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Research Article

Influence of Operating Cost, Production Cost and Sales Volume on Net Profit of IDX-Listed Pharmaceuticals

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Abstract: This study analyzes the effect of operating costs, production costs, and sales volume on net profit in pharmaceutical companies listed on the Indonesia Stock Exchange (IDX) for the period 2021-2024. Using a quantitative method with panel data regression analysis, this study took a sample of 11 companies and secondary data from financial reports. The results of the hypothesis test show that operating costs, production costs, and sales volume partially have a positive and significant effect on net profit. These findings are consistent with existing literature and indicate that efficient cost management and increased sales volume are crucial factors in maximizing profitability in the pharmaceutical sector. Furthermore, this research is also relevant to Agency Theory, which suggests that management, as agents, must manage costs and sales transparently to align their interests with those of shareholders, ultimately leading to the sustainable increase of company value. This study contributes to understanding key factors driving financial performance in the industry.

Keywords: Net Profit; Operating Cost; Pharmaceuticals; Production Cost; Sales Volume.

1. Introduction

The increasingly dynamic era has intensified business competition, making it essential for organizations with strong affiliations to operate effectively in financial and economic activities. With Indonesia's growing economic opportunities in the global market, organizations are expected to enhance their performance to attract investors and strengthen their competitiveness internationally (Karmilah et al., 2024). Businesses generally engage in repetitive activities aimed at maximizing profit, which is derived from revenue after deducting production costs of goods or services within a given period. These profits can then be reinvested to enhance company operations, thereby improving productivity, efficiency, and quality in specific work areas (Alisa et al., 2024). In this regard, profit serves not only as a financial indicator but also as a key measure of organizational success and sustainability, ensuring the company's ability to compete and grow in the long term (Padang et al., 2022).

One of the primary objectives of a company is to generate profit, as it enables the business to expand and enhance its capabilities. Profit itself is generally understood as the surplus obtained when revenues from transactions during a specific period exceed the expenses incurred to earn them (Effendi, 2020). Net profit represents the remaining profit after deducting all expenses, costs, and losses from total revenues, reflecting whether the company experiences capital growth or a net loss in deficit conditions. Profit carries important meaning for both internal and external stakeholders, serving not only as a measure of performance and management accountability but also as a determinant of dividend distribution and financial obligations (Ananda & Fajriansyah, 2025). The net profit phenomenon of pharmaceutical companies listed on the IDX in Q4 2021-2024 is shown in the following table:

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Table 1. Net Profit of Pharmaceutical Companies Listed on the IDX in Q4 2021-2024.

Company Code	2021	2022	2023	2024
DVLA	Rp146,725,628,000	Rp149,375,011,000	Rp146,336,365,000	Rp156,147,303,000
INAF	Rp37,571,241,226,000	Rp428,487,671,595	Rp721,000,075,536	Rp334,492,187,319
KAEF	Rp289,888,789,000	Rp109,782,957,000	Rp2,260,684,344,000	Rp1,208,172,543,000
KLBF	Rp3,232,007,683,281	Rp3,450,083,412,291	Rp2,778,404,819,501	Rp3,246,569,754,197
MERK	Rp131,660,834,000	Rp179,837,759,000	Rp178,240,003,000	Rp153,463,416,000
PEHA	Rp8,001,490,000	Rp27,395,254,000	Rp6,012,112,000	Rp290,632,975,000
PYFA	Rp5,478,952,440	Rp275,472,011,358	Rp85,226,477,250	Rp330,246,365,580
SCPI	Rp118,691,582,000	Rp174,782,102,000	Rp187,701,804,000	Rp186,615,628,000
SIDO	Rp1,260,898,000,000	Rp1,104,714,000,000	Rp950,648,000,000	Rp1,171,026,000,000
SOHO	Rp551,091,000,000	Rp357,015,000,000	Rp371,341,000,000	Rp462,651,000,000
TSCP	Rp877,817,637,643	Rp1,037,527,882,044	Rp1,250,247,953,060	Rp1,548,405,297,394

Source: Financial Report

During the period of Q4 2021–2024, the net income performance of pharmaceutical companies on the IDX showed significant fluctuations. INAF recorded very high net income in 2021 of IDR 37.57 trillion, then fell sharply to IDR 428.48 billion in 2022, increased dramatically to IDR 721 billion in 2023, but declined again to IDR 334.49 billion in 2024. TSCP showed stable growth with a continuous increase from IDR 877.81 billion (2021) to IDR 1.03 trillion (2022), IDR 1.25 trillion (2023), and IDR 1.54 trillion (2024). KAEF fluctuated, from IDR 289.89 billion (2021) to IDR 109.78 billion (2022), surged to IDR 2.26 trillion (2023), then weakened to IDR 1.20 trillion (2024). KLB rose from IDR 3.23 trillion (2021) to IDR 3.45 trillion (2022), but declined to IDR 3.24 trillion in 2024. Companies such as DVLA, MERK, SCPI, and SIDO remained relatively stable with moderate variations, while SOHO consistently increased from IDR 551 billion (2021) to IDR 642 billion (2024). Overall, the pharmaceutical sector continues to show high dynamics, with some companies recording solid growth, while others face significant declines.

To complement the net profit analysis, it is also important to understand the factors that influence it, one of which is operating costs arising from the company's daily operational activities. Operating costs are expenses associated with a company's day-to-day activities, such as sales, administration, advertising, depreciation, as well as repair and maintenance. In other words, these costs arise from business operations but are not directly linked to the production of goods or services (Suzan & Lumbantobing, 2023). Operational costs refer to expenses incurred to generate a company's primary revenue and include all non-production-related expenses in manufacturing firms, including those in the pharmaceutical sector. Managing these costs efficiently can directly impact profitability, as lower operational expenses generally lead to higher profits (Rachmawati et al., 2024). If a company's operational expenses are high, they will reduce the net profit. These expenses, which include equipment, repairs, commissions, salaries, raw materials, transportation, depreciation, rent, and taxes must be managed carefully to minimize costs without compromising the quality of products or services (Lubis et al., 2024).

In addition to operating costs, production costs are also a factor that can affect net profit. Reduced production costs, along with higher sales, will lead to greater profits (Rachmawati et al., 2024). Producting costs represent the overall expenses a company bears in converting raw materials into finished goods, covering components such as raw materials, direct labor, and factory overhead. They also encompass additional elements like auxiliary materials, equipment depreciation, and inventory adjustments throughout the production process (Komarudin, 2024). Producting costs are directly tied to creating a product and are matched with the revenue generated when the product is sold. Companies aim to minimize these costs, including raw materials, labor, and factory overhead to determine whether a product will yield gross profit or incur a loss (Prihatni & Ulupui, 2025). A company's profit partly comes from gross earnings, calculated by subtracting the total cost of goods sold from total sales revenue, or from the difference between revenue and production expenses.

Efficient management of production costs allows a company to maximize profit by minimizing waste and maintaining product quality (Lubis et al., 2024).

Another factor affecting net profit is sales volume. Sales volume reflects a company's revenue, expressed either in physical units or as a measure of the company's product sales. It can be understood as the quantity or amount of goods or services sold (Edwar, 2024). Sales volume influences a company's profit by reflecting the total units sold within a specific time frame. In other words, it represents the quantity of goods or services a business manages to sell over the course of a year (Effendi, 2020). Sales represent the core objective of a company's operations, aiming to achieve profit through the provision of goods or services to customers. Within the organizational framework, sales hold a vital function as they generate revenue and act as the primary source of the company's income (Komarudin, 2024). To achieve optimal profit, a company must carefully manage its expenses while ensuring sales volume, whether measured in physical units or monetary value, reaches the targeted level (Pratama & Sari, 2022).

Previous research that examined similar topics to those studied by the researchers was conducted by Karmilah et al., (2024), in food and beverage manufacturing companies listed on the IDX. The study found that operating costs do not affect net profit, while production costs and sales volume both have a significant impact on net profit. Then study by Suzan & Lumbantobing (2023), in food and beverage industry sub-sector between 2017 to 2021. The study found that production costs and operating costs have a partial negative effect on net income, meanwhile sales volume has a partial positive effect on net profit. Meanwhile, research by Effendi (2020), in food and beverage sub-sector companies listed on the IDX 2014-2018. The study foud that sales volume has an effect on profit with a positive directional relationship, meanwhile production cost negative effect.

Previous studies on operating costs, production costs, and sales volume focused primarily on food and beverage manufacturing companies listed on the Indonesia Stock Exchange. These studies consistently showed that production costs and sales volume significantly influence net profit, while operating costs often have a mixed or negligible effect. However, there is a research gap regarding pharmaceutical companies, which may have different cost structures and market dynamics compared to the food and beverage sector. This study addresses that gap by analyzing IDX-listed pharmaceutical companies from 2021 to 2024. By focusing on this sector, the research aims to provide insights into how operating costs, production costs, and sales volume affect net profit in the pharmaceutical industry.

2. Literature Review

Agency Theory

According to Jensen and Meckling (1976) in Bilqis & Muhammad (2025), agency theory explains the contractual relationship between the owners of a company as principals and management as agents, where agents often possess more information than principals, creating information asymmetry that may lead to conflicting interests and necessitating the role of independent parties, such as public accountants, to ensure transparency and reliability of company information. It assumes that management seeks to maximize its own welfare by reducing agency costs, which is one of the key propositions of the theory. The agency relationship refers to the connection between business owners as principals and managers as agents, where managers are tasked with carrying out responsibilities on behalf of the owners, who remain concerned with how their investments and business operations are managed. Agency theory highlights potential conflicts of interest between principals and agents, making voluntary disclosure of information an important form of accountability to help reduce such disputes (Ananda & Fajriansyah, 2025).

Operating Cost

According to Murti (2019:413) in Pratama & Sari (2022), functional costs represent the sacrifices an organization makes to support its tasks in achieving objectives, and addressing work-related expenses requires adequate solutions based on a clear understanding of the associated costs. While according to Ananda & Fajriansyah (2025), Operating costs refer to expenses arising from a company's daily operations rather than its products, serving as financial resources to sustain and generate income, and they typically rise in line with the level of business activity. Operational costs are expenses connected to a company's day-to-day

operations, such as sales, administrative functions, advertising, depreciation, as well as repairs and maintenance. In other words, these costs are tied to business activities but are not directly associated with the production of goods or services (Suzan & Lumbantobing, 2023). The formula for operating cost is as follows:

Operating Cost = Sales Cost +General Administration Cost

Production Cost

Production cost, as defined by Mulyadi in his book Cost Accounting in Pratama & Sari (2022), refers to expenses incurred in transforming raw materials into finished products ready for sale. These include costs such as machine and equipment depreciation, raw materials, indirect materials, and employee wages, whether directly or indirectly related to the production process. Production cost refers to the total expenses a company bears in producing goods or preparing them for sale. It includes all expenditures on raw materials and other essential elements required for the manufacturing process (Suzan & Lumbantobing, 2023). Production costs refer to the overall expenditures a company incurs in the process of producing its main goods, which cover raw materials, labor, and manufacturing overhead. They also include expenses related to converting raw materials into finished products, such as auxiliary materials, machine depreciation, and adjustments for beginning and ending inventories during the production process (Komarudin, 2024). The formula for production cost is as follows:

Production Cost = Cost of Goods Sold + Ending Inventory - Beginning Inventory

Sales Volume

According to Kotler (2006) in Pratama & Sari (2022), sales volume is the outcome generated by a company through its marketing process and represents a component of the overall marketing program results. Sales are a crucial business function aimed at generating profit through the distribution of goods or services to customers. Within a company, sales not only represent the main source of revenue but also rely on effective product marketing and promotional activities to achieve targeted profit goals (Komarudin, 2024). Sales volume refers to the quantity or scale of goods or services that a company manages to sell within a specific time frame. It represents the overall sales achieved by the company, which directly affects whether the generated profits will be high or low (Suzan & Lumbantobing, 2023). The formula for sales volume is as follows:

Sales Volume = Total Product Sales During One Period

Net Profit

According to Ardhianto (2019:100) in Karmilah et al. (2024), net profit refers to the positive difference obtained from transactions after deducting costs and fees. Meanwhile, the Indonesian Institute of Accountants defines profit as the remaining portion after all expenses, including capital maintenance adjustments if applicable, are subtracted, whereas if expenses exceed income, the result is an overall deficit or net loss. Profit represents the surplus obtained when revenue exceeds expenses, whereas losses arise when costs surpass income. Beyond serving as a financial metric, consistent and sustainable profit signals a company's efficiency in managing resources, seizing growth opportunities, maintaining competitiveness, and ensuring long-term business continuity (Ananda & Fajriansyah, 2025). Net profit is derived from the difference between a company's revenues and its expenses within a specific period, reflecting the remaining income after covering costs. A business-oriented company continuously aims to generate profit in every period, where higher revenues than expenses indicate profit, while the opposite results in a loss (Suzan & Lumbantobing, 2023). The formula for net profit is as follows:

Laba Bersih = Pendapatan - Beban

Hypothesis Development

The Influence of Operating Cost on Net Profit

Operating costs refer to expenses unrelated to the company's products but necessary for daily business operations, serving as financial resources to sustain activities and generate revenue. These costs are closely tied to company performance and have a strong, proportional relationship with net profit, meaning that higher operating costs can contribute to increased profitability (Ananda & Fajriansyah, 2025). Operating expenses have a significant impact on net income, making effective management and control of these costs a crucial factor in enhancing a company's financial performance. This also provides a positive signal to investors

regarding business stability and future growth prospects (Bilqis & Muhammad, 2025). Hypothesis 1 of this study is supported by Ananda & Fajriansyah (2025); Bilqis & Muhammad (2025); Ernayani et al., (2022), who states that operating cost has a positive and significant effect on net profit.

H1: Operating Cost has a positive and significant effect on Net Profit

The Influence of Production Cost on Net Profit

Managing production costs efficiently is essential for a company to maintain profit. High production costs can reduce the funds available for investment and growth. By controlling expenses, companies can ensure they maximize returns on their products. Effective cost management also enables firms to allocate resources strategically and improve overall operational efficiency. The connection between production costs and net profit lies in how effectively a company manages its expenses, as lower costs allow businesses to maximize earnings from product sales. When production costs rise, revenue tends to decline due to reduced output, but when costs decrease, higher production leads to increased revenue (Alisa et al., 2024). Hypothesis 2 of this study is supported by Alisa et al., (2024); Edwar (2024); Rachmawati et al., (2024), who states that production cost has a positive and significant effect on net profit.

H2: Production Cost has a positive and significant effect on Net Profit

The Influence of Sales Volume on Net Profit

Higher sales volumes increase the company's potential net profit, making efforts to boost sales essential for reaching profit targets. However, sales alone do not determine net profit, as it interacts with factors like operating and production costs, so companies must manage costs and marketing strategies together to optimize profitability (Edwar, 2024).There is a strong relationship between sales volume and the growth of a company's net profit, as reflected in the income statement, where profit arises when product sales exceed the expenses incurred(Pratama & Sari, 2022). The higher the sales achieved by a company, the greater the profits it can generate, as profit grows when sales exceed incurred costs and continue to rise alongside increasing sales volume (Suzan & Lumbantobing, 2023). Hypothesis 3 of this study is supported by Edwar (2024), Komarudin (2024); Suzan & Lumbantobing (2023); Padang et al., (2022); Pratama & Sari (2022), who states that sales volume has a positive and significant effect on net profit.

H3: Sales Volume has a positive and significant effect on Net Profit

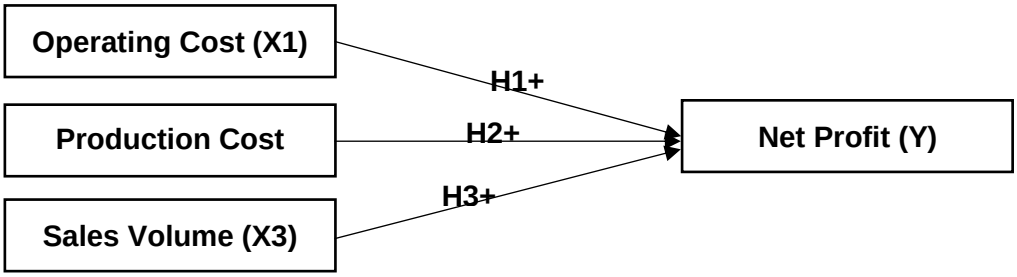

Figure 1. Conceptual Framework.

3. Research Method

This study uses quantitative research methods with panel data regression analysis techniques using EViews software to analyze this research model. The research sample includes all pharmaceutical companies listed on the IDX for the period 2021-2024, totaling 11 companies. The type of data used in this research is secondary data, collected using documentation techniques (document analysis) obtained from company financial reports through the companies' official websites or IDX.

Table 2. Sample Company.

No.	Company Code	Company Name
1.	DVLA	Darya-Varia Laboratoria Tbk
2.	INAF	Indofarma Tbk
3.	KAEF	Kimia Farma Tbk
4.	KLBF	Kalbe Farma Tbk
5.	MERK	Merck Tbk
6.	PEHA	PT Phapros Tbk
7.	PYFA	PT Pyridam Farma Tbk
8.	SCPI	PT Organon Pharma Indonesia Tbk
9.	SIDO	PT Industri Jamu Dan Farmasi Sido Muncul Tbk
10.	SOHO	PT Soho Global Health Tbk
11.	TSPC	Tempo Scan Pacific Tbk

4. Results and Discussion

Statistic Descriptive

Table 3. Statistic Descriptive

	N	Minimum	Maximum	Mean
Operating Cost (X1)	176	9,240	5.887,910	408,755
Production Cost (X2)	176	7,640	2.200,050	446,246
Sales Volume (X3)	176	43,640	9.871,840	2.331,877
Net Profit (Y)	176	0,210	3.450,080	440,213

Based on Table 3, Operating Cost (X1) has a mean value of 408,755 with a minimum value of 9,240 shown in SCPI Q1 2023 and a maximum value of 5.887,910 shown in SIDO Q4 2022. Production Cost (X2) has a mean value of 446,246 with a minimum value of 7,640 shown in PYFA Q1 2022 and a maximum value of 2.200,050 in SIDO Q4 2022. Sales Volume (X3) has a mean value of 2.331,877 with a minimum value of 43,640 in INAF Q1 2024 and a maximum value of 9.871,840 in KAEF Q4 2023. Net Profit (Y) has a mean value of 440,213 with a minimum value of 0,210 in PYFA Q3 2024 and a maximum value of 3.450,080 in KLBF Q4 2022.

Chow Test

Table 4. Chow Test.

Effects Test	Statistic	d.f.	Prob.
Cross-section F	32,655	(10,162)	0,000
Cross-section Chi-square	194,276	10	0,000

Source: Processed Data (2025)

The Chow test cross-section value of 32,655 with a probability of 0,000 < 0,05 indicates a Chow test decision using the FEM (Fixed Effect Model). Therefore, the Hausman test is continued.

Hausman Test

Table 5. Hausman Test.

Test Summary	Chi-Sq.Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	1,528	3	0,6757

Source: Processed Data (2025)

The Hausman test probability value is 0,6757 > 0,05, indicating that the best model selected is the REM (Random Effect Model). Therefore, the Lagrange Multiplier test is continued.

Lagrange Multiplier Test

Table 6. Lagrange Multiplier Test.

	Cross-section	Test Hypothesis Time	Both
Breusch-Pagan	494,160	0,583	494,742
	(0,000)	(0,445)	(0,000)

Source: Processed Data (2025)

The Lagrange Multiplier Test value is 0,000 < 0,05, indicating that the REM (Random Effect Model) is selected.

Multicollinearity Test

Table 7. Multicollinearity Test.

	Operating Cost (X1)	Production Cost (X2)	Sales Volume (X3)
Operating Cost (X1)	1,000	0,446	0,333
Production Cost (X2)	0,446	1,000	0,185
Sales Volume (X3)	0,333	0,185	1,000

Source: Processed Data (2025)

The correlation coefficients of X1 and X2 are 0,446 < 0,85; X1 and X3 are 0,333 < 0,85; X2 and X3 are 0,185 < 0,85, indicating that the data is free from multicollinearity.

Autocorrelation Test

DU < DW < 4-DU

1,7881 < 2,123 < 2,2119

The data does not exhibit autocorrelation due to a DW value of 2.123.

Data Regression Test

Table 8. Data Regression Test.

	Coefficients
C	1,200
Operating Cost (X1)	0,300
Production Cost (X2)	0,302
Sales Volume (X3)	0,000

Source: Processed Data (2025)

Y = 1,200 + 0,300*X1 + 0,302*X2 + 0,000*X3

Based on the regression test results in the Data Regression Test:

a. The constant coefficient (C) of 1,200 indicates that if Operating Cost (X1), Production Cost (X2), and Sales Volume (X3) are zero, then Net Profit (Y) is estimated to be 1.200.
b. Operating Cost (X1) has a positive effect of 0,300, indicating that every increase in Operating Cost will increase Net Profit (Y) in this regression model.
c. Production Cost (X2) has a positive effect of 0,302, indicating that every increase in Production Cost (X2) will increase Net Profit (Y) by 0,302 in this regression model.
d. Sales Volume (X3) has a positive effect of 0.000, indicating that every increase in Sales Volume (X3) will increase Net Profit (Y) in this regression model.

Hypothesis Test

Table 9. Hypothesis Test

	t-Statistic	Prob.
C	1,395	0,165
Operating Cost (X1)	2,482	0,014
Production Cost (X2)	1,996	0,048
Sales Volume (X3)	2,254	0,000

Source: Processed Data (2025)

Based on hypothesis testing, the probability value of X1 is 0,014 < 0,05 (significant), the probability value of X2 is 0,048 < 0,05 (significant), and the probability value of X3 is 0,000 < 0,05 (significant).

F Test

Table 10. F Test.

F-Statistic	19,648
Prob(F-Statistic)	0,000

Source: Processed Data (2025)

Based on the F-test, the F-statistic is 19,648 and the probability is 0,000, indicating that X1, X2, and X3 have an effect on Y.

Determination Coefficient (Adj R Square)

Table 11. Adj R Square.

Adj R Square	0,242

Source: Processed Data (2025)

Based on an Adjusted R Square value of 0,242, it can be interpreted that approximately 24,2% of the changes in the dependent variable can be explained by the independent variables used in the model. The remaining 75,8% is influenced by other factors outside the model that are not included in this study.

The Influence of Operating Cost on Net Profit

Based on the test results, it shows that operating cost has a positive and significant effect on net profit (0.014 < 0.05), therefore hypothesis 1 is accepted. This finding is in line with Ananda & Fajriansyah (2025); Bilqis & Muhammad (2025); Ernayani et al., (2022). Operating costs are expenditures that are not directly connected to a company's products but are essential to ensure smooth day-to-day operations and support revenue generation. These expenses are strongly associated with overall performance, showing a proportional link with net profit, where an increase in operating costs may align with higher profit (Ananda & Fajriansyah, 2025). Since operating expenses significantly influence net income, managing and controlling them effectively becomes vital for improving financial outcomes. Moreover, well-managed operating costs create a positive impression on investors by reflecting stability and promising growth potential for the business (Bilqis & Muhammad, 2025).

In the context of pharmaceutical companies, agency theory illustrates how managers, as agents, manage substantial operating costs such as research and development, distribution, and marketing to increase net profit on behalf of the owners as principals. Since managers possess more information than shareholders, there is potential for information asymmetry regarding how these expenditures are allocated. When operating costs are managed effectively and disclosed transparently, the increase in expenses can provide a positive signal of financial stability and long-term growth prospects, aligning with shareholder interests. Thus, applying agency theory principles in controlling operating costs helps reduce conflicts of interest, minimize agency costs, and ensure that managerial decisions are truly directed toward enhancing the value of pharmaceutical firms (Jensen & Meckling, 1976; Ananda & Fajriansyah, 2025; Bilqis & Muhammad, 2025).

The Influence of Production Cost on Net Profit

Based on the test results, it shows that production cost has a positive and significant effect on net profit (0.048 < 0.05), therefore hypothesis 2 is accepted. This finding is in line with Alisa et al., (2024); Edwar (2024); Rachmawati et al., (2024). Efficient management of production costs is a key factor in sustaining company profitability, as uncontrolled expenses can limit opportunities for growth and investment. Keeping costs under control allows businesses to optimize product returns while strengthening financial performance. Strategic allocation of resources and improved operational efficiency are also achieved through effective cost management practices. The relationship between production costs and net profit is evident, since lower expenses help maximize earnings, while rising costs can hinder output and reduce revenue (Alisa et al., 2024).

From the perspective of agency theory, pharmaceutical companies present a clear example where managers, as agents, must carefully manage high production costs such as raw materials, technology for drug formulation, and compliance with strict health regulations on behalf of owners as principals. Since managers often have greater access to information about production efficiency and resource allocation, information asymmetry may arise, creating potential conflicts of interest. Transparent reporting and effective cost control are therefore essential to ensure that higher production expenditures truly align with shareholder interests. By applying agency theory principles, pharmaceutical companies can reduce agency costs, maintain investor confidence, and demonstrate that managerial decisions regarding production cost management are directed toward increasing firm value and long-term competitiveness (Jensen & Meckling, 1976; Edwar, 2024).

The Influence of Sales Volume on Net Profit

Based on the test results, it shows that sales volume has a positive and significant effect on net profit (0.000 < 0.05), therefore hypothesis 3 is accepted. This finding is in line with Edwar (2024), Komarudin (2024); Suzan & Lumbantobing (2023); Padang et al., (2022); Pratama & Sari (2022). Higher sales volumes expand a company's opportunity to earn greater net profit, making sales improvement a key factor in achieving financial objectives (Edwar, 2024). Net profit, however, is not solely determined by sales, since it is also shaped by operating and production costs that must be managed alongside marketing strategies (Pratama & Sari, 2022). The linkage between sales volume and profit growth is clear in financial statements, where profit is realized when revenue exceeds expenses. As sales levels increase, profit also rises, indicating a direct and proportional relationship between sales performance and profitability (Suzan & Lumbantobing, 2023).

In the context of agency theory, pharmaceutical companies highlight the dynamic between owners as principals and managers as agents, where managers are responsible for boosting sales volumes through strategies such as market expansion, brand promotion, and distribution networks. Since managers often hold more detailed knowledge about market demand and sales strategies than shareholders, information asymmetry can arise, potentially leading to conflicting interests. Transparent disclosure of sales performance and alignment of marketing expenditures with profit targets are therefore essential to minimize agency problems. By effectively managing sales activities and reporting them clearly, managers in pharmaceutical companies not only reduce agency costs but also assure investors that their strategies are aligned with shareholder interests, ultimately supporting sustainable growth and long-term firm value (Jensen & Meckling, 1976; Pratama & Sari, 2022).

5. Conclusions

Based on the test results, Operating Cost, Production Cost, and Sales Volume each have a positive and significant effect on Net Profit, so all three hypotheses are accepted. Operating cost, although not directly related to production, is important for smooth daily operations and supports an increase in net profit, especially if it is managed effectively in accordance with agency theory principles to minimize conflicts of interest between managers and owners. Similarly, efficient production management allows companies to optimize revenue from products, while transparent production cost control helps maintain investor confidence and long-term company value. In addition, an increase in sales volume directly increases the opportunity to achieve net profit, but it must still be combined with either operational or production cost management. Overall, applying agency theory principles in managing these three variables helps reduce agency costs, ensures managerial decisions are aligned with shareholder interests, and supports the sustainable growth and profitability of pharmaceutical companies.

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References

Alisa, N., Jaya, A., & Nurlina. (2024). The effect of production costs on net income in textile and garment companies listed on the Indonesian Stock Exchange. *International Journal of Economic Research and Financial Accounting (IJERFA)*, *2*(4), 1287–1294. https://www.idx.co.id

Ananda, F., & Fajriansyah. (2025). The influence of operating income and operating costs on net profit at PT Gudang Garam Indonesia Tbk. *International Journal of Economy, Education, and Entrepreneurship*, *5*(1), 235–246. https://doi.org/10.53067/ije3.v5i1

Bilqis, N. M., & Muhammad. (2025). Pengaruh biaya produksi, biaya operasional dan volume penjualan terhadap laba bersih perusahaan manufaktur. *Jurnal Bisnis Dan Akuntansi Unsurya*, *10*(2), 190–203. https://doi.org/10.35968/jbau

Edwar, R. A. (2024). Analysis of the influence of production costs, promotion, and sales volume on net profit at PT. XYZ. *GIJEA (Greenation International Journal of Economics and Accounting)*, *3*(3), 256–262. https://doi.org/10.38035/gijea.v2i3

Effendi, A. (2020). Sales volume and production costs against company revenue: A case study in the Indonesia Stock Exchange 2014-2018. *International Journal on Social Science, Economics and Art*, *10*(3), 144–152.

Ernayani, R., Fauzan, R., Yusuf, M., & Tahirs, J. P. (2022). The influence of sales and operational costs on net income in Cirebon printing companies. *Al-Kharaj: Journal of Islamic Economic and Business*, *4*(2), 81–86. https://doi.org/10.24256/kharaj.v4i2.3586

Karmilah, M., Mursalin, & Putra, A. E. (2024). Pengaruh biaya operasional, biaya produksi dan volume penjualan terhadap laba bersih penjualan pada perusahaan manufaktur sub sektor makanan dan minuman yang terdaftar di Bursa Efek Indonesia. *Jurnal Media Akuntansi*, *6*(2), 279–290.

Komarudin, A. (2024). Volume as a mediating factor in the effect of costs on net profit. *International Journal of Scientific Multidisciplinary Research*, *2*(8), 1117–1136. https://doi.org/10.55927/ijsmr.v2i8.11201

Lubis, A. H., Sugianto, & Kusmilawaty. (2024). Effects of production and operating costs on net profit on manufacturing companies registered in JII. *Dinasti International Journal of Economics, Finance and Accounting (DIJEFA)*, *5*(1), 1–15. https://doi.org/10.38035/dijefa.v5i1

Padang, N., Irawan, S. I., Atika, R., Manalu, J. Br., & Sitorus, J. S. (2022). Effect of production costs, promotional costs, and sales volume on net profit in manufacturing companies. *JURNAL IPTEKS TERAPAN: Research of Applied Science and Education*, *16*(3), 374–381. https://doi.org/10.22216/jit.v16i3.1095

Pratama, I. A., & Sari, P. A. (2022). Production costs, promotion costs, and sales volume to net profit in pharmaceutical sector manufacturing companies. *Journal Intelektual*, *1*(2), 182–193. https://ejournal.stieppi.ac.id/index.php/jin/182

Prihatni, R., & Ulupui, I. G. K. A. (2025). The effect of raw material supply and production costs on the profit of manufacturing companies listed on the Indonesia Stock Exchange. *Accounting*, *11*(2), 145–150. https://doi.org/10.5267/j.ac.2025.2.001

Rachmawati, L., Pandey, A., & Sholihin, M. R. (2024). The impact of production costs, cost of goods sold, marketing costs, and operational costs on net profit before taxes in consumer non-cyclical sector companies listed on the IDX. *The 5th International Conference on Economics, Business, and Information Technology*, 278–288. https://doi.org/10.31967/prmandala.v5i0.1197

Suzan, L., & Lumbantobing, A. (2023). Production costs, operating costs, and sales volume affect net profit. *JHSS (Journal of Humanities and Social Studies)*, *7*(3), 875–879. https://doi.org/10.33751/jhss.v7i3.8125