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THE NEXUS BETWEEN CORPORATE FINANCIAL CAPITAL EFFICIENCY AND FIRM GROWTH OF NIGERIA'S LISTED MANUFACTURING FIRMS

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Abstract

There is a divergence of opinion among accounting researchers about the nexus between CFC efficiency and firm growth. Additionally, several manufacturing firms in Nigeria are folding up. This study examined the nexus between corporate financial capital efficiency and firm growth of Nigerian listed manufacturing firms. Using a robust pooled OLS regression model for a sample of 75 firm-year observations from 2019 to 2023, with judgmental sampling, secondary data were used to examine the nexus between inventory turnover efficiency (ITE) asset turnover efficiency (ATE) sales efficiency (SE) and operating expense efficiency (OEE) on firm growth. The results show a significant negative relationship between asset turnover efficiency and firm growth, sales efficiency and firm growth, and operating expense efficiency and firm growth. Conversely, an insignificant negative relationship exists between inventory turnover efficiency and firm growth. This study recommends that firms in the manufacturing sector prioritize asset turnover, sales, and operating expense efficiency through strategic asset deployment to revenue-generating activities, strategic product pricing and asset replacement techniques, cost of sales, and operating expense control measures to initiate, improve, and sustain firm growth.

1.0 Introduction

Investing in lucrative corporate projects improves a firm's development, making it rational for management to capitalize on all opportunities that drive growth. However, resource scarcity constrains a firm's ability to maximize its corporate investment opportunities. Management has the discretion to appropriate financial resources among rival investment projects, and efficient allocation of corporate financial capital results in investment efficiency, leading to sustained profitability and firm expansion. As firm growth hinges on the efficient utilization of corporate financial capital, corporate funds will be applied efficiently with the least amount of waste. However, a previous study shows that business administrators do not always apportion funds effectively (Kashif & Matthew 2019). Moreover, firms may fail to efficiently utilize funds due to conflicts of interest between

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managers and shareholders. As less efficient fund use is associated with lower firm's future stock performance. Ward, Yin & Zeng (2019)

Nigeria's economy has experienced substantial structural changes, moving from an agricultural-dominated economy to one dominated by manufacturing and services (Atoyebi, Audu, Umar, Bara & Muhammad 2024). At the turn of 2020, manufacturing had become a significant contributor to Nigeria's gross domestic product (GDP), accounting for about 27%. The mixture of surplus and cheap labor force coupled with a vast internal and external market has driven rapid economic growth. This growth illustrates the sector's growing importance to the country's economy.

However, some manufacturing firms are undergoing financial and operational distress, while others have shut down operations within the last five years. The major reason for this was their inability to manage financial resources and keep the firm floating. Developing countries, such as Nigeria, face a host of problems, such as high financing costs, poor financial management, and institutional weakness (Abdullah, Muhammad, Abdul, Yousuf, & Muhammad, 2022). These problems adversely affect firm growth and going concern. Hence, it is practically intractable for Nigerian manufacturing firms to continue to exist if they cannot effectively manage the available financial resources within their reach. Where there is no access to financial capital, firms barely survive. Hassan and Hassan (2023) reported that weak corporate financial management has resulted in the winding down of several firms, emphasizing the need for effective resource management for firm survival. Nigerian manufacturing firms must maximize their financial resource utilization to achieve growth. According to Xu, Geng, and Wei (2019), efficiency implies the maximum nexus between inputs and outputs, where the highest output is produced by the barest number of resources. In essence, efficiency refers to achieving optimum productivity with the least waste.

Firm growth has emerged as a vital theme in business literature. Chen (2018) identified the importance of growth, referencing its role in ensuring firm survival, fostering innovation, and enhancing technological advancements. As manufacturing firms grow, they trigger demand in other sectors, energizing economic activity and contributing to overall economic growth. Manufacturing firm growth has far-reaching consequences, including employment creation, productivity improvement, and economic expansion, making it an interesting area of research. There is a rising interest in the effective application of a firm's assets, particularly financial capital, to support full industrialization and sustainable economic growth and curb firm failures. Mehdi and Shayan (2019) assert that financing efficiency is a pivotal responsibility for firms. Effective financial management is vital for manufacturing firms, as ignoring this aspect can lead to losses and business failure.

1.1 Statement of the Problem

Previous research on the manufacturing sector has primarily examined financing methodology, structures, and policies (Adeoye and Olojede, 2022; Olaoye and Adesina, 2022; Hassan and Hassan, 2023; Miko & Para, 2019). However, corporate financial capital efficiency is essential for evaluating a firm's effective use of funds and, subsequently, its financial performance and long-term growth. Hassan & Hassan (2023) reported that the Nigerian Central Bank has benchmarked the monetary policy rate to 18%, resulting in higher interest rates (17.5%-18%) and high financing costs for firms. Commercial banks in Nigeria charge extremely high rates (20%-35%), hindering effective financial capital utilization. In addition, the effect of galloping inflation has been stifling the development of the manufacturing sector. Firms require a corporate financial capital strategy to meet their long- and short-term financial obligations and maximally explore financial capital utilization opportunities and thereby enhance firm growth to thrive in an uncertain and harsh business environment and effectively alleviate the financial capital utilization problem of manufacturing firms and promote growth. Therefore, this study attempted to fill the literature gap.

1.2 Research questions

1. Does inventory turnover efficiency have a significant nexus with the growth of listed manufacturing firms in Nigeria?
2. Is there a relationship between the asset turnover efficiency of listed manufacturing firms in Nigeria and firm growth?
3. Does sales efficiency have a link with the growth of listed manufacturing firms in Nigeria?
4. Is there a connection between the efficiency of operating expenses and firm growth of listed Nigerian manufacturing firms?

1.3 Study Objectives

The primary objective of this study is to investigate the nexus between CFC efficiency and firm growth of listed Nigerian manufacturing firms. Nonetheless, the target objectives are to:

1. Investigate the nexus between inventory turnover efficiency and listed manufacturing firms' growth in Nigeria
2. Ascertain the relationship between asset turnover efficiency and listed manufacturing firms' growth in Nigeria
3. Examine the link between sales efficiency and the growth of listed manufacturing firms in Nigeria
4. Determine the connection between the efficiency of operating expenses and the growth of listed Nigerian manufacturing firms.

1.4 Research Hypotheses

To accomplish the objective of this research, the following hypotheses were formulated:

H_{o1}: Inventory turnover efficiency has no significant influence on the growth of listed manufacturing firms in Nigeria.

H_{o2}: Asset turnover efficiency has no significant effect on firm growth of listed manufacturing firms in Nigeria.

H_{o3}: There is no significant effect of sales efficiency on the growth of listed manufacturing firms in Nigeria.

H_{o4}: Operating expense efficiency has no significant impact on the growth of listed manufacturing firms in Nigeria.

Conceptual Framework

Firm Growth

Penrose (1995) defined firm growth as an increment in a defined number, such as an increase in sales, output, or exports. Second, Penrose described business growth as a specialized development process, comparable to biological processes, resulting in a sizeable or quality rise. The division of growth into quantitative and qualitative elements is similar to Penrose's method. A rise in a measurable metric, which represents a firm's size, is referred to as quantitative business growth, whereas qualitative firm growth refers to increases in less quantifiable parameters, such as product quality or customer relationship quality (Hutzschenreuter & Hungenberg, 2006). Growth may be measured in terms of revenue generation, wealth creation, and overall business volume expansion. It can also be quantified in terms of qualitative factors such as market position, product quality, and customer satisfaction (Gupta, Guha, & Krishnaswami, 2013). A growth firm grows at a higher rate than its peers or the overall economy. Although there are no hard-and-fast rules for determining growth, these firms have consistently raised revenues above the sector average. If a firm's revenues or other financial measures increase for one quarter but then decline in consecutive quarters, it is not considered a growth firm. To validate the quality of growth, this development must be proven across several years (Chen, 2018). However, some businesses remain cautious and lack the capacity to achieve corporate financial capital efficiency, based on the erroneous belief that doing so will compromise the quality of product and service.

Efficient Corporate Financial Capital

Corporate financial capital efficiency measures how effectively a company uses its deployed capital to generate profits and cash flow, indicating financial health and operational effectiveness by employing various financial capital ratios which compare the capital invested to the revenue or profit generated, helping to attract investors and signal sustainable, scalable growth potential through efficient resource utilization and cost optimization. Corporate financial capital efficiency is a key index to estimate a firm's efficiency of using their funds. Lixia & Xueli (2019). Corporate financial capital efficiency, which has attracted the attention of scholars both at home and abroad, is the core issue of firm growth. However, to avoid taking risks, investors tend to overlook good investment projects, leading to low financial efficiency (Ji-chang, Lin-lin, Bing, Zhi, & Xiu-ting, 2016).

Therefore, enterprises' financing efficiency mainly depends on whether the enterprise achieves the optimal use of limited resources. The conceptual framework to analyze the Corporate financial capital efficiency; the inventory turnover efficiency, asset turnover efficiency, sales efficiency and operation expense efficiency play crucial roles in improving corporate performance.

Inventory Turnover Efficiency and Firm Growth

Firm growth and inventory turnover efficiency (as measured by the cost of sales divided by the total inventory value) measure a firm's efficiency in converting inventory to cash. Inventory turnover rate is usually used to indicate the operating efficiency of an enterprise. The inventory turnover rate is an important indicator for measuring how efficiently a firm turns its inventory into sales. Generally, the higher the inventory turnover rate, the lower the inventory occupancy level and the stronger the liquidity, which will enhance the firm's short-term solvency and profitability. Lixia and Xueli (2019).

Asset Turnover Efficiency and Firm Growth

Firm growth and asset turnover efficiency (ATE) (as measured by operating revenue divided by total assets) can be used as an indicator for evaluating the management quality and utilization efficiency of a firm's assets (Lixia & Xueli, 2019). As a result, a rising asset turnover efficiency indicates that the firm is doing an excellent job of generating revenue with each dollar invested. Diminished asset turnover efficiency implies that the firm may have overinvested in assets that have failed to generate revenue growth, indicating that the firm is in difficulty (Giotopoulos & Fotopoulos, 2010). However, the relationship between asset turnover efficiency and firm growth has produced mixed results, but Yolanda and Beatriz (2019) found that profits depend on sales growth during an economic downturn, but past profits are not required to obtain sales growth. The negative economic environment does not always limit corporate growth; it all depends on how the firm responds to these challenging circumstances. This is dependent on whether firms decide to implement proper measures to help them handle the fluctuating market's challenges.

Sales Efficiency and Firm Growth

Firm growth and sales efficiency (as measured by sales revenue divided by sales and marketing expenses) measures how much revenue a firm generates for every dollar it spends on sales and marketing, showing how effectively resources are used to drive sales. A higher sales efficiency ratio indicates that a firm is using its resources effectively to produce revenue, while a ratio below 1 means more resources are being spent than generated, signaling a need for improvement.

Operating Expense Efficiency and Firm Growth

Firm growth and operating expense efficiency (OEE) as measured by revenue divided by operating expenses less depreciation. Operating expenses refer to the expenses incurred by the enterprise to raise the funds needed for its operation (Lixia & Xueli, 2019). This is an indicator used to reflect the cost of enterprises to raise funds.

Generally, the higher the financial expenses, the higher the enterprises' financing cost. The operating expenses efficiency cost refers to the costs associated with a company's main operating activities. This indicator can be used to indicate the use of corporate funds. As a rule, the higher the enterprise's operating cost, the higher the enterprise's capital use cost.

2.0 The Theoretical Framework

This research is based on the following theories: financial theory and firm theory

Financial Theory

Financial theory (Modigliani and Miller, 1958) predicts that firms can achieve optimal investment levels in a world without friction. The theory argues that an enterprise's internal and external capital are mutually replaceable under the conditions of a perfect capital market. Therefore, corporate investment behavior is only related to the firm's investment needs and is not affected by its financial situation. However, a true perfect capital market does not exist in the real world. The existence of agency problems and information asymmetry makes enterprises' external financing costs greater than their internal financing costs. Therefore, the investment behavior of enterprises is excessively dependent on internal capital. Internal capital cannot meet the investment needs of enterprises, thus generating financing constraints. Rational investors anticipate this tendency and are likely to ration and raise the cost of capital, leading to financial constraints and underinvestment (Miko & Para, 2019; Lu, WeiYa, & Dai, 2020; Hassan & Hassan, 2023)

Theory of the Firm

Coase (1937) propounded the theory of the firm. Coase's theory challenges the traditional view that firms exist due to market failure. Instead, firms exist because of transaction costs. The concept of the firm is crucial in CFCE as it encompasses uncertainty and opportunism. The theory assumes that firms exist because they can reduce transaction costs and increase efficiency. It also assumes that a firm's optimal size depends on the level of transaction costs and the firm's ability to internalize activities. However, its underlying assumptions—that there are no obstacles to negotiation due to legal, strategic, or informational issues—are debatable. These uncertainties and opportunism can lead to corporate financial capital inefficiency and firm growth suboptimization. Warue, Charles, & Mwania, (2018).

Based on the theories reviewed, the theory of the firm is therefore considered relevant and appropriate for this study as firms will naturally work toward transaction cost reduction and efficiency increase. To further analyze the effect of corporate financial capital efficiency on firm growth, this study takes corporate financial capital efficiency as the explanatory variable and firm growth as the response variable to build a model.

2.1 Empirical Literature Review

Studies indicate that corporate financial capital efficiency in strategic emerging industries is inefficient, emphasizing the need to identify factors affecting efficiency and employ strategic improvement mechanisms. Academicians' link subpar efficiency to inherent factors, such as the cost of financing, firm attributes, and financial management approaches, as well as non-inherent factors, such as economic, financial, and political environments (Xu, Geng, & Wei, 2019). Investigations on the impact of operational efficiency on firm performance produced conflicting results. For instance, Gill, Singh, Mathur, and Mand (2014) explored the correlation between operational efficiency and future performance outcomes in the Indian manufacturing sector, employing a quantitative research approach with a selection of 244 listed firms on the Bombay Stock Exchange. The results showed that operational efficiency affects a firm's future performance. This study recommends that future research should generalize findings and incorporate other variables from diverse sectors and countries and ranging periods of time.

Ashton, Panero, Izquierdo, and Hurtado (2018) studied financing efficiency and cleaner production in Central America and revealed a contradiction between MSMEs' financing needs and program opportunities, resulting in underutilization of financial resources. They recommended that future research focus on developing loan aggregators and structuring loans in other regions of the world. Amna, Ali, and Syed (2018) researched the effect of operational efficiency on the profitability of the oil and gas sector in Pakistan. The investigation, covered the period 2010-2015, applying the OLS correlation matrix and descriptive statistics, the results revealed that some efficiency metrics, such as quick ratio, total assets turnover, and debtors' turnover, negatively impacted profitability, while others, such as fixed asset turnover and current ratio, had positive effects. They recommended further research using different variables and larger data for a clearer perspective to further generalize the results. Lixia and Xueli (2019) studied the effect of financing efficiency on the performance of listed agricultural firms in China, employing machine learning techniques. Focusing on 39 Chinese firms between 2013 and 2017, the findings showed that financing efficiency is typically small and likely to decrease before increasing. The analysis identified salient variables that positively affect financing efficiency, such as return on asset and return on inventory. Negative influence factors include total liability and financial expenses.

Ojo and Ayanwale (2019) studied farm-level financing deficits by applying a technical efficiency approach. They analyzed 2016 cross-sectional data from plantain farmers using the Cobb-Douglas stochastic frontier to identify each farmer's technical efficiency. The study revealed that the minimum quantity needed to enhance farmer yield to attain TE degrees can be projected. Additionally, borrowing amounts can be linked to particular production efficiency levels. Borrowing arrangements of less than 9% rates of interest profit farmers more. Accessibility to loan facilities is determined by factors such as interest rate, loan procurement period, education, property rights, and net worth. Ward, Yin, and Zeng (2020) studied the effect of institutional investors' motivated monitoring on firm investment inefficiency, analyzing data from 1995 to 2015. The variables of study include debt, cash volume, ROI, firm age, and V/P. The results showed a consequential negative connection between motivated monitoring and firm investment inefficiency. Furthermore, tight institutional investor monitoring improves both over and under investment issues.

Guarini, Laureti, and Garofalo (2020) examined community-based organizational determinants of the efficiency of education funds in Italy using the stochastic frontier and capability approach on a longitudinal dataset of 1993-2012. The results revealed that private resources have a significant impact on educational efficiency. In addition, there is a supporting relationship between privately owned estates and educational costs by the government, as well as favorable impacts of community ties and good governance. In conclusion, future research is recommended to explore social and institutional factors at the school level and in other sectors while varying the database, geography, and study period. Ullah, Majeed, Fang, and Khan (2020) researched the outcome of female CEOs on funding efficiency in Pakistan's evolving economy. Sampling 223 firms listed across 15 industries from 2009 to 2017. The relationship between the following variables: net asset, sales growth, revenue, and ROA were examined. The outcome revealed that female CEOs improve financial efficiency, corporate governance mechanisms, and management, among others, but have no significant impact on government-owned firms.

Ma, Li, Ma, and Sun (2021) examined sectoral funding effectiveness using the Shannon entropy model. This study evaluates the effectiveness of funds sharing in 31 provinces in China from 2008 to 2018. The outcome revealed that applying the Shannon entropy index produces a greater reliability and enhanced distinction ability. The highest efficiency score was obtained from the eastern area. The lowest score was recorded in the Midland, Western, and Northeast regions. Overall, the effectiveness of funds allotment in the selected provinces revealed a progressive pattern from 2008 to 2018. Salehi, Zimon, Arianpoor, and Gholezoo (2022) investigated investment efficiency and firm value, moderated by collective stake and board neutrality. Focusing on listed Iranian firms,

177 firms covering 2014-2021. Tobin's Q is used as a metric for firm value and is an investor-focused metric as the response variable. The explanatory variables were board independence and institutional ownership. The results showed a significant positive influence of effective investment on firm value. They recommended future studies using internal and external variables that can influence financial achievement and firm value.

Olaoye and Adesina (2022) investigated the capital structure and financial performance of Nigerian manufacturing firms from 2009 to 2020, applying descriptive and inferential statistical tools. The findings revealed that debt-to-equity ratio has an inconsequential negative influence on asset return. Conversely, DER has an immediate consequential influence on the ROE and an explicit inconsequential effect on the net income margin. Debt to assets (DA) has a beneficial but inconsequential influence on financial results metrics. The research stressed the significance of capital structure optimization for profitability. Hassan and Hassan (2023) researched corporate financial problems in Nigerian listed manufacturing firms, focusing on 2014-2022 period. The study variables were debt financing, equity capital, and return on assets. The outcome showed a beneficial major effect of equity financing on financial results, whereas debt financing has an unfavorable inconsequential influence on corporate performance or an adverse inconsequential effect on corporate results.

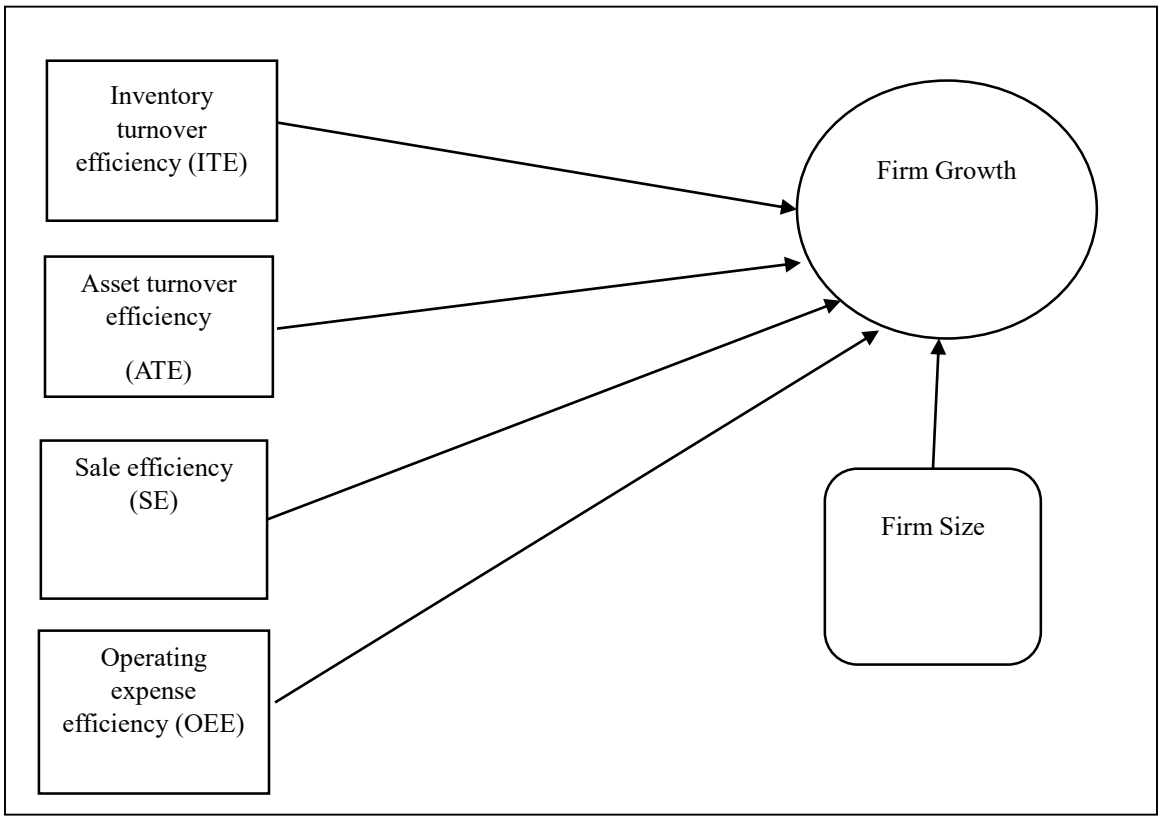
Research Gap

Financial efficiency measures such as asset turnover ratio, inventory turnover ratio, and operating expenses ratio were used from the literature review. However, this study introduces the sales efficiency ratio. This variable is critical to manufacturing firms' corporate financial capital efficiency as it shows how effectively resources are used to drive sales. In addition, the reviewed studies focused on capital structure, financing efficiency, and financial theory and considered the financial difficulty faced by many manufacturing firms in Nigeria, raising concerns about the management and efficiency of these firms' corporate financial capital (Miko & Para, 2019; Abere & Saka, 2023; Hassan & Hassan, 2023). Hence, the nexus between corporate financial capital efficiency and firm growth of Nigerian listed manufacturing firms needs to be studied from the perspective of the theory of firm.

2.2 Conceptual Model and Formulation of Hypotheses

Figure 1 shows the proposed model for the nexus between corporate financial capital efficiency and firm growth. The model was constructed by applying corporate financial capital efficiency and firm growth to show the relationship between the variables.

Figure 1: Model of Corporate Financial Capital Efficiency and Firm Growth



Source: Adapted from Model Badara and Saidin (2013)

3.0 Methodology

The data used for analysis are already in existence; hence, this study used an ex-post facto research design. The population comprises all Nigerian listed manufacturing firms as of December 31, 2023. Purposive sampling was applied for the selection of firms with the required data, such as inventory, assets, sales, and operating expenses efficiency for the period under study. Again, regularity in preparing financial reports is also pivotal for the research to escape incomplete data. Guided by these three principles (i.e., firms that report corporate financial capital efficiency information in their financial reports, consistent for the last 5 years on the exchange, and prepared financial reports regularly within the period), 15 firms were selected as samples for the study.

3.1 Sources and Method of Data Collection

This research employed 5-year documented data from 2019 to 2023. The rationale for this scope of study is as follows: it depicts the period of current data, it encapsulates the galloping inflationary trend and its economic reality within Nigeria, and the findings will be applicable in future economic policy-making and execution. Data for the research were sourced from the published financial statements of manufacturing firms and NEG websites.

3.2 Data Analysis

Descriptive analysis and a robust pooled OLS regression model were used to analyze the data. The nexus between corporate financial capital efficiency and firm growth as proxied by inventory turnover efficiency (ITE), asset turnover efficiency (ATE), sales efficiency (SE), operating expense efficiency (OEE), and sales growth as a measure of firm growth (SG) was investigated by applying the following regression model:

SG = f (corporate financial capital efficiency)

$SG = \beta_0 + \beta_1 ITE_{it} + \beta_2 ATE_{it} + \beta_3 OEE_{it} + \beta_4 FS_{it} + \varepsilon it$……1 (Lixia & Xueli 2019)

To test the nexus between CFC efficiency and firm growth in the manufacturing sector based on Model 1, the sales efficiency variable is introduced in Model 2 as follows:

$SG = \beta_0 + \beta_1 ITE_{it} + \beta_2 ATE_{it} + \beta_3 SE_{it} + \beta_4 OEE_{it} + \beta_5 FS_{it} + \varepsilon it$……2

Where:

Dependent variable: firm growth is measured by SG = Sales Growth;

Independent variable: corporate financial capital efficiency (CFCE) is proxied by: Inventory Turnover Efficiency (ITE), asset turnover efficiency (ATE), sales efficiency (SE), and operating expense efficiency (OEE).

Control variable: FS = Firm Size is measured by the log of total assets

Also, β_0, and β_1 to β_6 are the coefficients of the variables.

Table 1: Measurement of variables

Variable	Definition	Measurement	Authors
Independent			
Inventory turnover efficiency (ITE)	Inventory turnover measures the operational efficiency of the company It is a key indicator of firm efficiency in converting inventory to revenue.	Cost of sales (COS)/Inventory value	Santosuosso (2014)
Asset turnover efficiency (ATE)	Measures of asset turnover The efficiency of a firm in generating revenue. It is a metric to assess corporate performance and effectiveness of the firm's assets.	ATE = total sales revenue divided by the firm's total assets	Lixia and Xueli (2019)
Sales efficiency (SE)	This measures the ratio of return to profit. Increased sales efficiency will yield a high rate of return on sales and the cost associated with sales.	Sales efficiency = total sales revenue divided by sales and marketing expenses.	
Operating expense efficiency (OEE)	This ratio measures the efficiency of a firm's management to operational costs,	OEE = total sales revenue divided by operating expenses depreciation	Lixia and Xueli (2019)
Dependent			

Sales growth (SG)	Firms' average yearly growth rate of sales	Sales Growth = (Sales t-Sales t-1) divided by Sales t-1	Mustafa and Audu, 2023
Control			
Firm size (FS)	This is the firm's net worth. Measured as the firm's total asset value for each year.	Log of the firm's total assets at the end of the study period	Lu et al. (2020)

Source: computed by the researcher in 2024

4.0 Data analysis and findings

4.1 Descriptive Statistics

The empirical data reveal the minimum, maximum, mean, and standard deviation values of all the variables from which the observed variables were calculated. These values are presented in Table 2.

Table 2: Descriptive Statistics for the study

Variables	N	Min	Max	Mean	Standard Deviation
SG	75	.530612642	1.23080475	.082803399	.2735735852
ITE	75	.9282931928	10.88915911	4.107207471	1.736316399
ATE	75	.0376504001	1.707917438	.8799683780	.3339589168
SE	75	.6659894417	2.213894477	1.338887024	.2732151911
OEE	75	.9139745337	50.756886700	19.68949893	12.09111670
FS	75	15.29293136	20.78966495	18.29572188	1.539798880
Valid N (listwise)	75				

Source: SPSS version 20 output result (2024)

Table 2 shows that the respective minimum and maximum values for the variables are 0.531 and 1.231 for SG, 0.928 and 10.89 for ITE, 0.037 and 1.709 for ATE, 0.666 and 2.214 for SE, and 0.914 and 50.76 for OEE. Values are clustered around the mean. N represents the number of firm's year observations.

Table 4: Model Summary[b]

Model	R	R Square	Adjusted R-square	Std. Error in the Estimate	Durbin-Watson
1	.638a	.408	.365	.2180743003	1.980
a. Predictors: (Constant), FS, SE, ATE, ITE, and OEE					
b. Dependent variable: SG					

Source: SPSS version 20 output result (2024)

Table 3 shows that the R, which depicts the regression coefficient, reveals a firm explanation of 0.638, while the greater critical variable R squared reveals an outcome of 0.408, roughly 41% which portrays those changes linked

with the dependent variable, is explained by the changes in the independent variable. That is to say, 41% R squared illustrates that the explanatory variable incorporated in the study justifies the nexus between corporate financial capital efficiency and firm growth of listed Nigerian manufacturing firms. This means that financing efficiency is responsible for 41% firm growth.

Table 5: ANOVA[a]

1	Model	Sum of the Square	of	Mean Square	F	Sig.
	Regression	2.257	5.	.451	9.492	.000[b]
	Residual	3.281	69	.048		
	Total	5.538	74			
a. Dependent variable: SG						
b. Predictors: (Constant), FS, SE, ATE, ITE, and OEE						

Source: SPSS version 20 output result (2024)

As a result, Table 4 depicts the ANOVA revealing a significant nexus at the 1% level of significance with F statistics of 8.179 revealing the model's fitness.

Table 6: Breusch and Pagan Lagrangian multiplier test results

attest 0

Breusch and Pagan Lagrangian Multiplyer Test for Random Effects

sg[company, t] = Xb + u[company] + e[company, t]

Estimated results:

	Var	Sd= sqrt(var)
Insg	.0748425	.2735736
e	.0446051	.2111992
u	.0064865	.0805388

Test: Var(u) = 0

Chibar2 (01) = 0.04

Prob > chibar2 = 0.4169

Source: STATA 11 output result (2024)

The Breusch and Pagan Lagrangian multiplier test for random effects is insignificant, indicating that pooled OLS regression is better than random effect regression for the model.

Table 7: Breusch-Pagan test for heteroskedasticity

Stat hottest

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho: constant variance

Variables: Fitted sg values

chi2(1) = 27.04

Prob > chi2 = 0.0000

Source: STATA 11 output result (2024)

The Breusch-Pagan test for heteroscedasticity is significant, indicating heteroscedasticity. To eliminate this, we ran the robust pooled OLS regression. Yang et al. (2022)

Table 8: Robust linear regression

SG	Coef.	Robust Std. Err	t	P>| t |	[95% Coef.	Interval]
ITE	-.0145225	.02131189	-0.68	0.498	-.0570526	.0280076
ATE	-.295997	.0993636	-2.98	0.004	-.494222	-.097772
SE	-.2816926	.0938778	-3.00	0.004	-.4689738	-.0944114
OEE	-.0047655	.0024339	-1.96	0.054	-.0096211	.00009
FS	.00030696	.0173349	0.18	0.860	-.0315125	.0376518
-Cons	.6535493	.377089	1.73	0.088	-.0987227	1.405821

Source: STATA 11 output result (2024)

4.2 Discussion of the findings

From Table 8, the robust pooled OLS regression equation can be written as SG = .653 – .014ITE – .295ATE -.281SE -.004OEE +0.000FS.

The constant 0.653 means that the average sales growth (SG) score would be 0.653 where all variables are 0. This is where the regression lines intersect the y-axis.

Inventory turnover efficiency (ITE) has an unfavorable coefficient of.014 and a p-value of 0.498, which is statistically insignificant at 5%, indicating that.014 is not statistically different from 0; hence, ITE has no influence on SG controlled by other variables. A 1% decrease in ITE leads to a 0.014 percent increase in sales growth.

ATE has a negative coefficient of 0.295, which implies that if ATE rises by 1%, SG will fall by 0.295 with a statistically significant p-value of 0.004. Implicitly, 0.295 is statistically different from 0. ATE is strongly significant to SG because of its degree of significance, which is governed by other variables at 1%.

In a similar manner, SE has an unfavorable coefficient of 0.281, which means that when SE rises by 1%, SG will also reduce by 0.281 with a statistically significant p-value of 0.004. Hence, 0.281 is statistically different from 0. SE is very significant to SG because of its degree of significance, which is governed by other variables at 1%.

Similarly, Operating expense efficiency (OEE) has a negative coefficient of 0.004, which means that if OEE rises by 1%, SG grows by 0.004, with a statistically significant p-value of 0.054. Based on this, 0.004 is statistically different from 0.

Inventory turnover efficiency (ITE) is an essential metric for firms because it measures ITE. It is a crucial indicator to investors and management, indicating how effectively a firm turns its inventory into revenue, as shown in Table 8. The natural relationship is that the greater the firm's turnover rate, the higher the sales growth. However, the results of this study depict a negative relationship. The null hypothesis, which revealed that inventory turnover efficiency had no nexus with manufacturing firms' firm growth, is accepted. This result agrees with the findings of Santosuosso (2014). He opined that the inventory turnover ratio and SMV have no consequential link with profitability. However, this stance appears to be inconsistent with the findings of Lixia and Xueli (2019).

Likewise, ATE shows a lot about a firm's predicting, management of inventory, and sales and marketing proficiency. A strong ratio infers that robust revenue or deficient inventory hold up sales at that rate. In contrast, a weak ratio implies poor sales, dull market demand, or an inventory superfluity. Regardless, knowledge of the direction of a firm's sales will inform its inventory management technique. This explanation could be responsible for the negative coefficient and insignificant relationship between inventory turnover and firm growth of manufacturing firms in Nigeria. Generally, flourishing firms have numerous inventory turnovers annually, but it

is quite different by sector and product class. For instance, consumption goods normally have a strong turnover, whereas premium products, such as designer shoes, usually see a small quantity sold in a year and a lengthy manufacturing period. Inventory optimization has many issues that can influence turnover, such as fluctuating client interest, overstocking, and weak stock control technique.

Table 8 reveals how effectively a firm uses its resources to generate revenue. The firm's gross sales are compared to the average total assets to show the number of sales generated from every naira of firm assets. The healthier the firms' capital management skills, the higher the firms' profitability, and the stronger the growth of manufacturing firms. This study revealed that asset turnover efficiency is a prerequisite for firm success, as shown by the appreciable correlation. This finding supports the alternate hypothesis, which affirms that ATO has a consequential connection with manufacturing firm growth in Nigeria. This stand aligns with the findings of Wu and Zeng (2019), Lixia and Xueli (2019), Amna et al. (2019), and Haoxi (2020) as their researches provided strong evidence to show that there is a substantial nexus between asset turnover efficiency and firm growth. Gill et al. (2014) concluded that although the nexus between total asset turnover and the firm's projected results shows a favorable effect, they are not consistent in the long run. This could explain the significant negative relationship between ATO efficiency and firm growth. As these assets are used to generate revenue, they suffer depreciation, thereby reducing their value and capacity. However, this position does not align with the findings of Warrad and, Al Omari (2015), who revealed that working capital turnover, asset turnover, and fixed asset turnover as efficiency metrics have no consequential effect on a firm's financial results.

Table 8 reveals that SE has a significant connection with firm growth, affirming the alternate hypothesis that a nexus exists between SE and firm growth. The inherent link between sales efficiency and firm growth is that the stronger the sales efficiency, the stronger the firm's anticipated growth. The findings of this research show otherwise, nevertheless, a significant relationship exists between sales efficiency and sales growth. The explanation could be poor pricing strategy, low product quality, and a general inflation rate, which is a major challenge in the Nigerian economy.

Finally, Table 8 revealed that operating expense efficiency (OEE) has a significant negative link with firm growth, affirming the research hypothesis that there is a connection between operating expense efficiency and firm growth. This position is consistent with the results of Gill et al. (2014), who concluded that the operating expenses ratio negatively impacts future performance. Trimming the operating expense can reduce a firm's productivity and, as a result, its profit, thereby affecting a firm's growth. However, operating expenses differ by sector.

5.0 Conclusion, Summary, and Recommendation

Theoretical and empirical literature shows that CFC efficiency is an essential determinant of firm growth. Our regression results demonstrate that CFC efficiency significantly affects firm growth. In addition, our findings are remarkably consistent with those of previous studies on CFC efficiency. In this study, we found that corporate financial capital efficiency has a significant adverse coefficient influence on firm growth. Manufacturing firms' growth is reflected in corporate financial capital efficiency.

Nevertheless, a country's ability to improve its business environment is almost completely dependent on its ability to increase production per capita. Investors and managers with a high level of corporate financial capital favor firm growth because they possess a competitive advantage over other firms. This is majorly correct in capital-intensive industries, such as manufacturing firms, where capital is likely to be more pivotal because they are driven by financial capital. This study recommends steps to improve the manufacturing industry's low outcome in Nigeria.

From the practical implications, managers' implementation of the suggestions below with thorough monitoring of major stakeholders in the manufacturing sector would help improve corporate financial capital efficiency and thereby enhance firm growth. As the findings of this study recommends that ATE, SE, and OEE affect firm growth, Nigerian manufacturing firms need to understand the signs of ATE, SE, and OEE improvement. These would include the following:

1. Reducing operating costs without affecting product quality and damaging firm goodwill.
2. Reducing the cash conversion cycle period to a generally acceptable minimum standard is required.
3. Employed strategic pricing techniques for all their products to maximize revenue
4. Improving operating cash flow by retaining a higher percentage of revenue
5. Increasing the turnover efficiency of the entire asset (specifically, inventory turnover) by applying strategic asset replacement techniques and procedures
6. The Nigerian government should implement inflationary control policies to enhance an enabling business environment for manufacturing firms.

Based on the findings, the study recommends that firms in the manufacturing sector should focus on asset turnover efficiency, sales efficiency, and operating expense efficiency through strategic asset deployment to revenue-generating activities, strategic product pricing and asset replacement techniques, cost of sales, and operating expense control measures to enhance, initiate, and sustain firm growth. Further studies should be conducted across other sectors while considering different methodologies and variables from this study for more robust generalization.

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