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Receivable and Profitability: Analysis of Nigeria Manufacturing Companies with Random Effect

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Abstract

This study examined the effect of receivable on profitability in Nigeria manufacturing companies. Panel data analysis components such as random, and fixed effects as well as pooled regression were employed to analyse the data collected from annual reports of selected manufacturing companies in Nigeria. Based on the finding for the reliable analytical tools, it was discovered that Days Sales Outstanding (DSO) increased Profitability significantly. Also credit policy increases profitability positively and significantly indicating that there is a positive effect of credit policy on Profitability. Conversely, other variables which are the control variables such as industry types, economic environment, and company size had negative effect on profitability. Conclusively, receivable has positive impact on profitability in Nigeria manufacturing industries. It is recommended that companies should inversely reduce Days Sales Outstanding periods foe the collection of debts owned by their consumers for effective production utilization so as to ultimately upsurge Nigeria companies' profitability significantly and tremendously. Also, the credit policy of the companies should be reviewed to be friendlier for the customers so that accommodate more customers for effective increment in patronage and profitability.

Keywords

Days Sales Outstanding, Receivable, Credit Policy, Profitability, Industry Type

INTRODUCTION

A critical component of financial management for businesses in a variety of industries is accounts receivable management. Profitability, liquidity, and general financial health of an organization are all significantly impacted by its receivables management strategy. Optimizing working capital usage, lowering bad debts, and guaranteeing regular cash inflows all depend on effective receivables management which needs careful preparation and execution to strike the correct balance between managing credit risk and giving customers credit. Furthermore, numerous variables affect organization profitability which fluctuates receivables. These variables are the state of the economy, the nature of the industry, the size of the company, the degree of competition, and management techniques. The relationship between receivables and profitability in Nigerian manufacturing enterprises was shown to be highly influenced by the economic environment, according to a study conducted in 2013 by (Preethi, 2023). The growth, competitiveness, and value creation of the Nigerian manufacturing sector ultimately depend on a thorough grasp of how receivables affect profitability. Nigeria's manufacturing industry is essential to the nation's economy since it fosters industrial development, GDP expansion, and job creation.

Unfortunately, a lot of Nigerian manufacturing companies are facing critical issues on successfully management of their receivables which causes cash flow issues and other financial problems ultimately. Majority of manufacturing businesses are facing a shortage in their accounts

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receivable, which is attributed to a number of factors including tight budgets, disgruntled clients, lower capitation, and non-compliance with payment terms. Additionally, industrial firms' ineffective accounts receivable management contributed to their subpar financial performance. Inadequate accounts receivable management regularly resulted into unstable and irregular cash flows which has caused problems such as nonexistent of delayed payments to the suppliers of products, services and goods, nonpayment to workers, and unfulfillment of legal requirements (Gamlath, 2021).

The results of this study can guide businesses toward more efficient receivables management techniques that improve financial performance and sustainability. It can also be used to inform strategic decision-making and operational procedures. The results of this research should add to the body of knowledge already available on the profitability and receivables management of emerging market economies, with particular relevance for manufacturing firms in Nigeria which have the potential to improve the competitiveness and long-term sustainability of Nigerian manufacturing firms by providing valuable insights for strategic decision-making especially on receivable management.

LITERATURE REVIEW

Profitability

Profitability refers to imperative indicator of an organization's financial health, ability and prowess to generate a profit in comparison to its costs and other expenses. It is generally viewed as an important gauge of a company's viability and performance in the marketplace. A company's profitability according to Adegbite & Azeez, (2016) are influenced by numerous factors which include pricing strategies, industry competition, cost management, marketing campaigns, operational performance, and financial management approaches. Profitability to investment evaluates performance and the efficiency of organizations by engaging different metrics of the profitability such as Return on equity, investment, and earnings per share as well as others. It was found that liquidity efficiency and profitability are positively correlated (Adegbite & Ajagbe, 2023; Danga et al., 2019; Nwakaego et al., 2014; and Oktavia & Indrati, 2021). It was advocated that any organization that experiences poor profitability, it is omen of current management efficiency problem and receivable management which ultimately threatens and downplays organization progress.

Receivables Management

The goal of accounts receivable management is to maximize collection velocity while minimizing sales loss from aggressive collection tactics. According to Muthoni et al., (2020) in order to maximize the value of the business, managing accounts receivable is mostly to striking a balance between risk, profitability, and liquidity. Maintaining receivables is more about increasing sales than it is about minimizing risk from bad debts. This is due to the fact that the company would not need to make any credit sales at all if the goal is to minimize the risk of bad debts. Given that if businesses rely on credit sales to grow, managing accounts receivable becomes essential to maximizing earnings. This implies that a company expands its sales through receivables exclusively in order to generate enormous profits. The goal of accounts receivable management is to balance the firm's inventory and receivables, which help creating value for the company by reducing risk and increasing return. Overinvesting in receivables and inventory lowers earnings, while underinvesting raises the possibility of failing to fulfill obligations when they are due which make it difficult effort to manage the receivables asset.

According to Adam & Ayuma, (2018), creating a credit and collection policy is a part of accounts receivable management. The policy outlines the credit period, early payment discounts, and credit

standards that indicate who should be given credit, terms of the credit are, and how it should be collected. Reduction in accounts receivable ratios mean that organizational credit policy is extremely strict, and inappropriate in average accounts receivable investment existed. Inability of the organization to exploit profits possibility through sales is risk which invariably results to revenue loss. Unmanaged receivables have a negative effect on a company's profits in two ways. Firstly, when debts are written off, the company's profits are often directly reduced in the profit and loss account; secondly, the company may experience financial difficulties and may have to borrow money at a higher cost to finance operations, which further reduces profit. Legal costs are incurred in the process of collecting debt in additon to bad debt and interest expenditures. A company with poor credit rating may find it difficult and costly to get operating capital from other organizations if its accounts receivable is not managed effectively. Prolonged cash constraints with debtors may cause severe liquidity issues, which could ultimately result in insolvency and the company's demise. As a result of the growing quantity of unpaid accounts receivable and the decline in receivables, the extended period of time for accounts receivable collection will increase the risk of bad debts.

Days Sales Outstanding (DSO)

DSO is a prominent financial statistic that calculates the average days business receive payment for credit sales. Reduction in DSO indicates faster accounts receivable collection, which improve working capital management and cash flow. Contrarily, a higher DSO indicates inefficiencies in the company's credit policy or debt collection procedures. DSO has been discovered having significant connection with profitability (Aldubhani et al., 2022; Gamlath, 2021; Kungu et al., 2014; Nwude & Agbo, 2018; Theory, 2020). A reduction in DSO according to Nwude & Agbo, 2018 dispensed higher profitability in the organization due to the credit management efficiency with prompt receivables collection. It was advocated further that organization with lower DSO levels possessed enhanced profit margins as well as return on assets than company with higher DSO (Aldubhani et al., 2022; Imran, 2018; Kuraesin et al., 2023). According to Lazarus et al., (2023), DSO monitoring is crucial to working capital management strategies which is tantamount to profitability in an effective and efficient organization. It was advocated further that reduction in DSO stimulates liquidity and cash flow enhancement which ultimately paved ways for financial obligations and investment fulfilment. The body of research on DSO highlights its significance as a key financial metric for assessing working capital management, profitability, and liquidity. Employing effective credit management strategies, determining the variables influencing DSO levels, and analyzing DSO patterns which help businesses minimize risks, increase cash flow, and enhance their financial performance.

H1: DSO significantly influenced profitability in Nigeria manufacturing companies

Credit Policy

An organization's credit policy is essential for controlling its cash flow and accounts receivable. Manufacturing companies with more accommodating credit practices typically have stronger sales, but they also run a larger chance of bad debts, according to research by Onuora & Nwafili, (2017). Conversely, businesses with more stringent credit standards experience decrease in sales volume, but which would also be able to better manage their receivables and profitability. A key component of financial management, credit policy affects a company's profitability, liquidity, and overall financial success (Aldubhani et al., 2022; Kungu et al., 2014; and Yosen et al., 2024). An overview of significant research on credit policy emphases on the significance of appropriately defining credit terms and effectively controlling credit risk. It was

advocated further by Onuora & Nwafili, (2017) that liquidity management and credit policy possessed significant negative connection with performance but debtors' turnover possessed positive significant effect on performance. Fidelis & Umoffong, (2020) concluded in their study that formidable credit management policy enhanced performance and profitability of the Nigeria organization which supported that companies established credit management policies to achieve organization imperative goal of profitability.

H2: Credit policy significantly influenced profitability in Nigeria manufacturing companies

Industry Type

The pertinent and indispensable factor influencing and inducing innovation, financial success, sustainability, competitiveness, and other areas of organization performance is industry type. Organizational performance is significantly influenced and enhanced by the industrial status and capacity (Fidelis & Umoffong, 2020; Mutiso & Mwangi, 2019; Onuora & Nwafili, 2017). According to Yosen et al., (2024) organization capabilities and innovation outcomes are manipulated by the industrial type which is measured with high and low level technologies. Industry nature has been discovered having significant effect on companies' profitability (Fidelis & Umoffong, 2020; Mutiso & Mwangi, 2019; Onuora & Nwafili, 2017; and Yosen et al., (2024)). The study of Jones et al. (2020) which investigated the connection amid industry type and performance found that organization in sensitive industries environmentally experienced more pressure and scrutiny to accept sustainable practices than organization in less sensitive industries environmentally. It was advocated further that industry nature significant impacted organization sustainability, profitability, competitiveness, and innovation. Therefore, it is hypothesized that:

H3: Industry type significantly influenced profitability in Nigeria manufacturing companies

Company Size

To fully reflect the multifaceted nature of corporate size, it is opined additional dimensions of scale, such as complexity, market reach, and industry domination. While larger organizations might gain a competitive edge by utilizing economies of scale, scope, and resources, smaller firms can benefit from agility, flexibility, and innovation.

The literature also highlights the role of industry dynamics, market structure, and institutional factors in shaping the relationship between company size and performance outcomes. From a theoretical standpoint, various researchers offer insights into how company size influences organizational behavior and strategic decision-making. Aldubhani et al., (2022) posited that larger firms have access to a diverse range of resources and capabilities that can be leveraged to create sustainable competitive advantages. However, Imran, (2018) economics suggests that larger firms may face challenges related to coordination, communication, and bureaucracy, leading to inefficiencies and decision-making delays. Dan, (2020) emphasizes the influence of external factors, such as regulatory environments, industry norms, and stakeholder expectations on firm behavior and performance based on company size. Many researchers advocated that positive significant effect on profitability was established by firm size (Abubakar & Olowe, 2019; Mose & Muturi, 2019; Saidu, 2019; Yosen et al., 2024) while (Ahmed et al., 2023; Anayo & Ikechi, 2022; Isik et al., 2017; and Theory, (2020) supported negative effect of firm size on profitability.

H4: Company size significantly influenced profitability in Nigeria manufacturing companies

Economic Environment

The state of the economy has a significant impact on how companies, industries, and economies as a whole operate and behave. It includes elements like interest rates, monetary policy, fiscal policy, currency rates, inflation, economic growth, or worldwide economic trends. Businesses comprehend the economic landscape in order to manage risks, make well-informed decisions, and overcome obstacles in a dynamic and globally interconnected marketplace. Apart from the management of receivables, the economic climate in which manufacturing enterprises in Nigeria function is a crucial factor that impacts profitability. Nigerian economy volatility is well-known, affecting firms in many different industries through changes in interest rates, inflation, exchange rates, and total economic growth. The operations and financial performance of Nigerian manufacturing businesses are directly impacted by macroeconomic factors, which also have an effect on the companies' competitiveness and profitability (Riskiya & Edastami, 2020). Nigeria's industrial industry is highly dependent on imported machinery and raw supplies, which makes it vulnerable to changes in exchange rates. A local currency depreciation can drive up import costs, which can squeeze profit margins for businesses that cannot charge clients for the higher prices. The profitability of businesses is greatly impacted by this currency rate risk, particularly if it lacks strong hedging measures.

H5: Economic environment significantly influenced profitability in Nigeria manufacturing companies

Theoretical Review

When studying the impact of receivables on profitability in Nigerian manufacturing companies, several theories can be used to provide a theoretical framework for analysis. Below are some relevant theories where are applied:

Trade-off Theory

According to trade-off theory, receivables management entails balancing risk and profit. This insight might help you understand how granting customers credit can enhance sales and income while also increasing the expenses and risks of accounts receivable management. Weighing the trade-offs involved allows us to estimate the optimal level of receivables that maximizes profitability for Nigerian manufacturing businesses. According to the trade-off theory of finance, the best capital structure for a corporation is a balance between debt's tax benefits and financial crisis costs. In their seminal work on capital structure and corporate finance, Modigliani and Miller first put forward the hypothesis in the 1950s and 1960s. The traditional belief that debt financing is less expensive than equity financing because it is tax deductible was contested by Modigliani and Miller's work. They maintained that organization's value is globally independence of the capital structure without bankruptcy and taxes expenses. Companies must weigh between tax advantages and debt as well as bankruptcy risk and financial distress in a world where financial distress and taxes exist. The trade-off approach emphasizes how crucial it is to optimize corporate value by striking the correct balance between debt and equity financing.

According to the trade-off theory, organization needs to evaluate the possible advantages of debt financing like greater leverage and tax breaks, disadvantages I such as agency fees and bankruptcy risk. Through the deduction of interest costs from taxable income, debt financing enables businesses to take advantage of tax shielding. This can boost profitability and lessen the company's overall tax burden. It reduces the cost of capital. Because interest payments on debt are tax deductible, debt is typically less expensive than equity.

Cash Conversion Cycle Theory (CCCT)

CCCT refers to financial gauge theory was developed and popularized by Mealy (1911) and, and Scott (1988). CCCT is known to be

financial statistic which is always used in organization to assesses efficiency of cash flow and working capital management. It also allows organization to look for opportunities to improve receivable collection periods and payable systems which eventually ignites cash flow and liquidity management. In addition, CCCT evaluates company convert periods of inventory to cash flow which is the pertinent yardstick of efficient receivable management. Company with lower collection periods possessed formidable working capital, and vice visa. CCCT is considered pertinent metric but failed to provide entire view of the organization financial status. When assessing organization overall success, many acceptable financial metrics must be effectively considered. Industries possessed CCC benchmarks differently because of variances differences in supply chains, consumer payment, and business models. CCC is a clear picture of organization's working capital efficiency at a specified time. Variations in sales volume, payment terms or inventory according to (Adegbite & Ajagbe, 2023) has significant impact on accuracy of CCC which is the yardstick of performance. An organization increases profitability by reducing significant cost and enhancing cash flow optimizing working capital efficiency especially receivables management.

Empirical Review

The effect of receivables management on profitability of Nigeria listed firms was examined by Confidence & Igoniderigha (2023). Two hypotheses were developed and put to the test at the significance level of 0.05. The research utilized secondary data that was acquired from publicly available financial records of selected companies for the period of 2015 to 2022. Ten consumer products businesses that are listed on the Nigerian Exchange Group, or NGX, were selected for the study. E-views version 9 was used to analyze the collected data using the ordinary least square regression technique. The results showed that the net profit margin of listed consumer goods companies in Nigeria was strongly, positively, and significantly correlated with the ratios of accounts receivable to sales growth. encourage sensible, efficient receivables management.

The impact of accounts receivable management strategies on the financial performance of Rwandan manufacturing enterprises was ascertained by Mbarushimana & Kengere, (2023). The research design used for the study was a descriptive cross-sectional survey, which made it possible to gather primary quantitative data using structured questionnaires. 61 Cimerwa Plc employees were the target population through the Census technique. Questionnaires were used in the study as a data collection tool. The mean, standard deviation, and Ordinary Least Square approach were among the descriptive and inferential statistics that were examined in the data. Credit policy and credit analysis have a statistically significant beneficial impact on financial performance. Also, stronger credit policies and credit analyses have a good effect on financial performance. The financial performance of manufacturing organizations was found to be significantly impacted by efficient accounts receivable management.

The performance of manufacturing firms listed on the Ghana Stock Exchange was examined by Lazarus et al. (2023) in relation to the impact of inventory conversion cycles and account receivables. The study used a cross-sectional design and a quantitative research methodology. For the study, panel data from six (6) Ghanaian manufacturing companies that were listed on the Ghana Stock Exchange between 2011 and 2020 was utilized. The firms' audited financial statements provided the data. The data were analyzed using correlation and multiple regressions using Ordinary Least Square (OLS). According to the findings, the period of account receivables has a statistically significant negative impact on return on assets. The

results of the study showed a statistically significant inverse relationship between return on asset and inventory conversion period. The findings showed that return on asset was not significantly positively impacted by the current ratio, sales growth, or cash to sales.

Preethi (2023) looks on how management of accounts receivable affects business. To complete the study's objectives and carry out the necessary analysis for the research paper, data taken from the annual statements of a few printing companies between 2009–10 and 2018–19 is utilized. Liquidity is measured by computing several liquidity ratios. Regression analysis, Durbin-Watson correlation, descriptive statistical techniques of the hypothesis testing, and ANOVA are some of the statistical approaches employed in this study to investigate the relationship between liquidity and profitability. The study indicates that companies who use good receivables management strategies outperform those that use inferior ones in terms of profitability. The findings demonstrate how the poor receivables management of the chosen printing companies significantly reduces the company's profitability.

In food and beverage companies listed on the Indonesia Stock Exchange, Ayu et al. (2023) examined the impact of Receivable Turnover and Total Asset Turnover on Profitability. The study's population consists of all companies in the food and beverage subsector that were listed between 2015 and 2019 on the Indonesia Stock Exchange. Eleven companies made up the purposive sample used in this investigation. The data source makes use of secondary data that was gathered using the documentation technique via the www.idx.co.id website. Multiple linear regression analysis is the analysis method employed. The findings of statistical tests, specifically Receivable Turnover and Total Asset Turnover, have a big impact on profitability.

Yusup and Swarmilah (2024) looked into how Return on Assets was affected by Inventory Turnover, Accounts Receivable Turnover, and Current Ratio. A purposive sample technique was used to select 70 out of the 130 companies in the food and beverage sub-sector that are listed on the Indonesia Stock Exchange between 2015 and 2019. The outcome of Quantitative causal analysis results showed a negative impact of inventory turnover on receivable turnover. In another study, Hanifah (2023) investigated receivables and current ratio impact on Indonesia's listed tobacco between 2016 and 2021. Data gathered through Indonesian stock exchange were analyesd with correlation, VIF, autocorrelation tests and regression. Receivable and Current Ratio positive impact on Indonesia's listed tobacco profitability were discovered.

Bassey & Chizoba (2021) between 2000 and 2013 gauged the cash conversion cycle impact on Nigerian chemical and paint companies' profitability using annual reports and regression for data collection and analysis. of a few. Bassey & Chizoba (2021) established that cash conversion cycle impacted Nigerian chemical and paint firms' profitability positively. The outcome also showed that the sampled firms' value and profitability are significantly positively impacted by the control variable, financial asset to total assets.

Onyimba et al., (2023) examined accounts receivable management impacts on Nigeria listed pharmaceutical companies' profitability between 2014 and 2018. Data collected invariably were analyzed with fixed effect model. Onyimba et al., (2023) found that average collection period negatively impacted profitability. The study's conclusions showed that the average collection period of the chosen Nigerian businesses had a negative and substantial effect on profitability. Cash flow increased and bad debt decreased as a result of the profitability augmentation as measured by gross operating profit. As a result, cash can be used for other purposes, increasing operating profitability for the business.

The effect of accounts receivable management on the profitability of listed tobacco and food beverage companies was examined by Gamlath, (2021). Descriptive and multiple regression analysis were performed to examine data from 20 food, beverage, and tobacco industries between 2015 and 2019. The findings demonstrated accounts receivable had negative influence on profitability. Additionally, research revealed that the inventory turnover ratio significantly increases the return on assets for tobacco and food and beverage industries. Furthermore, the findings demonstrated that the cash conversion cycle had a statistically significant negative effect on return on equity.

The average collection period's effect on the profitability of quoted insurance companies in Nigeria was studied by Nwude & Agbo, (2018). The sampled data for the study were the yearly financial reports of 20 listed insurance companies in Nigeria from 2000 to 2011, which were then analyzed using regression analysis, multicollinearity testing, and heteroskedasticity testing. The findings indicated that the length of the accounts receivable term had a negligible detrimental effect on profitability. While the business size shows an unexpected link with profitability, the current ratio, fixed financial total asset ratio, debt asset ratio, and growth all show a favorable relationship. The research findings indicate that there is no statistically significant correlation between the accounts receivable period and profitability.

Kuraesin et al., (2023) looked at the impact of receivables turnover on the profitability of manufacturing companies listed on the Indonesia Stock Exchange. This study determined the impact of receivables turnover on the profitability of Indonesian manufacturing companies listed on the Indonesia Stock Exchange between 2015 and 2020. The manufacturing companies listed on the Indonesia Stock Exchange provided financial statements for this quantitative study conducted from 2015 to 2020. Receivables has been discovered having significant, positive and statistical effect on Indonesia manufacturing companies' profitability.

Accounts receivable management impact on Nigeria listed manufacturing firms' financial performance was conducted by Muthoni et al., (2020). Data gathered from 147staff of accounting and finance department were collected and analyzed with questionnaires and correlation analysis respectively. Muthoni et al., (2020) discovered positive correlation amid financial success and credit extension policies. It was finalized that receivables had positive substantial effect on financial performance.

In a 2022 study, Ugwudioha & Onmonya, (2022)looked into the factors that influence accounts receivable in consumer goods manufacturing companies that are listed on the Nigerian stock exchange. Of the consumer products companies registered on the Nigerian stock exchange, fourteen are part of the study population. The 14 companies' annual reports from 2014 to 2019 were used to gather data. Pool, Fixed, and Random effects were among the components of panel data analysis that were used in the study. Tests for robustness that are performed include the Hausman, Lagrange Multiplier, and Variance Inflation Factor (VIF) tests. The outcome demonstrates that accounts receivable are significantly impacted by age and profitability. Leverage, inventory, liquidity, and firm size have no discernible effects on the Receivable Collection Period.

Abubakar & Olowe, (2019) looked at how certain listed Nigerian corporations' financial performance was affected by their accounts receivable management practices. The research population comprises ten (10) companies listed on the Nigerian stock exchange. Of these, ten (10) companies were chosen as samples using a deliberate selection technique during a seven-year period, from 2012 to 2018. Multiple regression analysis is one of the study's analytical tools. Return on Equity (ROE) was used as a stand-in for financial performance,

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Table 1. Measurement of Variables

Variables	Measurement
ROE	This refers to return on equity which is measured with dividend declared divided by number of equity share
DSO	A financial indicator called Days Sales Outstanding (DSO) is used to assess the periods business get paid for sales that were made on credit. It offers information about a company's capacity to turn sales into cash and how well its account receivables are managed. DSO is calculated by dividing accounts receivable by total credit sales multiplied by Number of Days in Period
Credit Policy	The aggregated value of all debts owned by the customers (total debtors) of the selected manufacturing companies
Company Size	This refers to the summation of all assets which included both the noncurrent and current assets
Industry Type	Utilizing a dummy variable to measure industry type. Companies in the high-profile industry area receive a score of 1, while those in the low-profile industry category receive a score of 0 (Lubis & Dewi, 2020).
Economic Environment	This the value of exchange rate of Nigeria currency to US Dollar.

Source: Authors' own processed (2024)

while the ratio of accounts receivable to debt and revenue growth represented accounts receivable management. The study finds that revenue growth, the debt ratio, and the accounts receivable ratio all significantly improved the financial performance of a subset of Nigerian quoted businesses.

Gap In the Literature

The financial success of Nigerian manufacturing enterprises is significantly impacted by the effectiveness of their receivables management. On the precise relationship between receivables and profitability in Nigeria's industrial industry, however, there is a dearth of study. Thus, the purpose of this study is to ascertain how Nigerian manufacturing companies' profitability is affected by their receivables taking DSO into consideration which has not been investigated by extant researchers. Research specifically examining the effect of receivables management on profitability in Nigerian manufacturing firms is, nevertheless, lacking. The connection amid receivable management and profitability in Nigeria manufacturing companies' researches are not sufficient on receivable effect on profitability despite the numerous extant literatures. This study is considered unique because of involvement of DSO concept as major yardstick for receivable. In addition, the involvement of panel random effect makes the study unique among the existing literature.

METHODOLOGY

To gauge the receivable effect on profitability, data collected from the published annual reports of twenty one (21) selected Nigeria manufacturing companies which embedded with both consumer and industrial goods from 2010 to 2023 were analysed with panel data metrics such as fixed Effects Model which considered unobserved firm-specific effects as constant over time, and Random Effects Model which embedded with unobserved firm-specific effects are random across firms and time, as well as Hausman test.

Model specification

Profitability is the dependent variable while DSO, Credit Policy, Industry Type, Size of the Company, and Economic Environment are the independent variables that we believe influence profitability.

Econometric Model:

$$ROE = \beta 0 + \beta 1DSO + \beta 2CREPCY + \beta 3INDUTYPE + \beta 4COYSIZE + \beta 5ECONENV + \varepsilon$$

.

Table 2. VIF Test

Variable	VIF	1/VIF
CREPCY	54.03	0.018508
COYSIZE	52.94	0.018890
ECONENV	1.94	0.516536
DSO	1.33	0.751435
INDTPY	1.12	0.893206
Mean VIF	22.27	

Source: Researcher's computation (2024)

Fixed effect model

$Yit = βXit + αi + uit$

$ROE\ it = β0 + β1DSO\ it + β2CREPCY\ it + β3INDUTYPEit + β4COYSIZEit + β5ECONENVit + y2E2 + \ldots + ynEn + uit$

$ROE\ it = β0 + β1DSOit + β2CREPCYit + β3INDUTYPEit + β4COYSIZEit + β5ECONENVit + y2E2 + \ldots + ynEn + δ2T2 + \ldots + δtTt\ uit$

Random effect model

$ROE\ it = β0 + β1DSOit + β2CREPCYit + β3INDUTYPEit + β4COYSIZEit + β5ECONENVit + y2E2 + \ldots + ynEn + uit + εit$

- β0 is the intercept term.
- ε is the error term.

The coefficients (β1, β2, β3, β4, β5) help in understanding the magnitude and direction of the impact of these variables on profitability in Nigerian manufacturing companies. By estimating this econometric model using statistical software, the relationship between receivables management practices and profitability can be assessed. VIF in Table 2 was incorporated to gauge the present of heteroskedasticity of all the variables. It was conspicuous that CREPCY and COYSIZE possessed heteroskedacity with the VIF values 54.03 and 52.94 respectively which overrode 10 (significant benchmark). With reference to these VIF values, linear regression must be engaged to eradicate the iota of heteroskedasticity in affected variables to avert spurious results.

Correlation matrix was also incorporated to view the existence of multicollinearity among incorporated variables. It was conspicuous from Table 3 that multicollinearity existence was not conspicuous because none of the values in Table 3 was more than 0.8 which is the benchmark for multicollinearity decision.

According to pooled regression in Table 4, Profitability rose by 3.62% for every unit rise in DSO, indicating that DSO had a positive impact on profitability (β = 3.62e-05,

Table 3. Correlation Matrix

	ROE	DSO	CREPCY	COYSIZE	INDTPY	ECONENV
ROE	1.0000					
DSO	0.3053*	1.0000				
CREPCY	0.3168*	0.4318*	1.0000			
COYSIZE	0.1288	0.4720*	0.6636*	1.0000		
INDTPY	-0.2279*	-0.0207	-0.0868	-0.0829	1.0000	
ECONENV	0.2778*	0.4285*	0.6895*	0.6559*	-0.0406	1.0000

Source: Researcher's computation (2024)

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Table 4. Effect of Receivable on Profitability in Nigeria Manufacturing Companies

	(1) Pooled Regression	(2) Linear Regression	(3) Fixed Effect Regression	(4) Random Effect Regression	(5) Random-effects GL regressioı
DSO	3.62e-05***	3.62e-05	2.90e-06***	3.62e-05***	3.62e-05*
	(0.008)	(0.048)	(0.042)	(0.006)	(0.040)
CREPCY	6.13e-05**	6.13e-05**	6.13e-05**	6.13e-05**	6.13e-05*
	(0.006)	(0.014)	(0.003)	(0.005)	(0.002)
COYSIZE	-3.72e-08**	-3.72e-08**	-4.57e-08**	-3.72e-08**	-3.72e-08
	(0.043)	(0.036)	(0.024)	(0.041)	(0.026)
INDTPY	-7.006	-7.006**	-6.293	-7.006*	-7.006**
	(0.103)	(0.042)	(0.159)	(0.100)	(0.021)
ECONENV	-2.04e-06**	-2.04e-06***	-2.54e-06**	-2.04e-06**	-2.04e-06
	(0.025)	(0.041)	(0.012)	(0.023)	(0.003)
_cons	18.44***	18.44***	18.45***	18.44***	18.44***
	(0.005)	(0.001)	(0.007)	(0.005)	(0.000)
N	110	110	110	110	110
R^2	0.245	0.245	0.258		
adj. R^2	0.209	0.209	0.139		

Source: Researcher's computation (2024)

p = 0.008 <0.05). Additionally, the results demonstrate that Profitability increases by 6.13% with a unit increase in CREPCY, suggesting a positive relationship between Net Income and Profitability (β = 6.13e-05**, p = 0.00 6 < 0.05). The profitability decreased by -3.72% for every unit increase in COYSIZE, suggesting that the total asset has a negative impact on tax payable (β = -3.72e-08**, p = 0.043 < 0.05). Similarly, ROE is marginally downplayed by a unit increase in INDTPY (β = -7.006, p = 0.103 > 0.05). This demonstrates that industry type is unimportant and unrelated to profitability. Furthermore, a unit increase in ECONENV resulted in a -2.04% drop in profitability, indicating that ECONENV had a decreasing influence on profitability (β = -2.04e-06**, p = 0.025 < 0.05).

By revealing heteroskedasticity through VIF, Linear Regression disproved Table 4's regression and demonstrated that DSO had a positive impact on profitability (β = 3.62e-05, p = 0.048 < 0.05). It also showed that a unit increase in DSO boosted Profitability by 3.62%. Further research revealed that Profitability increased by 6.13% with a unit rise in CREPCY, suggesting a positive relationship between Net Income and Profitability (β = 6.13e-05**, p = 0.014 < 0.05). A one-unit increase in COYSIZE resulted in a 3.72% drop in profitability, suggesting that COYSIZE had a negative impact on profitability (β= -3.72e-08**, p = 0.036 < 0.05). ROE is considerably reduced with a unit escalation in INDTPY (β = -7.006, p = 0. 042 > 0.05). This demonstrates how industry type affects profitability and is related to it. On the other hand, a unit increase in ECONENV resulted in a 2.04% loss in profitability, further supporting the idea that ECONENV had a negative impact on profitability (β = -2.04e-06***, p = 0.041 > 0.05).

According to Table 4's fixed effect analysis, a 2.9% rise in DSO boosted profitability. DSO also had a positive impact

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Table 5. Hausman Test

Dependent variable	Independent variables	(b)	(B)	(b-B)	sqrt(diag(V_b-V_B))
		FE	RE	Difference	S.E.
ROE	DCO	2.96e-07	3.62e-07	-6.33e-08	5.65e-08
	CREPCY	7.67e-07	6.13e-07	1.44e-07	1.15e-07
	COYSIZE	-4.57e-08	-3.72e-08	-8.56e-09	8.38e-09
	INDTPY	-6.292614	-7.006262	.7136479	1.256924
	ECONENY	-2.54e-07	-2.04e-07	-5.04e-08	4.27e-08
	chi2(1) = (b-B)'[(V_b-V_B)^(-1)](b-B) = 0.32		Prob>chi2 =	0.5702	

Source: Researchers computation (2024)

on profitability (β = 2.90e-06***, p = 0.042 < 0.05). Additionally, a unit increase in CREPCY was reported to boost profitability by 6.13%, suggesting a positive relationship between CREPCY and profitability (β =6.13e-05**, p = 0.003 < 0.05). However, Profitability decreased by -4.57% with a one unit increase in COYSIZE, suggesting that COYSIZE had a negative impact on Profitability (β= -4.57e-08**, p = 0.024 < 0.05). Similarly, a unit increase in INDTPY marginally reduces ROE (β = -6.293, p = 0.103 > 0.05). This demonstrates that industry type is unimportant and unrelated to profitability. Furthermore, 2.5% less Profitability resulted from a unit rise in ECONENV, suggesting that ECONENV had a detrimental impact on Profitability (β = -2.54e-06**, p = 0.012 > 0.05).

Additionally, Table 4's random effect regression analysis showed that a unit increase in DSO raised profitability by 3.6% and that DSO had a positive impact on profitability (β = 3.62e-05***, p = 0.006 < 0.05). Additionally, a unit increase in CREPCY was found to boost profitability by 6.13%, suggesting that Net Income positively affects profitability (β = 6.13e-05**, p = 0.005 < 0.05). Profitability decreased by -3.72% for every unit increase in COYSIZE, suggesting that COYSIZE had a negative impact on profitability (β= -3.72e-08**, p = 0.041 < 0.05). ROE is considerably reduced with a unit escalation in INDTPY (β = -7.006, p = 0. 100 > 0.05). This demonstrates that industry type is unimportant and unrelated to profitability. On the other hand, a unit increase in ECONENV resulted in a 2.04% loss in profitability, further supporting the idea that ECONENV had a negative impact on profitability (β = -2.04e-06**, p = 0.023 > 0.05). As shown in Table 5, the Hausman test was used to determine which model was superior between fixed and random effect regression. In the case of fixed and random effect regression, random effect is the superior model, as supported by Prob>Chi2= 0.6757 in the Hausman test.

The Hausman test results for fixed and random effects are displayed in Table 5. The choice of the random effect model as the appropriate model for the interpretation was supported by the Hausman test. As a result, the fixed effect was completely eliminated by the Hausman test since chi<0 equals 0.5702, over the 0.05 threshold.

Aftermath of picking random effect by the Hausman test, Table 6 was ignited to absolutely pick appropriate model amidst random effect and pooled regression. The hypothesis was that random effect is inappropriate for the model but otherwise pooled regression. It was discovered that random effect was also considered appropriate because of the Prob > chi2 = 0.145 which is below 0.05.

Table 6: Breusch and Pagan Lagrangian Multiplier Test

Profitability [companies, t] = Xb + u[companies] + e[companies, t]

Estimated results:

	Var	sd = sqrt(Var)
ROE	539.6061	23.22942
e	458.3198	21.4084
u	0	0
Test: Var(u) = 0		
Prob > chi2 = 0.145		chi(01) = 0.00

Source: Researcher's Compilation (2024)

Discussion of Findings

This study examined the effect of receivable on profitability in Nigeria manufacturing companies. Panel data analysis components such as random, and fixed effects as well as pooled regression were employed to analyse the data collected from annual reports of selected manufacturing companies in Nigeria. Results from random effect regression displayed that a unit increase in DSO increased Profitability which revealed that DSO generated a positive effect on Profitability. This collaborated with the study of Ayu et al., (2023); Bassey & Chizoba, (2021); Hanifah, (2023); and Onyimba et al., (2023) but declined with submission of Mbarushimana & Kengere, (2023); and Lazarus et al., (2023). It was also discovered that a unit increase in credit policy increases Profitability which indicated that there is a positive effect of credit policy on Profitability. Credit policy plays a vital role in managing a company's accounts receivable and cash flow. With indication that manufacturing companies with more lenient credit policies tend to have higher sales which invariably enhanced profitability. This submission is in line with the submission of Ayu et al., (2023); Onyimba et al., (2023); Mbarushimana & Kengere, (2023); Adegbite & Ajagbe, (2023) and Lazarus et al., (2023) but not in line with the submission of Bassey & Chizoba, (2021) and Hanifah, (2023). A one unit increase in company size has been found leading to decrement in Profitability which divulging that negative effect was meted on Profitability by of COYSIZE. That is company size is a critical factor that has long been recognized as a key determinant of various aspects of firm behavior, performance, and strategy. The higher the company size in terms of assets, the reduction is the profitability when monitoring and maintenances are derailed. This view supported the ideal of Adegbite & Inyada, (2024) Yosen et al., (2024) Bassey & Chizoba, (2021); Confidence & Igoniderigha, (2023); Lazarus et al., (2023); and Preethi, (2023) but against the verdicts of Ayu et al., (2023); and Yusup & Swarmilah, (2024)

A unit increment in INDTPY downplays ROE significantly which showed that industry type is irrelevant and not attributable to profitability. However, a unit increase in ECONENV led to decrease in Profitability which further indicated that there was a negative effect of ECONENV on Profitability. The volatility of economy fluctuates inflation rates, exchange rates, interest rates, entire economic growth and downplays businesses across various sectors. These macroeconomic factors have a direct effect on operations and manufacturing companies' financial performance in Nigeria, affects their competitiveness and ability to generate profits. This submission validated the findings of Lubis & Dewi, (2020); Ayu et al., (2023); Yusup & Swarmilah, (2024); Onyimba et al., (2023); Mbarushimana & Kengere, (2023); Bassey & Chizoba, (2021);

and Hanifah, (2023); but invalidated the conclusion of Lazarus et al., (2023).

Conclusion

This study examined the effect of receivable on profitability in Nigeria manufacturing companies. Panel data analysis components such as random, and fixed effects as well as pooled regression were employed to analyse the data collected from annual reports of selected manufacturing companies in Nigeria. Based on the finding for the reliable analytical tools, it was discovered that

Days Sales Outstanding (DSO) increased Profitability significantly. Also credit policy which is the aggregated value of all debts owned by the customers (total debtors) of the selected manufacturing companies, increase profitability positively and significantly indicating that there is a positive effect of credit policy on Profitability. Conversely, other variables which are the control variables such as industry types, economic environment, and company size had negative effect on profitability. Conclusively, receivable has positive impact on profitability in Nigeria manufacturing industries. It is recommended that companies should inversely reduce Days Sales Outstanding periods foe the collection of debts owned by their consumers for effective production utilization so as to ultimately upsurge Nigeria companies' profitability significantly and tremendously. Also, the credit policy of the companies should be reviewed to be friendlier for the customers so that accommodate more customers for effective increment in patronage and profitability.

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