

**Effect of Cost Drivers on the Operating Profit of Pharmaceutical Companies in
Southwest Nigeria**

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ABSTRACT

This study examines the impact of cost drivers on the operating profit of pharmaceutical firms in Southwest Nigeria, drawing on cost structure theory and transaction cost economics to explain the relationship between cost components and profitability. Adopting an ex-post facto research design, the study utilized secondary data sourced from the audited financial statements of twenty-one pharmaceutical firms both listed and non-listed on the Nigerian Exchange Group. A proportional stratified random sampling technique was employed to ensure representative coverage. The data were analyzed using a multiple regression model to determine the extent to which various cost drivers affect operating profit. Results revealed a strong, statistically significant relationship between cost drivers and operating profit, with an R^2 of 97.2% and a p-value of <0.001 . The analysis confirmed that listing status significantly influences financial management practices, access to resources, and profitability, with listed firms outperforming their non-listed counterparts. Key cost indicators such as property, plant and equipment; credit purchases; credit sales; sales volume; debt levels; material costs; tax expenses; labor costs; training costs; and product lines were all significant at the 5% level. Based on these findings, the study concludes that effective management of cost drivers is essential for enhancing profitability, and that listing on the exchange provides a strategic advantage. The study offers valuable insights for industry stakeholders and policymakers aiming to improve financial performance and sustain competitiveness in Nigeria's pharmaceutical sector.

Keywords: Operating Profit, Cost Drivers, Pharmaceutical Companies, Nigeria

Introduction

The global pharmaceutical landscape is dynamic, balancing innovation, affordability, and access to essential medications. Driven by advancements in biotechnology, personalized medicine, and gene therapies, the industry is rapidly expanding. Global spending on medicines is projected to rise, particularly in emerging markets. Large pharmaceutical companies like Pfizer, Johnson & Johnson, and Roche dominate the industry, alongside a growing number of biotech firms and generics manufacturers (Busfield, 2020).

In Nigeria, especially in the Southwest, the pharmaceutical industry is a vital sector within the healthcare system. It significantly contributes to the nation's economy and public health, with a mix of multinational corporations, local manufacturers, and importers. Local companies such as Emzor, May & Baker, and Fidson produce a variety of essential drugs. Despite a steady annual growth of 10-15% since 2001 and over 115 registered manufacturers, Nigeria still relies on other countries for active pharmaceutical ingredients (Okereke et al., 2021).

Regulation is stringent, with the National Agency for Food and Drug Administration and Control (NAFDAC) ensuring compliance in drug manufacturing, importation, and distribution (Firmus Advisory, 2024). Early industry activities, including discovery, preclinical research, clinical trials, regulatory submissions, and production planning, require significant investments in R&D, patents, and compliance. Success in these stages determines a company's ability to recover costs and generate profits upon market entry.

Cost drivers in the pharmaceutical industry, as highlighted by Ramesh and Sumitra (2024), include high raw material costs, regulatory compliance expenses, energy inefficiencies, labor costs, distribution challenges, and exchange rate volatility. These factors inflate operational expenses and compress profit margins, making sustainable profitability challenging (Eshiet, Ekwe, and Akpan, 2023).

Understanding the impact of cost drivers on the operating profit of pharmaceutical firms is crucial for stakeholders. This knowledge informs strategic decisions aimed at optimizing costs, improving operational efficiency, and enhancing profitability (Tarasenko, 2023). The study establishes a connection between cost drivers and the operating results of

pharmaceutical firms in Southwest Nigeria from 2012 to 2019. Efficient resource allocation and improved engagement over time lead to greater profitability. It explores the implications for financial viability and the accessibility and affordability of essential medicines. By analyzing these cost drivers, the study provides actionable insights to help pharmaceutical firms improve cost management practices, enhance operating profits, and contribute more effectively to the healthcare needs of the population. The objective of the study was to investigate the effect of cost drivers on the operating profit of pharmaceutical firms in Southwest Nigeria.

This study is significant as it provides business managers and decision-makers with insights into the most significant cost drivers and their impact on operating profit. This information is crucial for informed strategic decisions related to sourcing, production processes, cost control measures, and pricing strategies, all of which are essential for maintaining profitability and competitiveness.

Policymakers, such as the Nigerian Customs Service (NCS) and regulatory bodies like NAFDAC, PCN, NIPRD, and ICCON, will benefit from understanding the cost pressures faced by pharmaceutical firms. This understanding will guide the development of more supportive regulatory frameworks and policies, including incentives for local production, streamlined regulatory processes, and measures to stabilize exchange rates. These steps will enhance the operational efficiency of pharmaceutical firms.

In summary, this study offers actionable insights to improve the financial health of pharmaceutical firms in Southwest Nigeria, influence strategic business decisions, inform policy-making, support economic growth, and ensure the continued availability of affordable medicines, benefiting both the industry and society.

Literature Review

Conceptual Framework

Conceptual Review: Cost Drivers

The financial performance of pharmaceutical companies in Southwest Nigeria is significantly influenced by various cost drivers. Understanding these cost drivers is crucial for effective cost management and strategic decision-making. Cost drivers are factors that influence a

firm's cost structure and the amount of costs incurred. This study focuses on key cost drivers such as selling and distribution costs, cost of inventory, and cost of labor.

Inventory, representing industrial goods, is a major component of business costs and profitability (Asaolu et al., 2012). Reducing inventory costs can lead to a reduction in manufacturing costs, thereby increasing profitability (Oyedokun et al., 2019). The selling price of consumer goods often depends on the costs incurred during manufacturing.

Labor costs include expenses on manpower involved in production. They represent the monetary valuation of labor expended to produce goods or services (Olayinka, 2019). Labor costs can be fixed or variable. Fixed labor costs remain unchanged with output levels, while variable labor costs are proportional to activity levels. They can also be direct (traceable to specific goods or services) or indirect (not directly traceable). Direct labor costs can be managed more easily than indirect labor costs.

These costs are incurred in delivering manufactured products to wholesalers, retailers, or end users. They include warehousing, storage, and loading/offloading expenses. Ensuring product availability in the target market involves selling and distribution costs, which are vital marketing functions (Sule et al., 2013). Firms incur these costs to make the right quantity of the right product available to buyers. These expenses also cover the promotion of sales and services to different customer categories (Olayinka, 2019).

High energy costs, including electricity and fuel, contribute significantly to production expenses. Investment in R&D is essential for developing new drugs and improving existing products. However, R&D activities require significant financial resources. Costs associated with distributing products to various locations, including transportation and warehousing, impact overall expenses. Expenses related to administrative functions, such as office supplies, utilities, and office space, contribute to overhead costs. Investing in employee training and development programs is essential for maintaining a skilled workforce but adds to overhead expenses.

In summary, understanding these cost drivers is crucial for pharmaceutical companies in Southwest Nigeria to optimize costs, improve operational efficiency, and enhance profitability. By effectively managing inventory, labor, and selling and distribution costs,

firms can achieve greater financial stability and competitive advantage. Promoting products through advertising, promotions, and sales activities requires substantial investment.

Conceptual Review: Operating Profit

Firm profitability is the ability to grow earnings while minimizing costs (Oyedokun et al., 2019). This ability is crucial for the survival of any business entity and is of utmost importance to stakeholders (Nworie & Ofoje, 2022). Operating profitability reflects a firm's effectiveness and efficiency in transforming asset usage into profits. Profit represents the excess revenue generated over production costs within a specific period, essentially the surplus of revenue over net operating expenses.

Operating Profit Operating profit is the income a company earns from its core business operations, excluding taxes and interest. It is also known as earnings before interest and tax (EBIT). To calculate operating profit, one subtracts operating expenses and the cost of goods sold (COGS) from total revenues. The operating profit margin is then measured as the ratio of operating profit to net turnover. For pharmaceutical companies in Southwest Nigeria, operating profitability is critical due to the sector's high-cost structure and regulatory environment. These firms must efficiently manage costs related to raw materials, labor, R&D, and compliance with stringent regulatory standards to maintain profitability. Given the industry's reliance on imported raw materials and the volatility of exchange rates, maintaining a healthy operating profit margin is a constant challenge. Effective cost management strategies are essential to sustain profitability amidst these challenges.

Conceptual Framework for the Study

The conceptual framework for examining the effect of cost drivers on the operating profit of pharmaceutical firms in Southwest Nigeria outlines the relationships between key variables that influence the financial performance of these firms. The framework is designed to illustrate how different cost drivers impact operating profit and to provide a structure for analyzing these relationships.

Cost Drivers are the independent variables in this study which influences the operational costs of pharmaceutical firms. Raw Material Costs are associated with acquiring active pharmaceutical ingredients (APIs) and other essential raw materials, often influenced by

import prices, exchange rates, and availability. While energy costs are expenses related to electricity and fuel, particularly in a region where power supply may be inconsistent, necessitating alternative energy sources like diesel generators. Furthermore, labour costs are associated with skilled and unskilled labor, including salaries, wages, benefits, and training expenses necessary to maintain regulatory compliance and operational efficiency. Others includes regulatory compliance costs (costs incurred to meet the stringent regulatory requirements set by agencies like NAFDAC, including costs for quality control, certifications, and adherence to Good Manufacturing Practices); distribution and logistics costs (costs related to the distribution of pharmaceutical products, including transportation, warehousing, and the impact of poor infrastructure or security challenges) and foreign exchange rates.

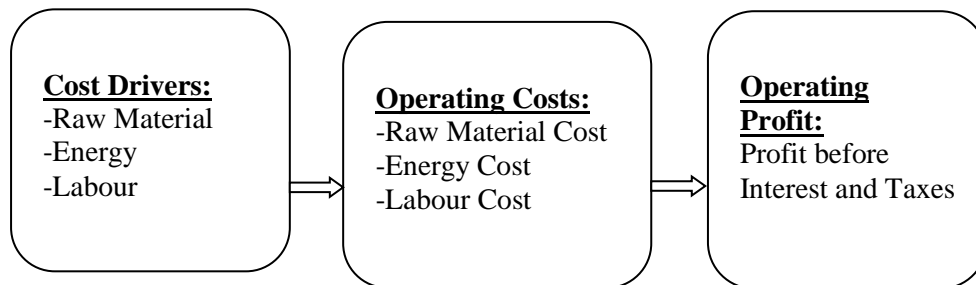
Dependent Variable: Operating Profit

Operating Profit of pharmaceutical firms in Southwest Nigeria represents the profit earned from a firm's core business activities, excluding the effects of interest and taxes (Zewude, 2016). It is a key indicator of financial performance and sustainability. This is influenced by the firm's ability to manage its operational costs effectively. A reduction in costs due to better management of the cost drivers is expected to improve operating profit, while an increase in these costs is likely to erode profitability.

These factors might influence the strength or direction of the relationship between cost drivers and operating profit which includes firm size (larger firms might have economies of scale that help mitigate the impact of certain cost drivers (e.g., bulk purchasing of raw materials, more efficient use of labor); market conditions(the competitive landscape, including market demand, pricing power, and competition intensity, can affect how cost drivers translate into operating profit) and government policies (policies related to tariffs, taxes, subsidies, and support for local manufacturing can moderate the impact of cost drivers on operating profit).

The relationships among these variables can be visually represented as follows:

Diagram 2.1: RELATIONSHIP AMONG THE VARIABLES



Source: Oyedare, (2024)

Each of the identified cost driver (raw material costs, energy costs, labor costs, etc.) is seen to have contributed to the overall operating costs of the firm. These operating costs directly affect the operating profit, where effective management of cost drivers leads to lower costs and higher operating profit. The conceptual framework model includes **mediating/moderating variables** (e.g., Firm Size, Market Conditions) pointing to the arrows between cost drivers and operating profit to indicate their influence on the relationship. This conceptual framework serves as the foundation for the study as it helps guide the data collection and analysis to understand how cost drivers impact the operating profit of pharmaceutical firms in Southwest Nigeria.

Theoretical Framework

The theoretical framework for examining the effect of cost drivers on the operating profit of pharmaceutical firms in Southwest Nigeria is grounded in cost structure theory and transaction cost economics (TCE). These theories provide a foundation for understanding the relationship between cost management and financial performance.

Cost Structure Theory Cost structure theory explains how different types of costs—fixed (e.g., regulatory compliance, salaries) and variable (e.g., raw materials, energy)—affect a firm's financial performance. Understanding the cost structure helps pharmaceutical firms optimize production processes, manage costs effectively, and enhance profitability. Fixed

costs remain unchanged with output levels, while variable costs fluctuate with production levels. Efficient management of these costs can lead to better control over the overall cost structure and improved operating profit.

Transaction Cost Economics (TCE) TCE, developed by Oliver Williamson, focuses on the costs associated with economic transactions, including production and distribution. For pharmaceutical firms, transaction costs involve negotiating and enforcing contracts, monitoring supplier performance, and regulatory compliance. High transaction costs can erode operating profit, particularly in a highly regulated environment like Nigeria's pharmaceutical industry. Firms must decide whether to produce certain inputs internally or purchase them from external suppliers based on cost-effectiveness. Minimizing transaction costs through strategic decisions can enhance operating profit.

Theories Relevance to the Study: The convergence of cost structure theory and TCE helps pharmaceutical firms in making decisions about production processes, partnerships, and market strategies. Firms must evaluate the trade-off between fixed costs (e.g., in-house manufacturing) and variable costs (e.g., outsourcing production). While outsourcing can reduce fixed costs, it may increase transaction costs. Achieving economies of scale through large-scale production can reduce costs per unit, but external manufacturing might introduce high transaction costs. Vertical integration can help reduce these costs while maximizing economies of scale.

In Southwest Nigeria, pharmaceutical firms face additional challenges like limited infrastructure, supply chain issues, and regulatory hurdles. Firms may outsource drug production to reduce fixed costs but must also manage the transaction costs associated with quality assurance, negotiations, and supply chain risks. High transportation and distribution costs may push firms toward vertical integration if external logistics costs are prohibitive. Regulatory uncertainty and supplier relationship risks might also influence firms to internalize functions for compliance and risk reduction.

This theoretical framework provides a comprehensive understanding of how cost drivers impact the operating profit of pharmaceutical firms. It guides the analysis of cost drivers' effects, offering a robust foundation for empirical investigation and strategic recommendations.

Empirical Review

The empirical review examines previous studies and research findings related to the impact of cost drivers on the operating profit of pharmaceutical firms, particularly in developing economies and regions similar to Southwest Nigeria. This review provides context, highlights gaps in the existing literature, and establishes the foundation for the current study.

Oyewale et al. (2020) findings on pharmaceutical firms in Nigeria was that the cost of raw materials, particularly those imported, has a profound impact on operating profit. The result showed that fluctuations in global prices and exchange rates exacerbated the cost burden, leading to reduced profitability. Similar finding was reported by Ketokivi and Mahoney (2020), who observed that firms with better procurement strategies and local sourcing capabilities were able to mitigate these costs more effectively. Adi (2023) examined influence of fuel price, electricity price, fuel consumption on operating cost, generation and operating income, the result revealed that hike in fuel price and electricity price and the reliance on diesel generators significantly increased operating costs, thereby reducing operating profit. It was suggested that investment in alternative energy sources could help reduce these costs and improve profitability. Furthermore, Karo-Karo and Ginting (2020) examined the effect of human capital, total assets, total liabilities on the net income of a company, and found out human capital, total assets and total liabilities were significant on the net income of a company. The study noted that firms investing in human capital-workforce training and development saw an improvement in operational efficiency, which in turn positively impacted their operating profit. However, high labor costs remained a challenge for firms with less efficient workforce management practices.

Regulatory compliance is a critical factor in the pharmaceutical industry, given the stringent requirements for product quality and safety. Anyakora, et.al. (2017) findings showed that firms that effectively managed regulatory compliance costs were able to achieve higher operating profits due to improved market access and consumer trust among pharmaceutical firms in West Africa. It was suggested that investments in quality control and compliance could enhance long-term profitability despite the high upfront costs. While a study by Joing Tu (2020) on the impact of regulatory compliance costs on business performance. Empirical findings reveal that the regulatory burden faced by an SME is affected by its size and

revenue. The larger a firm's size and revenue, the lower the intensity of regulatory compliance costs on that firm.

Distribution and logistics are key components of the pharmaceutical supply chain, and their impact on operating profit has been widely studied. Ibikunle, et.al (2023) examined the effect of poor infrastructure on the distribution costs of pharmaceutical firms in Nigeria. The study found that inadequate road networks, high transportation costs, and security concerns significantly increased logistics expenses, reducing operating profit. The study emphasized the need for improved infrastructure and more efficient logistics strategies to enhance profitability. Ezeanolue and Okeke, (2024) analyzed the relationship between supply chain efficiency and operating profit in the Nigerian pharmaceutical industry. The study found that firms with more integrated and efficient supply chains were able to reduce distribution costs and improve their operating profit margins. The study highlighted the importance of supply chain management as a key factor in maintaining profitability.

The volatility of foreign exchange rates has been identified as a major challenge for pharmaceutical firms, especially those that rely heavily on imported raw materials. Other study by Babatunde et al. (2018) on the impact of exchange rate fluctuations on the profitability of Nigerian pharmaceutical firms found that devaluation of the Naira led to significant increases in the cost of imported raw materials, thereby reducing operating profit. The study recommended that firms adopt hedging strategies to mitigate the impact of exchange rate volatility. The Chairman, Local Organising Committee (LOC), 7th edition of the Nigeria Pharma Manufacturers Expo (NPME), billed to take place on September 4 and 5, 2024, Mr Patrick Ajah, said that for the domestic pharmaceutical industry to progress, a stable exchange rate was essential. The study found that firms that diversified their supply sources, engaged in forward contracts, or increased their local production capacity were better able to manage costs and maintain profitability.

Inflation is a persistent issue in many developing economies, including Nigeria, and its impact on operating costs has been widely studied. Adeola and Akinyele (2019), found that inflationary pressures led to rising costs of inputs, utilities, and other operational expenses. The study reported that these rising costs had a direct negative impact on operating profit, particularly for firms that were unable to pass on the increased costs to consumers due to

competitive pressures. Ugochukwu and Obiora (2020) examined how pharmaceutical firms in Nigeria dealt with inflation. The study found that firms that were able to implement cost-passing strategies, such as adjusting product prices or reducing packaging sizes, managed to maintain their profit margins despite inflationary pressures.

While the existing empirical studies provide valuable insights into the impact of cost drivers on the operating profit of pharmaceutical firms, there is a lack of comparative studies that explore how different pharmaceutical firms (e.g., large vs. small firms, local vs. multinational) are affected by cost drivers differently. Such studies could provide insights into the strategies that different types of firms can adopt. This empirical review highlights the significant impact of various cost drivers on the operating profit of pharmaceutical firms, with studies consistently showing that raw material costs, energy expenses, regulatory compliance, and exchange rate volatility are key challenges. However, there is a need for more localized, comparative, and longitudinal research, particularly in the context of Southwest Nigeria, to better understand these dynamics and develop effective strategies for enhancing profitability. This study aims to fill some of these gaps by providing an in-depth analysis of the cost drivers affecting pharmaceutical firms in this specific region.

Methodology

Research Design

This study adopted an ex-post facto research design. Secondary data were collected and obtained from audited financial statements of registered pharmaceutical manufacturing firms in Southwest Nigeria, covering the period 2012 to 2019. Firms were selected based on data completeness and consistency with the study variables. The population consisted of 80 pharmaceutical firms distributed across Lagos, Ogun, Oyo, and Osun States. A 30% sample (24 firms) was selected using proportional stratified random sampling, ensuring state-level representation based on firm concentration. The study modified models from Bardhan et al. (2007), Lebans and Euske (2006), and Kaplan (1998) to examine the effect of cost drivers on firm operating profit. The model is specified as:

$$OP = \alpha + \beta_1(P) + \beta_2(PE) + \beta_3(CP) + \beta_4(CS) + \beta_5(SV) + \beta_6(DL) + \beta_7(MC) + \beta_8(LC) + \beta_9(EC) + \beta_{10}(TE) + \beta_{11}(RDC) + \beta_{12}(TC) + \beta_{13}(PL) + \beta_{14}(CU) + \beta_{15}(POH) + \varepsilon$$

Where OP = Operating Profit (dependent variable), and the independent variables include cost indicators such as Property (P), Plant and Equipment (PE), Credit Purchases (CP), Sales Volume (SV), Material Cost (MC), Labour Cost (LC), Energy Cost (EC), and others. Data were analyzed using descriptive statistics and multiple regression analysis, enabling the study to assess the extent to which cost drivers affect operating profit among pharmaceutical firms in the region.

Results and Discussion

The effect of cost drivers on the operating profit of pharmaceutical firms in Southwest Nigeria.

The model summary underneath the Table 4.1 displays the correlation coefficient (R) results, which indicate how strongly operating profit (performances) and cost drivers (independent variables) are related. The strength of association between cost drivers and operating profit was 98% showing that the strength of association is very strong. R square (R^2), a measure of the Coefficient of Determination, quantifies the proportion of the dependent variable's variance that the model is able to account for. There is a significant correlation between operational profit and cost drivers, as evidenced by the R square (R^2) of 97.2%. The ratio of two variances, or two mean squares, is known as an F-value. Simply said, mean squares are variances that take the degrees of freedom (DF) into consideration while estimating the variance. The test statistic for F-tests is the F-value.

The model is significant in explaining the operating profit since it has p-value < .001.

Table 4.1: ANOVA of cost drivers and operating profit of pharmaceutical firms in Southwest Nigeria

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	1891555640.970	15	126103709.398	355.328	.000 ^b
Residual	53588909.898	151	354893.443		
Total	1945144550.868	166			

$R = .986$; $R^2 = .972$; Adjusted $R^2 = .970$

Source: Researcher's Field Work, 2023

The results in Table 4.2 give the coefficients and the value of their significance. From the table, it can be seen that of all the 15 indicators, only eleven (Property, Plant and Equipment, Credit Purchase, Credit Sales, Sales Volume, Debt level, Material Cost, Tax Expenses and Labor Cost, Training cost, and Product lines) are significant at 5% level. The partial effect of listings in the model being -88.708 implies that the mean Operating Profit of the considered companies is reduced for listed company by *NGN 88.708 m* relative to the non-listed companies when all other factors are held constant.

Property, plant and equipment have associated cost that goes into expense line such as depreciation certainly affects profit. Cost of asset improvement when capitalized and added, the assets historical cost on the balance sheet increases. Activities directed at expanding the capacity of an asset will ordinarily affect profitability.

Sales volume from the output of the coefficients is significant with additional unit of sales volume increases gross profits thus impacting on operating profit. A cost reduction approach on each unit of output by lowering unit costs without impacting revenue and maintaining the same sales volume will definitely increase the firm's profit. Therefore, when sales decline, fixed cost per unit rises and vice-versa.

In Southwest Nigeria, pharmaceutical firms' operating profits are positively correlated with efficient credit sales management. This suggests that in order for pharmaceutical firms to optimize their profit, they should extend credit to reliable clients using the proper credit control procedures. Additionally, it was shown that credit sales boost turnover and profitability in areas where the best credit policy is effectively implemented in businesses. Therefore, pharmaceutical firms should have the best credit policy possible in order to reduce bad debt losses and other credit-related expenses.

The results of earnings can be used to gauge the performance of the company. Profit in economics is defined as the return on an investment. In contrast, accounting science analyzes profitability using formulas involving income and expenses. Gross profit, operating profit, profit before tax, profit after tax, and net profit are among the various types of profit that can be seen in the income statement. Simamora (2013) asserts that "the results of the transaction income, expenses, losses, and profits will produce a net profit". In contrast, according to Subramanyam's (2017) perspective, "net income is obtained from the remaining profits of the

company after reducing revenues and profits with expenses and losses." According to Mulyadi (2016), a number of variables, including as costs, sales and production volumes, and selling prices, have an impact on profitability. Costs associated with producing an item or providing a service have the potential to affect the selling price of those goods or services, which has an impact on profitability. Because selling prices have an effect on a product or service's various sales quantities, they can have an impact on profitability. Furthermore, a large volume of sales has an impact on a variety of production volumes for goods or services, thus both the volume of sales and the volume of production can have an impact on profit.

The ceteris paribus interpretation of the model shows that holding all other variables in the model constant increase of one unit in addition to land and building will lead to about 0.159 percent increase in operating profit. This is true because having more property in the organisation would lead to making more profit. The existence of this asset enhances positive contributions of factors of production in an organisation. Furthermore, increase in one unit in additions to sale volume will lead to about 1.086 percent increase in operation profit, and the increase of one unit in addition to credit purchase will lead to 0.594 percent decrease in operating profit.

In addition, plant and equipment was observed to be another indispensable cost driver by proxy in improving the operating profit of drugs producing pharmaceutical firm. The study found that holding other variables constant, one unit increase in addition to plant and machinery would lead to about 0.09 percent increase in operating profit. This also is true as most drugs manufacturing firms need their plant and manufacturing to work round in order to meet their set target.

Another indicator in the study is increase in addition to labour. The study found that holding all other variables constant in the model, one unit increase in addition to labour would lead to about 0.222 percent decrease in operating profit. Unnecessary increase in salary will definitely result in decrease in profit. And while additional staff may not be necessary, training of staff is better off. The study found that holding all other variables constant in the model, one unit increase in additions to training would lead to about 0.109 percent increase in operating profit.

It therefore means that with the exception of Energy, Research and Development, Capacity Utilisation, Production Overhead, all other variables have significant effects on operating profit.

In summary, credit sales, sales volume, tax expenses, debt level, training cost, property, plant and equipment, material cost, research and development cost, and capacity utilisation cost (cost drivers) positively impact operating profit (performance), while production overhead, product lines, labour cost and credit purchases negatively affect operating profit. Since some cost drivers are likely to be extremely essential in every situation, not all cost drivers are necessarily equally important all the time (Kelety, 2006).

Table 4.2: Coefficients^a of cost drivers and operating profit of pharmaceutical firms in Southwest Nigeria

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	95.451	106.525		.896	.372
Listing	-88.708	133.531	-.013	-.664	0.508
Property	.188	.054	.159	3.452	.001
Plant and Equipment	.117	.046	.090	2.555	.012
Credit Purchase	-.176	.036	-.594	-4.895	.000
Credit Sales	.428	.047	.254	9.063	.000
Sales Volume	.251	.033	1.086	7.588	.000
Debt Level	.112	.025	.174	4.490	.000
Material Cost	.049	.022	.081	2.199	.029
Labor Cost	-.649	.174	-.222	-3.737	.000
Energy Cost	.167	.262	.020	.638	.524
Tax Expenses	1.506	.288	.136	5.237	.000
Research and Development Cost	.646	.556	.030	1.160	.248
Training Cost	4.435	1.087	.109	4.079	.000
Product Lines	-5.784	2.706	-.053	-2.138	.034
Capacity Utilisation	.238	1.039	.004	.229	.819
Production Overhead	-.095	.074	-.050	-1.279	.203

a. Dependent Variable: Operating Profit

Source: Researcher's Field Work, 2023

Discussion of Findings

From the analyses, the following conclusions are drawn:

Considering the effect of whether the companies are listed in the Nigerian Exchange Group or not is significant for some indicators of Profit Performance (Operating Profit), results of the operational and financial performances measured by Operational Profit, was significantly different for the listed and non-listed Pharmaceutical firms in Southwest Nigeria.

In common manufacturing concern, the cost of material constitutes a large proportion of the total product cost, and as such there should be a proper system of material control to ensure economy in the cost of production. Results obtained from the analysis suggested that material cost has been significantly increasing hence the detrimental effect on profitability. This finding aligns with that of (Ogbadu, 2009) who posited that the continuous shutting down of brewery firms in Nigeria has been due to the high cost of inputs. Also, the findings from this study corroborate that of (Oyerogba *et al.* 2014) who noted that rising cost in raw materials such as barley and consequent importation ban on the grain had exacerbated the input cost of beer production in Nigeria.

Salawati *et al.*, (2012) the results indicate that there is a positive link between inventory management and financial performance among 82 construction firms in Malaysia for the period 2006-2010. Eneje *et al.*, (2012) investigated the effects of raw materials inventory on the profitability of brewery firms in Nigeria using a cross-sectional data from 1989 to 2008. The study concluded that efficient management of raw material inventory is a major factor to be contained with by Nigerian brewers in enhancing profitability.

To increase profitability, the need to reduce the cost of raw materials which will eventually lead to a reduction in manufacturing cost should be one of the objectives of any manufacturing organization (Asaolu *et al.*, 2012). Researchers have, in the last few years increasingly stressed how germane research and development is in the manufacturing sector. Technology-based companies in this sector put forth large expenditures for research and development to maintain their competitive advantage and ensure their future viability (Ayaydin and Karaaslan, 2014).

Conclusion and Recommendations

The study examined the effect of cost drivers on the operating profit of listed and non-listed pharmaceutical firms in Southwest Nigeria using data from 2012 to 2019. The findings revealed a strong correlation between cost drivers and operating profit, indicating that cost structures have a direct influence on the financial performance of pharmaceutical firms.

The study also showed that listed firms possessed operating profit levels drastically different from non-listed firms, proving that listing on Nigeria Exchange Group influences financial management practices and availability of resources. Structural, operational, and executional cost drivers were also seen as crucial to the viability of pharmaceutical business. Identification and control of these drivers are essential to profitability, efficiency, and resource optimization. The research emphasizes the need for proactive asset maintenance, managerial decisions based on intelligence, and improved internal controls for prevention of unnecessary cost increases. From a policy standpoint, the research advocates for more government support, particularly in promoting local API production to lessen the country's reliance on imports and minimize foreign exchange exposure.

Overall, the study adds to the body of knowledge by providing empirical proof of the impact of cost drivers on operating performance and presents strategic information for managers, investors, and policymakers on how to enhance profitability and support the pharmaceutical sector in Nigeria.

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