determination of collection period [1]. Another aspect of receivable management is continuously monitoring and control of receivables to make collection method successful. According to Pandey [1], three methods of managing receivables are Average Collection Period and aging schedule and a more modern approach, the collection experience matrix. In some cases, a factoring firm is involved in the management and collection of receivables at a discount [22].

Accounts receivable management has to do with a set of policies, procedures, and practices employed to manage credit sales. It involves the assessment of customers' credit risk and worthiness, establishing sales conditions and credit policies, and developing a suitable receivables collection strategy. Accounts receivable are found on the balance sheet of a company, and are considered a short-term asset [15]. Effective management of accounts

receivables is vital to the performance of a firm. It improves liquidity by increasing cash flows, resulting in sound financial health of the firm. Adenuba, et al. [15], Nwude and Agbo [23] asserted that effective accounts receivable management is significant as it affects the company's value. They further stated that the effective management of receivables helps one to increase business activities, sales and hence operating income. Mukhoma [18] noted that accounts receivable must be tracked using a system. This includes: listing of all open invoices; preparation of customers' monthly statements, and aging of accounts receivable.

Many organizations encounter numerous challenges in dealing with their invoicing and accounts receivable process [19]. Some are faced with the challenge of managing accumulated accounts receivable balances and these are sometimes written off as bad debts with adverse effect on a firm's operations [18]. Accounts receivable management assists an organization in maintaining client loyalty, tracking customer credit, and collecting uncollected revenues [19].

There are several accounting metrics for measuring accounts receivable. Henning [24] mentions the following: (i) Accounts Receivable-to-Sales Ratio (ARS), computed as accounts receivable divided by its sales. It is the percentage of a firm's sales that are still overdue. A high ARS is an indication of risk with a low quality of accounts receivable. (ii) Accounts Receivable Turnover Ratio (ART), computed as the sales or credit sales divided by the average accounts receivables balance throughout that time. It measures efficiency in extending credit and collecting debts [18]; A high ART ratio indicates how fast accounts receivable is converted into cash, thus improving cash flow and liquidity [24]. (iii) Receivables Collection Period (RCP) or Days Sales Outstanding (DSO) is the ratio of average accounts receivables divided by sales or credit sale, multiplied by the number of days in the measurement period that is usually 365 days in a year. It measures the average number of days to collect revenue after a sale [18]. A long RCP is an indication of slow payment for accounts receivable. Other essential ratios used for measuring receivables are Bad Debts to Sales Ratio and Percentage of High-Risk Accounts, Collections Effectiveness Index (CEI) and Average Days Delinquent (ADD). CEI measures the percentage of accounts receivable collected over a particular period, usually a year, while ADD measures how long it takes customers to pay after bills become overdue [25].

Some studies on accounts receivable used various determinants of receivables such as profitability, revenue, liquidity, debts, inventories, sales growth, total assets and age and some show some level of association. However, some studies show contrary results provided mixed and inconclusive findings. For example, Bărbuță-Mișu [21] showed that accounts receivable is directly correlated with Return on Equity (ROE) and firm size and inversely correlated with Return on Asset (ROA). Companies can

implement credit policies that make reach an optimum level of receivables that makes Return of Equity to be at the highest value [26]. Furthermore, Paul and Boden [4] revealed that all credit sales are not usually realized in cash; a firm may be profitable but not liquid. In this study, RCP is used as the proxy for accounts receivable because it uses a clear unit of measure (days) and is straightforward to use than the other ratios.

There are a number of account receivable theories. Transaction Cost Economics Theory which stipulates that the minimization of ordering and carrying cost of inventorying may affect investment in receivables [3].

Agency theory developed by Berle and Means in 1932 cited in Fratini and Tettamanzi [27], stated that conflicts arise from the possible differences of interest between shareholders (principals) and managers (agents) of firms can generate conflicts that affect account receivable management decisions. Managers should manage the firm to increase shareholder wealth; thus, account receivable must be managed in such a way that will not jeopardize profitability and liquidity.

Operating cycle theory focuses strongly on liquidity by converting inventory into receivable and cash while paying short-term creditors [18]. Thus, it is better to have a shorter inventory and receivable turnover and a longer payable turnover. A credit policy that results in a shorter collection period improves liquidity but might lead to reduction in sales. Richards and Laughlin (28) developed the basic Cash Conversion Cycle (CCC) which integrates the management of receivables, inventory and payable as key components of working that should be effectively managed to ensure adequate cash flow at all time.

Michalski [29] developed a Portfolio Theory Approach in trade credit decisions. A portfolio is a collection of assets (accounts receivable). The portfolio approach to accounts receivable management can be applied by including the profit rate (rate of benefit from assets) as one of the basic criteria that the company providing the trade credit should encourage the buyer to consider when making decisions. Profit changes at different rates depending on the probabilities. These probabilities arise from consumers' marketable situations, which influence their ability to govern their accounts payable to the seller appropriately.

Liquidity Theory postulated that credit rationed firms use more trade credit than those with access to financial institutions [3]. The offer of trade credit can make up for the reduction of the credit offer from financial institutions. For instance, small firms with limited access to fund from traditional financial institutions or capital market rely more on trade credit [30] Firm with financial constraint are more likely to offer more trade credit leading to more account receivable. The theory provides a good explanation for the determinant of account receivable. Thus, this study is anchored on it.

The management of accounts receivable decision is challenging. On the one hand, too much money is locked

up in accounts receivable due to a very liberal trade credit policy. This burdens the organization with increased accounts receivable servicing charges as well as additional costly alternative expenditures. Bad loans from dangerous consumers add to the costs. On the other hand, a more flexible trade credit policy may aid in increasing sales revenue. Portfolio management theory focuses more on the determination of the level of accounts receivable. It stated that a rise in the level of accounts receivable increases net working capital and the costs of holding and managing accounts receivable and these decrease the value of the company. The accounts receivable balances are a function of the level of sales and the business credit policy [28].

This study is anchored on the liquidity and agency theories. Proponents of the liquidity theory argue that credit-constrained firms utilize more trade credit than those with easier access to financial intermediaries, while agency theory asserted that account receivable must be managed in a way that will not jeopardize profitability and liquidity with adverse effect on shareholders' wealth.

Kozhina [31] examined the factors affecting the turnover of accounts receivable of Russian examined factor affecting receivable turnover of 84 Russian companies for the period 2011-2015. Regression analysis was used in analyzing data. Results showed that profit margin, liquidity and administrative expenses had a positive effect on receivable turnover. Bărbuță-Mișu [21] analysed the relationship between collection/credit period, trade credit receivable/payable, and six measures of financial performance using a sample of 958 European companies from the construction sector. Correlation analysis and OLS regression were used for data analysis and result revealed that accounts receivables and return on equity and firm size but are directly correlated but inversely correlated with return on assets. Bărbuță-Mișu and Deari [32] conducted an analysis of the correlations between trade credit and some selected financial performance measures of 958 construction firms from 2004 to 2013. They found that bigger businesses gave and took more credit from each other than smaller businesses did. Firms with higher returns on assets and profit margins gave and took less credit from suppliers, respectively, to clients. As a result, more liquid businesses didn't have as many trade debts to pay.

Garcia-Teruel and Martinez-Solano [33] studied 3,589 small and medium-sized enterprises in the United Kingdom and discovered that larger firms, which have better access to alternative finance and pay less for it, utilize less credit from suppliers. According to Afrifa and Gyapong [34], enterprises with more inventories give less trade credit, whereas those with higher operating cash flow, annual sales growth, and access to bank credit spend more, resulting in larger trade credit investment. Mubashir et al. [35] investigated the factors of Pakistani listed businesses' accounts receivable and payable, with a focus on the textile industry. According to the findings, the size of the firm also

influences the degree of accounts receivable a firm retains.

Many studies had linked account receivable with profitability. Purwanti (36) used annual reports from 2011 to 2015 to examine the impact of cash turnover and accounts receivable turnover on the profitability of Indonesian manufacturing enterprises. The findings revealed that accounts receivable had an impact on profitability. Abdullahi et al. [11] studied the impact of accounts receivable and inventory management on Malaysian SMEs' profitability. Days accounts receivable and inventory turnover in days were found to be negatively related to ROA, ROE, and net operating profit.

Kilonzo et al. [5] investigated the impact of accounts receivable management on the financial performance of Kenyan enterprises financed by government venture capital. The study used a census approach to sample 24 Kenyans who were supported by government venture capital. There were both descriptive and inferential analysis performed. The findings revealed a positive association between accounts receivable and financial success of enterprises in Kenya backed by government venture capital. Munene [19] reveals that Average Collection Period and Current Ratio have significant positive correlation with ROE. Kilonzo, et al. [5] also indicate a positive correlation between accounts receivables and financial performance.

A number of studies were also conducted in Nigeria. Okpe and Duru [16] investigated the impact of accounts receivable management on the profitability of Nigerian building materials/chemical and paint industries from 2000 to 2011. Results showed that receivables had a significant impact on Return on Total Assets. Adenugba, et al. [15] conducted a study on the effect of accounts receivable on profitability of Nestle Nigeria Plc and Cadbury Nigeria Plc. Result shows a negative relationship. Nwude and Agbo [23] assessed account receivable period and the return on assets of 20 quoted insurance firms in Nigeria from 2000 to 2011. It is a cross-sectional study that employed regression analysis to determine the impact of accounts receivable period on return on assets while controlling for current ratio, growth, firm size, and fixed financial total asset ratio. According to the findings, the accounts receivable term has a negative and small impact on profitability. The expected positive association exists between the current ratio, fixed financial total asset ratio, debt asset ratio, and growth, however the unexpected positive relationship exists between the company size and profitability. The analysis shows that the accounts receivable time has no substantial causal association with the profitability of Nigerian quoted insurance businesses. Dan-Patrick [37] analyzed the effect of account receivable period on performance of quoted manufacturing firms in Nigeria using nineteen consumer goods companies. ROA was used as the proxy for corporate performance while the explanatory variable is account receivable period and firm size and leverage used as control variables. Findings show a positive effect of

account receivable period on ROA of listed manufacturing firms in Nigeria. Yanping [38] shows the correlation coefficient of asset and age are positive and significant at the 1% level.

The above theoretical exposition and empirical literature provide a means to illustrate the conceptual model of this study. This is shown below.

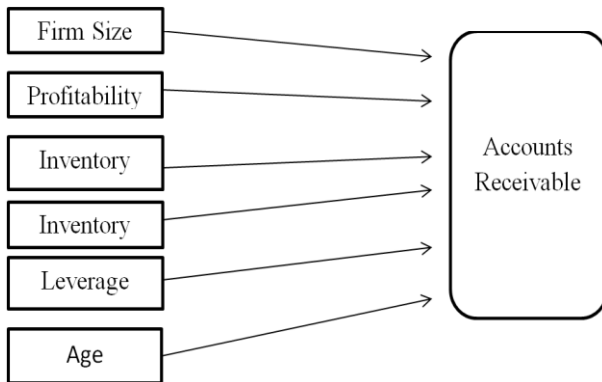


Figure 1. Conceptual model

Based on the framework in figure 1, the following hypotheses were formulated:

**H<sub>01</sub>:** Firm size has no significant impact on accounts receivable

**H<sub>02</sub>:** Profitability has no significant impact on accounts receivable

**H<sub>03</sub>:** Inventory has no significant impact on accounts receivable

**H<sub>04</sub>:** Liquidity has no significant impact on accounts receivable

**H<sub>05</sub>:** Leverage has no significant impact on accounts receivable

**H<sub>06</sub>:** Age has no significant impact on accounts receivable

Accounts receivable is the response or dependent variable while the firm size, profitability, inventory, liquidity, leverage and age of companies are the determinants.

### 3. Research Methods

It is a longitudinal study using expo facto and correlation research design. Census method of sampling was used to consider all listed consumer goods manufacturing companies as at 2020.

Data was collected from 2014 to 2019 annual reports and financial statements of 14 consumer goods manufacturing companies listed on the Nigeria Stock Exchange. Accounts for these years were prepared to comply with the International Financial Reporting Standards (IFRS).

Data was arranged in panel form. Correlation analysis and regression analysis were used in data analysis with the aid of STATA version 10.

### 3.1. Measurement of Variables

The proxy for accounts receivable, the dependent variable is the Receivables Collection Period (RCP). The independent variables are Firm Size, Profitability, Inventory, Leverage and Age. The proxies for Firm Size are Total Assets (ASSETS) and Sale Growth (SALEG); Profitability proxies are Net Profit Margin (NPM) and Return on Assets; Inventory is represented by Inventory Turnover (IT); Liquidity is measured by the ratio of Cash to Total Assets (CASHTA) and Leverage by Total Debt to Equity (TDE); and Age of companies (AGE) is the number of years of the company’s existence.

The model is specified as follows:

$$RCP_{it} = \beta_0 + \beta_1 ASSETS_{it} + \beta_2 SG_{it} + \beta_3 ROA_{it} + \beta_4 NPM_{it} + \beta_5 IT_{it} + \beta_6 CASHTA_{it} + \beta_7 TDE_{it} + \beta_8 AGE_{it} + \epsilon_{it}$$

Where:

RCP= Receivable Collection Period

ASSETS=Total Assets

SALEG= Sales Growth

ROA= Return on Assets

NPM= Net Profit Margin

IT= Inventory turnover

TDE= Total Debt to Equity

CASHTA = Cash to Total Assets

AGE= Age of the Company

RCP is a measure for account receivable management. RCP is the average length of time it takes customers to pay for their credit purchases. RCP is calculated as:

$$RCP = \text{Accounts Receivable} / \text{Annual sales} \times 365$$

NPM and ROA measure profitability. NPM is calculated as net profit divided by revenue while ROA is calculated as profit after tax divided by total assets. Net Profit Margin shows the profitability of sales resulting from regular business while ROA measures the ability of general management to utilize the total assets of the business to generate profits. The two major categories of profitability ratios are those based on revenue margin and returns. Ratios based on margin describe a firm’s ability to translate revenue into profits. Ratios based on returns show the firm’s ability to measure the overall efficiency of the firm in generating returns for its shareholders [39].

The logarithm of Total Assets is taken for ASSETS. SALEG is the ratio of the difference between current and previous revenue over current revenue. Receivable turnover is the ratio of revenue over inventory, Total debt to equity represents the leverage ratio and AGE represents age of the company (year of establishment to 2020).

### 4. Data Analysis and Findings

#### 4.1. Descriptive Statistics

Table 1 presents the result of descriptive statistics on dependent variable (RPP) and the independent variables.

**Table 1.** Descriptive Statistics

VARIABLES	OBSERVATIONS	MEAN	STD	MIN	MAX
ID	84	7.5	4.0553	1	14
RCP	84	84.6547	137.7094	6	999
ASSETS	84	7.8663	0.5965	6.49	8.92
SG	84	4.4179	3.2606	0	8.69
ROA	84	0.0528	0.0752	-0.25	0.3
NPM	84	0.0508	0.0809	-0.26	0.33
IT	84	12.2526	58.6309	0.87	541.71
CASHTA	84	0.0981	0.1041	0	0.433
TDE	84	1.8854	2.0263	0.24	17.07
AGE	84	48.7857	23,5218	9	96

Source: STATA output (2022)

**Table 2.** Correlation Matrix

VARIABLES	RCP	ASSETS	SG	ROA	NPM	IT	CTA	TDE	AGE
RCP	1.0000								
ASSETS	-0.4580	1.0000							
SG	-0.2643	0.0579	1.0000						
ROA	-0.0877	0.3249	0.1541	1.0000					
NPM	0.2199	0.1928	0.0185	0.8347	1.0000				
IT	-0.0584	0.0702	-0.1358	-0.0477	-0.0499	1.0000			
CASHTA	-0.1574	0.1099	0.1677	0.0516	0.0387	0.2310	1.0000		
TDE	0.0613	-0.1266	0.0351	-0.3984	-0.3707	0.0283	-0.0151	1.0000	
AGE	0.1693	-0.1522	-0.0930	-0.0932	-0.0176	-0.1834	-0.0122	-0.0751	1.0000

Source: STATA output (2022)

Table 1 shows that there are 84 observations (6 years annual reports of 14 sampled companies). Natural logarithm was used to normalise revenue and asset employed figures.

#### 4.2. Correlation Matrix

The correlation matrix is used to determine the strength of the relationship between the dependent and independent variables. Additionally, it is utilized to determine whether or not there is a relationship between the independent variables themselves, in order to ascertain the presence of a multicollinearity problem. Table 2 summarizes the findings for several correlations.

Result from table 2 shows that there is a negative association between Receivable Collection Period (RCP) and Total Asset as shown in the correlation coefficient -0.4580, and a weak negative association between Sale Growth (SL), Return on Assets (ROA), Inventory Turnover (IT) and ratio of Cash over Total Assets (CASHTA). However, there is a positive association between RCP and Net Profit Margin (NPM), Total Debt to

Equity (TDE) and AGE.

The correlation between the independent variables is minimal because only ROA and NPM have a high positive correlation coefficient of 0.8347.

#### 4.3. Robustness Tests

Various options for robustness test were run to ascertain the validity of statistical inferences and avoid making misleading inferences to select the appropriate panel regressions model for interpreting the result. The regression analysis models are the Ordinary Least Square (OLS) regression and the Generalised Least Square (GLS) models such as the Random Effect or Fixed Effect regression. The robustness tests are Variance Inflation Factor (VIF) test, Hausman specification test, Breusch – Pagan / Cook – weigsberg test and the Lagrange Multiplier (LM).

The OLS is used if the assumption that the error terms have equal variance (homoscedasticity) holds. If the variances of the error term are unequal (heteroscedasticity), or a certain degree of correlation between the observations

exists, the Random Effect or Fixed Effect regression will be used. The multicollinearity was tested using Variance Inflation Factor (VIF). The VIF measures the amount of multicollinearity in a set of multiple regression variables. A VIF 10 and above indicates a multicollinearity problem [40]. To test for heteroskedascity, the Breusch – Pagan / Cook – weigsberg test is used. The VIF test may show no multicollinearity, but the Breusch-Pagan test for heteroskedascity may reveal the presence of heteroskedascity. The benchmark for the Breusch-Pegan / Cook-weisberg test is that if the test statistic has a probability of chi value below 5% ( $p < 0.05$ ), heteroskedasticity assumed. If the data are heteroskedastic, additional analysis employing two panel data analysis techniques is required: fixed effect regression and random effect GLS regression.

A Hausman test is typically used to determine whether the preferred model is fixed or random effects, with the null hypothesis being that the preferred model is random effects and the alternative hypothesis being fixed effects. Where the probability of chi value is significant at 0.05, select fixed effect or select random effect option if probability is insignificant at 0.05. That is, if the  $Prob > \chi^2$  is less than 0.05, it is significant, use fixed effects or otherwise, use random effect. R-square overall is interpreted when random effect results are preferred over fixed effects, but R-square within is interpreted when fixed effects are preferred over random.

Random effects are also tested using the Breusch-Pagan Lagrange multiplier (LM) test. The LM test aids in determining whether a random effects regression or a simple OLS regression should be used. When the probability of the chi-square is less than 0.05, there is a panel effect, that is, there is significant difference across entities. If the probability value of the chi-square is more than 0.05, this indicates no evidence of significant differences across entities; therefore, OLS regression is used.

**Table 3.** Variance Inflation Factor (VIF)

VARIABLES	VIF	1/VIF
ROA	4.05	0.2469
NPM	3.56	0.2810
TDE	1.22	0.8186
ASSETS	1.18	0.8508
SG	1.16	0.8648
IT	1.15	0.8712
CASHTA	1.12	0.8931
AGE	1.10	0.9125

Mean VIF 1.82

Source: STATA output (2022)

To assess the presence of multicollinearity, the study employed Variance Inflation Factor (VIF) and its

reciprocal (1/VIF). The benchmark of VIF is a mean value of 10. That is, there is absence of multicollinearity between the independent and dependent variables when the mean is less than 10 [40]. The result in Table 3 shows that the mean value of VIF is 1.82. This suggests that there is no multicollinearity.

The VIF test reveals that there is no multicollinearity, but for heteroskedascity, the Breusch-Pagan test yields a chi-square value of 104.44 and a p-value of 0.000. This is significance at the 1% level, which implies there is heteroskedascity in the data. Given the data's heteroskedasticity, a more in-depth analysis employing the two methodologies in panel data analysis is required: the fixed and the random effect regression was conducted. A Hausman test was done to decide between fixed or random effects. Where the probability ( $Prob > \chi^2$ ) of chi value is significant at 0.05, fixed effect option is selected or random effect option is selected if probability is insignificant at 0.05 (Oscar, 2011). The Hausman test reveals a chi-square value of 6.88, which significant at 1%. Thus, fixed effect (within) regression was used. The Breusch-Pagan Lagrange multiplier (LM) test shows a probability value of the chi-square ( $Prob > \chi^2$ ) of 0.0000 indicating that there is a panel effect.

#### 4.4. Regression Result

The fixed effect regression model result is summarized in Table 4.

**Table 4.** Summary of Regression Result (Fixed Effect Regression)

Variables	Coefficient	T	P-value
ASSETS	-125.1493	-1.17	0.246
SG	-3.5535	-1.35	0.181
ROA	-1226.813	-3.93	0.000
NPM	1130.29	5.28	0.000
IT	-0.0694	-0.46	0.645
CASHTA	-68.9409	-0.57	0.567
TDE	-4.3484	-0.64	0.527
AGE	12.7524	2.16	0.034
R-SQUARE	0.4023		
Probability	(0.0001)		

Source: STATA output (2022)

As illustrated in Table 4, the P-values for ROA (0.000) and NPM (0.000) are significant at 1% while AGE (0.034) is significant at 5%. This suggests that profitability and age of companies significantly impact receivables of selected consumer goods manufacturing firms. The P-values of the remaining variables (SL, IT and CASHTA and TDE) are insignificant. This implies that they have no significant effect on account receivables. This is in tandem with Kozhina [31], [32] [21], which showed that profitability is a determinant of account receivable. Okpe and Duru (16),

Purwanti, (34) showed that accounts receivable had an impact on profitability.

However, Nwude and Agbo [23] showed that accounts receivable has a detrimental but negligible effect on profitability. While the fixed financial total asset ratio, current ratio, growth, and debt asset ratio all exhibit a positive correlation with profitability, the business size exhibits an unanticipated relationship. Some of the findings of the study not in agreement with Kozhina [31] which showed that liquidity and administrative expenses had positive effect on account receivables. Bărbuță-Mișu and Deari [32] also showed that cash were significant determinants of trade credit provided. Afrifa and Gyapong [34] revealed that companies with more inventories give less trade credit while those with higher annual sales growth, operating cash flow, and access to bank credit invest more, thereby leading to more increased investment in trade credit.

## 5. Conclusion and Recommendations

The study examines the determinants of accounts receivables of consumer goods manufacturing companies in Nigeria. The result showed that profitability and age of companies had significant impact on account receivable of selected consumer goods manufacturing companies in Nigeria. This implies that key determinants of account receivable in these companies are the quest to make profit. It also suggests that older firms know their customers better and might have vast experience in handling receivable.

However, firm size, inventory, liquidity and leverage had no significant impact on receivables of listed consumer goods companies in Nigeria, which suggests that the larger companies have more customers who are used to the companies' high quality branded product, and might have a conservative approach in given credit. The listed companies also have financial economies and can easily access funds from formal financial institutions to handle short-term liquidity challenges.

In as much as profitability is important, liquidity is also key for the financial health of a company. There should be an effective trade-off between profitability and liquidity. This will minimize the costs and risks associated with receivable management. A strong credit management policy, terms and structure to effectively manage account receivable is vital for a robust account receivable management. Companies should build excellent relationships with suppliers that provide long credit time period as well as customers that give short payment period.

The limitation of the study has to do with the use of only listed consumers goods manufacturing companies. Future studies might also focus on other manufacturing groups such as industrial goods and health care products.

## REFERENCES

- [1] Pandey I. M. "Financial management", 11<sup>th</sup> edition, Vikas Publishing House Limited, (2015).
- [2] Denčić-Mihajlov K, "Impact of accounts receivable management on the profitability during the financial crisis: evidence from Serbia," University of Niš, Faculty of Economic, Serbia., 9 TH International ASECUC Conference on "Systemic Economic Crisis: Current Issues and Perspectives, (2013). <http://www.asecu.gr/files/dencic-mihajlov>
- [3] Emery G.W., "A pure financial explanation for trade credit". *Journal of Financial and Quantitative Analysis*, Vol 28, No 2, pp 271-285, (1984). [https://EconPapers.repec.org/RePEc:cup:jfinqa:v:19:y:1984:i:03:p:271-285\\_02](https://EconPapers.repec.org/RePEc:cup:jfinqa:v:19:y:1984:i:03:p:271-285_02)
- [4] Paul S., Boden, R., The secret life of UK trade credit supply: setting a new research agenda, *British Accounting Review*, Vol 40, pp 272-281, (2008). <https://core.ac.uk/download/pdf/156784956.pdf>
- [5] Kilonzo J. M., Memba, S. F., Njeru, A., "Effect of accounts receivable on financial performance of firms funded by government venture capital in Kenya," *IOSR Journal of Economics and Finance*, 7(1), 62-69, (2016). DOI: 10.9790/5933-07116269
- [6] Gill A., Biger, N., Mathur, N., The relationship between working capital management and profitability, evidence from the United States, *Business and Economics Journal*, Vol. 10. <https://astonjournals.com/bej>
- [7] Danziger N., "6 new year's resolutions for the 99% of the nation's small business retailers, Managing cash flow in business," *Forbes Magazine* (2017, December 28). <https://www.forbes.com/>
- [8] Joshi R. N., "Cash management: perspectives, principles and practices". New Age International (P) Ltd. (2007).
- [9] Mutiso A., Mwangi P; "The effect of receivable management on performance of small and medium scale manufacturing firms in kiambu county, Kenya *International Journal of Economics, Commerce and Management*, Vol. 7, No. 8, pp 835-849, (2019). <http://ijecm.co.uk/>
- [10] Wafula W. M., Wafula E., Ondiek., "Average collection period and financial performance of Nzoia water services company," *International Journal of Multidisciplinary and Current Research*, Vol. 7 (May/June 2019 issue), pp. 273-279, (2019). DOI: <https://doi.org/10.14741/ijmcr/v.7.3.5>
- [11] Abdullahi H., Gorondutse A. H., Ali R.A., Abass, A. "Effect of trade receivables and inventory management on SMEs performance", *British Journal of Economics, Management & Trade*, Vol 12 No 4, pp 1-8. (2016). DOI: 10.9734/BJEMT/2016/24507
- [12] Petersen, M. A., Rajan R. G., "Trade credit: theories and evidence," *Review of Financial Studies*, Vol. 10, No. 3, 661-691. (1997). <http://www4.oup.co.uk/revfin/subinfo/>
- [13] Ngugi S., "Determinants of accounts receivables management in the hotel industry in Kenya," A Phd Business Administration thesis, Jomo Kenyatta University of Agriculture and Technology. (2019). <http://ijecm.co.uk/uploads/2019/08>



- [14] Zericho R. M., Dilip A., "Determinants of accounts Receivable financing: India and other Asian Economies Perspectives. (2020). <https://doi.org/10.1177/0019466220941661>
- [15] Adenugba A. A., Adekoya B. E., Kesinro O. R., "Effect of Accounts Receivable Management on the Performance of Selected Business Organizations," *Journal of Business and Management*, Vol 7, No 1, pp. 001-011. (2019). <http://www.meritresearchjournals.org/bm/index.htm>
- [16] Okpe I. I., Duru A. N., "The effect of receivable management on the profitability of building materials/chemical and paint manufacturing firms in Nigeria," *Journal of Research in Humanities and Social Science*, Vol. 3, No. 10, pp. 2321-9467, (2015). <http://www.questjournals.org/>
- [17] Ezejiofor A., Adigwe P. K., John-Akamelu R. C., "The credit management on liquidity and profitability positions of a manufacturing company in Nigeria," *European Journal of Research and Reflection in Management Sciences*, Vol. 3, No. 3, pp. 32-48. (2015). <https://www.idpublications.org/>
- [18] Mukhoma H. K., "Accounts receivables management and financial performance of manufacturing firms in Nakuru County, Kenya," An MBA research project, School of Business, University of Nairobi. (2014). <http://erepository.uonbi.ac.ke>
- [19] Munene, S. (2018). Accounts receivable management and financial performance of embu water and sanitation company limited, Embu County, Kenya. An MBA project, School of Business, Kenyatta University. <https://ir-library.ku.ac.ke/handle>
- [20] Shehzad L Mian and Smith, Clifford W., "Accounts receivable management Policy: Theory and evidence," *Journal of Finance*, Vol. 47, No. 1, pp. 169-200, (1992). <https://doi.org/10.1111/j.1540-6261.1992.tb03982.x>
- [21] Bărbuță-Mișu, N., "Analysis of factors influencing managerial decision to use trade credit in construction sector," *Economic Research-Ekonomska Istraživanja*, Vol 31, No. 1, pp. 1903-1922, (2018) DOI: 10.1080/1331677X.2018.1504690
- [22] Whittington O. R., *Financial accounting and reporting*, Wiley CPA excel exam review study guide, John Wiley & Sons Inc., (2014). DOI:10.29322/IJSRP.10.12.2020.p10858
- [23] Nwude E.C., Agbo E.I., (2018). "Impact of Accounts Receivable Period on the Profitability of Quoted Insurance Companies in Nigeria," *Transylvanian Review*, Vol. 25, No. 25, 6649-6658. <http://eprints.gouni.edu.ng/1349>
- [24] Henning, J. (2019). Accounts receivable management. <https://www.billgosling.com/blog/4-key-accounts-receivable-metrics>
- [25] Smyyth+Carixa "Five Mertic for measuring Accounts receivable", 2021, <https://www.smyyth.com/9-key-account-s-receivable-kpis-and-performance-benchmarks/> (Access August 18, 2021)
- [26] Nhung H., TU. T.T.T., Huong, T.T., Beason, D., "Determinants of account receivables and its optimal level: An empirical test of Vietnamese," *Journal of Applied Economics Sciences*, Vol. 2, No. 64, pp. 468-488. (2019). DOI:10.14505/jaes.v14.2(64).16
- [27] Fratini F., Tettamanzi P., *Corporate Governance and Performance: Evidence from Italian Companies*. *Open Journal of Business and Management*, Vol. 3, pp. 199-218. (2015). <http://dx.doi.org/10.4236/ojbm.2015.32020>
- [28] Richards V.D., Laughlin E.J., "A Cash Conversion Cycle Approach to Liquidity Analysis" *Financial Management*, Vol. 9, pp. 32-38. (1980). <https://doi.org/10.2307/3665310>
- [29] Michalski, G., "A portfolio management approach in accounts receivable management," <https://doi.org/10.2478/v10033-008-0018-4>
- [30] Nilsen J., "Trade credit and the bank lending channel," *Journal of Money, Credit, and Banking*, Vol 34, Issue 1, 226-253, (2002). <https://EconPapers.repec.org/RePEc:mcb:jmoncb:v:34:y:2002:i:1:p:226-53>
- [31] Kozhina E. A., "Factors affecting the receivable turnover," *Finance and Credit*, 2017, vol. 23, No. 21, pp. 1258–1272, (2017) <https://doi.org/10.24891/fc.23.21.1258>
- [32] Barbuta-Misu N., Deari F., "Determinants of Trade Credit: A Preliminary Analysis on Construction Sector," *International Conference on Risk in Contemporary Economy*, "Dunarea de Jos" University of Galati, Faculty of Economics and Business Administration, pp 306-314, (2016) <http://www.rce.feaa.ugal.ro/images/stories/RCE2016/BarbutaMisuDeari.pdf>
- [33] Garcia-Teruel P. J., Martinez-Solano, P. A., "Dynamic Perspective on the determinants of accounts payable," *Review of Quantitative Finance and Accounting*, (2010). Vol. 34, No. 4, 439-457, DOI: 10.1007/s11156-009-0124-0
- [34] Afrifa G.A., Gyapong, E., "Net trade credit: what are the determinants?," *International Journal of Managerial Finance*, Vol. 13 No. 3, pp. 246-266. (2017). <https://doi.org/10.1108/IJMF-12-2015-0222>
- [35] Mubashir A. K., Ghulam, A. T., Niaz, A. B., "Determinants of accounts receivable and accounts payable: A case of Pakistan textile sector," *Interdisciplinary Journal of Contemporary Research in Business*, Vol. 3, No. 9, 240-251, (2012). <https://journal-archievers14.webs.com/240-251.pdf>
- [36] Purwanti T., (2019). "An Analysis of Cash and Receivables Turnover Effect Towards Company Profitability," *International Journal of Sociology*, Vol 11(01), 037 <https://doi.org/10.29040/seocology.v1i01.6>
- [37] Dan-Patrick B. S., "Account receivable management and corporate performances: An empirical evidence from quoted manufacturing companies in Nigeria," *Arts and Management Journal*, Vol 6, No 1. pp. 116-129, (2020). <http://www.inosr.net/inosr-arts-and-management/>
- [38] Yanping, S, Chengke Z, Ting, Y. (2016) "Determinants of Accounts Receivable: Evidence from Equipment Manufacturing Industry in China," *Global Journal of Contemporary Research in Accounting, Auditing and Business Ethics*, Vol. 2, No 1, pp. 470-476, (2016). <http://www.globalbizresearch.org/>
- [39] Yusuf A., "An analysis of proposed framework on impact of working capital management on the profitability of selected manufacturing companies listed on the Nigerian Stock Exchange," *Journal of Economics and Behavioral Studies*, Vol. 4, No. 12, pp. 730-736, (2012). DOI: 10.22610/jebss.v4i12.373

[40] Gujarati D.N., Basic Econometrics. 4th Edition, McGraw-Hill Companies, (2004)