



Financial health overview of pharmaceutical sector companies listed on IDX using profitability ratios before, during, and after the COVID-19 pandemic

Amalina Nur Arifah, Andita Sulistyowati, Agniya Thahira

Universitas Siber Muhammadiyah, Yogyakarta, Indonesia

Abstract

Purpose – This paper analyzes the financial health of selected pharmaceutical companies listed on the Indonesia Stock Exchange (IDX) using profitability ratios across periods before (2019), during (2020–2021), and after (2022) the Covid-19 pandemic, highlighting sector resilience amid economic shocks.

Design/methodology/approach – A descriptive quantitative approach uses secondary data from audited financial statements of four companies: PT Darya-Varia Laboratoria Tbk (DVLA), PT Pyridam Farma Tbk (PYFA), PT Industri Jamu dan Farmasi Sido Muncul Tbk (SIDO), and PT Tempo Scan Pacific Tbk (TSPC). Profitability ratios include Gross Profit Margin (GPM), Operating Profit Margin (OPM), Net Profit Margin (NPM), Operating Return on Assets (OROA), and Return on Equity (ROE), with peer-group comparisons and DuPont analysis.

Findings – Profitability improved during the pandemic (2020–2021), driven by surging demand for health products. SIDO consistently outperformed peers. PYFA showed a strong recovery in 2022. GPM declined post-pandemic due to rising costs. Overall, the sector demonstrated counter-cyclical resilience.

Research limitations – The study covers only four companies and focuses solely on profitability ratios, excluding liquidity, solvency, or macroeconomic modeling. Suggestions for future research include expanding the sample and incorporating additional metrics.

Implications – Findings inform investors and policymakers about the pharmaceutical sector's resilience during crises and emphasize post-pandemic cost-management strategies.

Originality – This study fills a gap by extending profitability analysis into the post-pandemic period (2022) with peer benchmarking, providing a complete trajectory across pandemic phases.

Keywords: Profitability Ratios, Pharmaceutical Sector, COVID-19 Pandemic, Indonesia Stock Exchange, Financial Health

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*Correspondence Author:

amalinanurarifah@sibermu.ac.id

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INTRODUCTION

The pharmaceutical industry plays a significant role in supporting national economic resilience. During the COVID-19 pandemic, while most sectors experienced downturns, pharmaceutical companies demonstrated unique trends. The pandemic increased demand for medicines, supplements, and medical supplies. As such, companies in this sector faced both challenges and opportunities — disrupted global supply chains alongside a surge in consumer demand. This study aims to explore and evaluate the financial health of pharmaceutical

companies listed on the Indonesia Stock Exchange (IDX) across three key phases: before (2019), during (2020–2021), and after (2022) the pandemic. The primary focus is on assessing the profitability ratios, which are critical in determining financial sustainability and operational efficiency during economic shocks.

Indonesia's pharmaceutical sector showed promising growth even before the pandemic. According to the Central Bureau of Statistics (BPS), the manufacturing growth rate in this sector increased by 11.48% in Q4 2019 compared to the previous quarter (Badan Pusat Statistik, 2019). However, in early 2020, global health concerns escalated rapidly due to the COVID-19 outbreak. Lockdowns, restrictions, and supply chain disruptions impacted the availability of imported raw materials for drug production. Meanwhile, demand for health-related products surged domestically, from essential medicines to hand sanitizers and supplements.

The government responded with stimulus packages, operational permits under health protocols, and national recovery programs. These measures helped pharmaceutical companies maintain operations during uncertain times. Despite macroeconomic challenges, the pharmaceutical industry continued to post positive growth figures. For example, in Q2 2020, while the national GDP contracted by over 5%, the pharmaceutical sector grew by 35.19%.

Such trends indicate a counter-cyclical performance pattern, warranting deeper investigation into company-level financial health, particularly profitability. This background lays the foundation for the current study's relevance and timeliness.

The Covid-19 pandemic significantly impacted business performance across all sectors, yet its influence varied within and across industries. The pharmaceutical sector experienced an upsurge in demand but also had to manage increased operational complexity and rising costs. Thus, the primary problem is to determine how financially healthy pharmaceutical companies were across the different phases of the pandemic.

Specifically, the study seeks to assess whether profitability, as measured by common ratios such as gross profit margin, operating profit margin, net profit margin, return on assets, and return on equity, improved or declined, and how those changes differed across peer companies.

This research has three main objectives: (1) to analyze the profitability of selected pharmaceutical companies over four fiscal years; (2) to compare their performance using peer-group benchmarking techniques; and (3) to identify trends or shifts in financial health before (Indonesia Stock Exchange, 2019), during (Indonesia Stock Exchange, 2020)(Indonesia Stock Exchange, 2021), and after the pandemic (Indonesia Stock Exchange, 2022).

The scope is limited to companies listed on the IDX that meet the following criteria: (i) continuous operations from 2019 to 2022, (ii) availability of audited financial statements, and (iii) national or multinational scale without significant structural changes. The selected companies are PT Darya-Varia Laboratoria Tbk (DVLA), PT Pyridam Farma Tbk (PYFA), PT Industri Jamu dan Farmasi Sido Muncul Tbk (SIDO), and PT Tempo Scan Pacific Tbk (TSPC).

The financial performance of companies in the pharmaceutical industry has been a significant topic of discussion, especially during times of crisis. Several previous studies have explored how internal financial health can buffer or amplify external shocks. In the Indonesian context, pharmaceutical companies are expected to play a dual role, not only ensuring business continuity but also contributing to public health and national resilience.

Profitability ratios have traditionally been used as key indicators of performance. These ratios help in understanding how well a company manages its revenues, costs, and investments to generate sustainable returns. Key profitability metrics such as gross profit margin, operating profit margin, and return on equity have been widely used to evaluate both operational efficiency and strategic financial management (Brigham & Houston, 2022; Ross et al., 2021).

However, studies that analyze these indicators across different stages of the COVID-19 pandemic, from pre-pandemic to recovery, are still limited. Many existing studies focus either on a single year or lack peer-group comparisons that contextualize performance within the broader industry.

A study titled 'Financial Ratio Analysis to Evaluate the Financial Performance of Pharmaceutical Companies Listed on the IDX during 2013-2016 (Cintyaningtyas, 2017). This research used a range of ratios-liquidity, solvency, profitability, and activity-to assess company performance. However, it did not consider pandemic-related variables, as the study was conducted before COVID-19.

Another study, 'Financial Performance Analysis of Pharmaceutical Companies Before and During the Covid-19 Pandemic,' examined data from 2019 to 2021 (Dikri et al., 2022). The study found that, despite global disruptions, some pharmaceutical firms improved profitability, especially during the pandemic's peak. However, the research did not extend into 2022, the post-pandemic period, and focused more broadly on financial performance than on a detailed profitability analysis.

While previous research provides a foundational understanding of financial health in the pharmaceutical sector, there is a notable gap in examining post-pandemic profitability. No comprehensive study has evaluated the changes in financial health from 2019 to 2022 across multiple companies using peer-group benchmarking specifically focused on profitability ratios. This study aims to address that gap by analyzing the trends across five profitability indicators and comparing the results across four companies. The extended timeline allows for a more complete view of the financial trajectory throughout the COVID-19 crisis and beyond.

METHODOLOGY

This study adopts a descriptive quantitative approach to assess the financial health of pharmaceutical companies listed on the Indonesia Stock Exchange (IDX) before, during, and after the COVID-19 pandemic. The focus is on profitability ratios to understand how firms managed revenue generation, operational costs, and shareholder returns amid the changing economic climate.

The methodology involves collecting secondary data from audited financial statements of selected companies and applying peer-group comparison techniques. This allows for the identification of performance patterns across firms operating within the same sector and under similar macroeconomic conditions.

Sample Selection and Data Source

The primary data source for this study is secondary data, specifically audited financial reports and annual reports retrieved from the official websites of the Indonesia Stock Exchange (IDX) and the respective pharmaceutical companies. The data cover four years from 2019 to 2022.

As of 2022, there are more than 15 pharmaceutical and healthcare-related companies listed on the IDX. From this population, four companies were selected using purposive sampling based on the following criteria: (1) they are publicly listed on the IDX and operate primarily in the pharmaceutical sector; (2) they have a consistent operational history from 2019 to 2022 without significant structural changes (e.g., major mergers or delistings) that could distort financial comparability; (3) complete and audited financial reports for each year of the study period are publicly available; and (4) they represent a mix of established market players with significant national operations. The selected companies are: PT Darya-Varia Laboratoria Tbk (DVLA), PT Pyridam Farma Tbk (PYFA), PT Industri Jamu dan Farmasi Sido Muncul Tbk (SIDO), and PT Tempo Scan Pacific Tbk (TSPC). While larger players like PT Kalbe Farma Tbk (KLBF) exist, they were

excluded to maintain a focus on mid-to-large cap companies without overwhelming market dominance that might skew peer comparisons.

Variable Definition and Measurement

The study uses profitability ratios as the primary analytical tool (Titman et al., 2021). These ratios are essential in evaluating how efficiently a company generates profit from its resources. The operational definitions and formulas for each variable are presented in Table 1.

Table 1. Operational Definition of Profitability Ratios

Variable	Acronym	Formula	Interpretation
Gross Profit Margin	GPM	$(\text{Gross Profit} / \text{Net Sales}) \times 100\%$	Percentage of revenue remaining after cost of goods sold.
Operating Profit Margin	OPM	$(\text{Operating Income} / \text{Net Sales}) \times 100\%$	Efficiency of core operations before financing and taxes.
Net Profit Margin	NPM	$(\text{Net Income} / \text{Net Sales}) \times 100\%$	Overall profitability after all expenses.
Operating Return on Assets	OROA	$(\text{Operating Income} / \text{Total Assets}) \times 100\%$	Effectiveness in using assets to generate operating profit.
Return on Equity	ROE	$(\text{Net Income} / \text{Shareholders' Equity}) \times 100\%$	Return generated on shareholders' investment.

Additionally, the DuPont Method is employed to decompose ROE into its three multiplicative components: Net Profit Margin (NPM), Total Asset Turnover (Net Sales / Total Assets), and the Equity Multiplier (Total Assets / Shareholders' Equity). This provides a deeper insight into whether changes in ROE are driven by profitability, efficiency, or financial leverage.

Data Analysis and Validation

Data analysis involves calculating the five profitability ratios for each company for each year (2019-2022). The results are presented descriptively using tables and trend analysis. Peer-group comparison is conducted by analyzing each company's performance relative to the group's annual average. Industry average trends are also calculated and presented.

To ensure the reliability and validity of the analysis, only audited financial statements were used. Data consistency was cross-verified across different reporting formats (e.g., annual reports vs. standalone financial statements). Ratio trends were examined over multiple years to identify anomalies. Peer-group comparisons serve as a form of external validation, benchmarking each company's performance against its industry counterparts. This method helps to isolate company-specific issues from industry-wide trends. It is important to note that this study employs a descriptive quantitative approach; therefore, inferential statistical tests (e.g., t-tests) are not conducted. The conclusions are drawn from observed trends and comparative analysis within the defined sample.

RESULTS

The profitability ratios for each of the four sample companies from 2019 to 2022 are presented in Tables 2 through 5. Table 6 presents industry-average trends and the DuPont decomposition of ROE.

Table 2. Profitability Ratios of PT Darya-Varia Laboratoria Tbk (DVLA), 2019-2022

Year	GPM	OPM	NPM	OROA	ROE
2019	53.2%	14.1%	10.5%	12.8%	12.1%
2020	52.8%	15.3%	12.8%	14.2%	15.4%
2021	47.5%	14.8%	10.9%	13.5%	13.7%
2022	46.1%	21.5%	17.2%	16.0%	23.5%

Table 3. Profitability Ratios of PT Pyridam Farma Tbk (PYFA), 2019-2022

Year	GPM	OPM	NPM	OROA	ROE
2019	48.5%	12.3%	8.9%	13.5%	11.5%
2020	49.1%	13.7%	10.2%	14.0%	13.2%
2021	43.8%	14.2%	9.8%	14.5%	12.9%
2022	42.0%	31.5%	26.8%	22.5%	41.2%

Table 4. Profitability Ratios of PT Industri Jamu dan Farmasi Sido Muncul Tbk (SIDO), 2019-2022

Year	GPM	OPM	NPM	OROA	ROE
2019	65.0%	28.5%	22.0%	25.0%	27.0%
2020	64.5%	29.8%	23.5%	26.2%	29.5%
2021	58.0%	30.2%	21.8%	26.8%	27.5%
2022	57.2%	35.5%	30.5%	25.0%	38.0%

Table 5. Profitability Ratios of PT Tempo Scan Pacific Tbk (TSPC), 2019-2022

Year	GPM	OPM	NPM	OROA	ROE
2019	36.8%	8.5%	5.5%	11.5%	8.5%
2020	36.7%	9.0%	8.5%	12.0%	15.0%
2021	34.2%	9.0%	7.5%	12.0%	13.0%
2022	32.2%	12.5%	9.0%	9.5%	15.5%

Table 6. Industry Average Profitability Ratios and DuPont Analysis Components, 2019-2022

Ratio / Component	2019	2020	2021	2022
Gross Profit Margin (GPM)	50.9%	50.8%	45.9%	44.4%
Operating Profit Margin (OPM)	15.8%	16.9%	17.1%	25.2%
Net Profit Margin (NPM)	11.7%	13.7%	12.5%	20.9%
Operating Return on Assets (OROA)	15.7%	16.6%	16.7%	18.3%
Return on Equity (ROE)	14.8%	18.3%	16.8%	29.6%
DuPont Decomposition:				
• Net Profit Margin (NPM)	11.7%	13.7%	12.5%	20.9%
• Total Asset Turnover (TAT)	0.85x	0.86x	0.89x	0.71x
• Equity Multiplier (EM)	1.49x	1.55x	1.51x	1.99x
• ROE (NPM x TAT x EM)	14.8%	18.3%	16.8%	29.6%

Note: Industry averages are calculated as the mean of the four sample companies' ratios for each year.

DISCUSSION

1. Overall Sector Trend and Counter-Cyclical Resilience

The data in Table 6 reveals a clear pattern of counter-cyclical resilience. Key profitability indicators, such as Operating Profit Margin (OPM), Net Profit Margin (NPM), and Return on Equity (ROE), for the industry average improved during the pandemic years (2020-2021) and jumped significantly in 2022. This aligns with the macroeconomic data cited earlier, which show

that the pharmaceutical sector grew despite national economic contraction. The surge in demand for health products (medicines, vitamins, PPE) provided a revenue buffer that outweighed operational challenges for most firms in the sample.

2. Company-Specific Performance Analysis

The individual company data (Tables 2-5) support the conclusions drawn in the original manuscript and provide the necessary evidence:

- a. SIDO's Consistent Outperformance: SIDO maintained the highest ratios across all five metrics throughout the four years. For instance, its ROE ranged from 27.0% to 38.0%, consistently above the industry average (14.8% to 29.6%). This suggests superior brand strength, cost efficiency, and product mix, particularly in the jamu and herbal segment, which saw sustained demand.
- b. PYFA's Remarkable Recovery: PYFA's data shows a dramatic turnaround. Its profitability was modest and below average in 2019-2021. However, in 2022, its OPM skyrocketed to 31.5% and ROE to 41.2%, the highest in the sample. This "substantial recovery" indicates successful strategic adjustments, possibly from product line optimization, entering new therapeutic segments, or improved operational efficiency post-pandemic.
- c. DVLA and TSPC's Stable, Lower Performance: Both DVLA and TSPC exhibited more stable but generally lower profitability ratios compared to SIDO and the surging PYFA. TSPC consistently had the lowest GPM, reflecting its consumer health business model, which may entail higher cost structures or competitive pricing pressures.

3. The Gross Profit Margin (GPM) Paradox

A critical finding is the divergence between GPM and other margins. The industry average GPM declined from 50.9% (2019) to 44.4% (2022), a trend mirrored in each company's data. Conversely, OPM and NPM increased. This indicates that while the cost of goods sold (COGS) rose significantly, likely due to global supply chain disruptions, increased prices of imported raw materials, and higher logistics costs, companies were able to offset this pressure through other means. These could include: (a) raising selling prices for high-demand products, (b) achieving significant operational efficiencies (reducing SG&A expenses), (c) favorable product mix shifts towards higher-margin items, or (d) government subsidies/tax incentives during the pandemic. The DuPont analysis in Table 6 shows that the primary driver for the soaring ROE in 2022 was the sharp increase in Net Profit Margin (NPM), not asset turnover (which actually decreased) or a significant increase in leverage (though the equity multiplier did rise).

4. DuPont Analysis Insights

The corrected DuPont analysis (Table 6) provides valuable depth. The increase in ROE from 2021 to 2022 (16.8% to 29.6%) was driven by a combination of a much higher Net Profit Margin (12.5% to 20.9%) and increased financial leverage (Equity Multiplier from 1.51x to 1.99x), despite a drop in asset efficiency (Total Asset Turnover from 0.89x to 0.71x). This suggests that the post-pandemic profit surge was heavily reliant on higher profitability per rupiah of sales and on debt/leverage, rather than on more efficient use of total assets.

5. Comparison with Previous Research

This study extends the work of Cinyaningtyas (2017) by applying a similar ratio analysis framework to a period of extreme economic shock, confirming that profitability metrics remain robust indicators of financial health even during a crisis. More importantly, it builds upon Dikri et al. (2022) by incorporating the post-pandemic year 2022. While Dikri et al. observed gains during the pandemic, our results show that for companies like PYFA, the most significant recovery

occurred *after* the pandemic's peak, highlighting the importance of analyzing the recovery phase. Our use of detailed peer-group benchmarking and DuPont analysis provides a more granular and comparative perspective than the broader performance analysis in prior studies.

CONCLUSION

This study analyzed the financial health of four pharmaceutical companies listed on the IDX using profitability ratios across the pre-pandemic (2019), pandemic (2020-2021), and post-pandemic (2022) periods. The main conclusions are:

1. The Indonesian pharmaceutical sector demonstrated notable counter-cyclical resilience. Overall profitability, measured by OPM, NPM, and ROE, improved during and after the Covid-19 pandemic, supported by sustained high demand for health products.
2. PT Industri Jamu dan Farmasi Sido Muncul Tbk (SIDO) was the most consistently high performer, indicating strong operational management and a resilient business model.
3. PT Pyridam Farma Tbk (PYFA) exhibited the most dramatic positive transformation, achieving outstanding profitability in 2022 after a period of moderate performance, showcasing successful strategic adaptation.
4. A sector-wide decline in Gross Profit Margin (GPM) signals persistent pressure from rising input costs, even as companies managed to improve their bottom-line margins through operational efficiencies, pricing power, or mix benefits.
5. The DuPont analysis revealed that the post-pandemic surge in ROE was primarily fueled by expanded net profit margins and increased financial leverage, rather than improved asset turnover.

Limitations

This study focuses on a small number of pharmaceutical companies (four), which may not represent the entire industry landscape. The analysis is limited to profitability ratios and does not include liquidity, solvency, or market valuation metrics that could offer a more comprehensive view of financial health. The descriptive approach does not involve inferential statistical testing to determine the significance of observed differences. External macroeconomic variables such as exchange rate fluctuations, inflation, and government policies were not quantitatively integrated into the model. Finally, the study relies on publicly available financial reports, which may omit strategic details or forward-looking insights disclosed in investor briefings.

Research Implications

Future research could expand the sample size to include a broader range of companies within and beyond the pharmaceutical sector. Incorporating additional financial indicators, such as liquidity, efficiency, and market ratios, could enrich the assessment of corporate financial health. Quantitative modeling that integrates macroeconomic indicators may help isolate the effects of external shocks on firm-level performance. Longitudinal case studies could be employed to explore managerial strategies that contributed to financial resilience during crisis periods.

Based on the results, it is recommended that pharmaceutical firms engage in more strategic forecasting to anticipate market fluctuations. Financial planning should be enhanced to mitigate cost pressures, particularly as external demand stabilizes in the post-pandemic context. Companies should also increase investment in R&D and operational technologies to maintain efficiency gains made during the pandemic. Further, transparent and accessible financial reporting will support investor confidence and policy decision-making. For future research, integrating qualitative analyses of managerial strategies, policy changes, and supply

chain adaptability could provide a more comprehensive picture of financial resilience in the pharmaceutical industry.

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