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COMPARATIVE ANALYSIS OF FINANCIAL PERFORMANCE OF PHARMACEUTICAL COMPANIES DURING AND AFTER THE COVID-19 PANDEMIC

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ABSTRACT

The goal of this study is to evaluate the financial performance differences of pharmaceutical companies listed on the Indonesia Stock Exchange (IDX) during the COVID-19 pandemic (2020-2021) and after the pandemic (2022-2023). The research focuses on five main financial performance indicators: profitability, leverage, liquidity, efficiency, and company growth. Profitability is measured using Return on Assets (ROA) and Net Profit Margin (NPM), leverage through Debt to Equity Ratio (DER), liquidity through Current Ratio (CR), efficiency using Total Asset Turnover (TATO), and company growth through Sales Growth. The sample consists of 11 pharmaceutical companies listed on the IDX. Financial performance data before and after the pandemic will be analyzed using the paired sample t-test method to assess whether there is a significant difference between the two periods. This study aims to provide insights into the long-term effects of the COVID-19 pandemic on the financial performance of pharmaceutical companies in adapting to changes post-pandemic. The findings show no significant difference in ROA, NPM, CR, TATO, and Sales Growth between the pandemic period (2020-2021) and the post-pandemic period (2022-2023), though there is a difference in DER performance between the two periods.

Keywords: *Financial Performance, Pharmaceutical Companies, COVID-19, Profitability, Leverage, Liquidity, Efficiency, Company Growth*

1. INTRODUCTION

The COVID-19 pandemic that began to spread in early 2020 has had a major impact on almost all economic sectors around the world. In Indonesia, various industrial sectors have experienced great pressure due to the decline in economic activity caused by social restrictions, regional closures, and decreased purchasing power. However, the health and pharmaceutical sector is one of the sectors that has experienced unique dynamics during the pandemic. On the one hand, the need for health services and pharmaceutical products has increased rapidly. The demand for medical devices, medicines, and vaccines has soared, providing great opportunities for companies in this sector.

The financial performance of companies in the healthcare and pharmaceutical sectors has also changed significantly during the pandemic. However, the question is to what extent these changes will last, and how companies will perform after the pandemic begins to subside. Therefore, this study will focus on analyzing the financial performance of healthcare and pharmaceutical companies during and after COVID-19 to understand the long-term impact of the pandemic on this sector.

Before the COVID-19 pandemic, pharmaceutical companies generally operated stably, focusing on developing drugs for chronic diseases such as diabetes, hypertension, and cancer. Demand for pharmaceutical products was relatively stable and driven by routine needs such as drugs for chronic diseases and health supplements. During this period, innovation in the

pharmaceutical industry occurred at a slower pace, with new drug development taking years to complete through rigorous and lengthy clinical trial phases. Investments in digital technologies, such as artificial intelligence (AI) and machine learning, began to be applied in research and development, but adoption was still relatively slow. The pharmaceutical supply chain also ran smoothly without major disruptions, and companies managed logistics conventionally without heavy reliance on digital technology. The company's financial performance at that time tended to be stable, with moderate growth driven by sales of routine drug products and long-term investment in research and development (R&D) (Daryanto & Daryanto, 2019).

However, when the COVID-19 pandemic hit, pharmaceutical companies experienced significant changes in various aspects. There was a huge spike in demand for pandemic-related products, such as antiviral drugs, personal protective equipment (PPE), ventilators, and especially the COVID-19 vaccine. Demand for general health products such as vitamins and supplements also increased drastically as people tried to boost their immune systems. (Harahap et al., 2021). The pandemic forced pharmaceutical companies to accelerate the vaccine research and development process, which in some cases took less than a year, such as Pfizer-BioNTech and Moderna in developing the COVID-19 vaccine (Ruskar et al., 2021). The adoption of digital technology has become very important, with companies integrating AI and big data technologies to accelerate clinical trials, manage health data, and monitor supply chains (Tjandrawinata & Liliasari, 2024). Disruptions in the global supply chain, such as shortages of raw materials from China and India, have sparked innovations in logistics and the use of technology to monitor product flows in real time.

Financially, pharmaceutical companies involved in the development of COVID-19 vaccines and drugs have seen significant increases in revenue. However, they are also facing pressure from the production and distribution costs due to supply chain disruptions and increased demand. Companies have begun to adopt new strategies with a focus on efficiency and product diversification, including investment in digital technology and app-based health. On the other hand, the acceleration of regulations, especially through the Emergency Use Authorization (EUA) mechanism, helps companies accelerate the launch of their products to the market. This policy provides a major advantage for pharmaceutical companies in responding to the global health crisis more quickly. Overall, the pandemic has changed the operational and financial landscape of the pharmaceutical industry, where companies are required to innovate faster, improve operational efficiency, and respond to dynamic market demand due to the pandemic (Tarumingkeng, 2024).

Changes in government policies, such as increasing the health budget, developing mass vaccinations, and increasing public awareness of health, have also driven transformation in the health and pharmaceutical industries (Kemenko Perekonomian Republik Indonesia, 2024).
Thus, this analysis is important to evaluate whether the spike in performance during the pandemic is a temporary phenomenon or an indication of broader structural changes in the sector.

Research on the impact of Covid-19 on financial performance has been conducted before. Several studies that measure financial performance before and after the Covid-19 pandemic in several sectors have been conducted. In the Telecommunications and Textile industry, research conducted by (Hidayat, 2021) on 22 company samples showed that there was a difference in the average Earnings Per Share (EPS) before and during the Covid-19 pandemic, which can be seen from the decrease in the average value per share of the telecommunications industry from IDR 101.25 to IDR 24.08 per share after the pandemic, while in the textile industry there was

also a difference in the average earnings per share (EPS) before and during the Covid-19 pandemic, where there was a decrease in the average value from IDR 70.67 per share to IDR 4.41 per share after the Covid-19 pandemic. Research (Dewi & Kencana, 2022) which examined pharmaceutical companies listed on the IDX in the 2019 period (before the Covid-19 pandemic) and the 2021 period (during the Covid-19 pandemic) using liquidity, activity and profitability ratios explained that there was no significant difference before and during the pandemic in the pharmaceutical industry. This is because before the pandemic, the demand for vitamins, supplements and herbal medicines was mostly used for drug stocks in pharmacies, clinics and hospitals. Meanwhile, during the pandemic, people bought more vitamins, supplements and herbal medicines for personal use at home.

Miftahurrohman (2021) conducted study entitled "The Impact of the COVID-19 Pandemic on the Financial Performance of Companies in the Pharmaceutical Sector in Indonesia on 5 pharmaceutical companies listed on the IDX, namely PT Kalbe Farma Tbk, PT Kimia Farma Tbk, PT Phapros Tbk, PT Darya-Varia Laboratoria Tbk, and PT Industri Jamu and Farmasi Sido Muncul Tbk". The research finding show that during the pandemic, the Current Ratio increased significantly, indicates an increase in the company's ability to meet short-term debt obligations. Profitability (ROA and ROE) showed a downward trend in 2020, but began to improve in 2021 when demand for health and pharmaceutical products increased. Then Leverage increased significantly in most companies, indicating that pharmaceutical companies took on more debt to adjust their operations during the pandemic.

Research on this topic is still relevant, because so far many studies have highlighted the direct effects of the pandemic, but research about the company's recovery progress after the Covid-19 pandemic has not been widely conducted. With the research period that is increasingly observable, how companies adapt after the pandemic, whether they can maintain significant growth, or experience stagnation or decline in performance. In addition, after the pandemic, many health and pharmaceutical companies have begun to adopt digital technology (telemedicine, drug e-commerce, etc.). The impact of technological innovation on operational efficiency and financial performance is a novelty in this study.

The corona virus entered Indonesia on Monday, March 2, 2020, then reached its peak in mid-2021. Since 2022, the recovery phase of the post-Covid-19 pandemic began, although the official determination of the end of the pandemic status was only announced in June 2023. In this study, it is assumed that the Covid-19 pandemic conditions will last during 2020-2021, and post-Covid conditions will last in the period 2022-2023. This study was designed to explore if the financial performance of pharmaceutical companies varies between the Covid-19 pandemic and the post-pandemic period. The companies performance that will be analyzed is focused on Profitability, Leverage, Liquidity, Efficiency, and Growth of pharmaceutical sector companies. Based on the background above, the focus of this study is limited to whether or not there are differences in 5 important indicators of financial performance, namely Profitability, Leverage, Liquidity, Efficiency, and Growth of pharmaceutical sector companies during and after the Covid-19 pandemic. This research is expected to provide contributions, including to the company management under the auspices of the health and pharmaceutical group regarding changes in their financial performance, as well as strategies that can be adopted to face future challenges.

Signaling Theory.
Signaling theory illustrates how information provide cues regarding the company's health condition to investors and stakeholders (E. F. Brigham & Houston, 2014). Significant changes

in the financial performance of pharmaceutical companies during the COVID-19 pandemic can provide signals to the market about how the company is adapting to drastic changes in product demand, supply chains, and spending on digital technology. In the pre-pandemic period, the signals provided may have been stable, but during the pandemic, signals such as increased revenue from vaccines or technology investments can provide better indications of the company's health. The ratios contained in the company's financial statements can act as signals of the company's performance during the study period and how investors or the market react to these signals. In the context of this study, this theory can be associated with profitability (ROA, NPM) and company growth (Sales Growth). When pharmaceutical companies show strong profitability performance or high sales growth after the pandemic, this is a positive signal to the market that the company has an adaptive and competitive business strategy.

Agency Theory

Agency Theory was first introduced by (Jensen & Meckling, 1976). Agency theory focuses on the relationship between owners (shareholders) and company management. In this context, management acts as an agent responsible for the company's operations and financial performance. During the COVID-19 pandemic, management may be forced to make strategic decisions, such as investing more in digital technology or changing operations to deal with supply chain disruptions and increased demand for certain products. These managerial decisions can reflect the interests of shareholders and can affect the company's financial performance. In the pre-pandemic era, there may have been a greater focus on cost efficiency and routine product innovation. During the pandemic, management will be more focused on risk management and crisis recovery. Managerial decisions during the pandemic can affect financial performance, as well as how conflicts of interest between management and owners affect company strategy. Related to this study, Agency theory is very relevant to leverage (DER) and efficiency (TATO). The use of high debt (high DER) can be an indication that management is making risky financial decisions, which may be contrary to the interests of shareholders. In addition, operational efficiency (TATO) can also reflect how management manages company assets to generate income, which is related to the control mechanism in agency theory.

Sustainable Growth Theory

Sustainable growth theory focuses on a company's ability to grow sustainably using its internal resources, without having to seek excessive external funding. The COVID-19 pandemic presents new challenges for pharmaceutical companies, especially in maintaining sustainable financial growth. Companies that are able to adapt quickly, for example through innovation in health products or vaccines, can achieve better growth after the pandemic (Nurkholis, 2018). In your research, this theory is relevant to company growth (Sales Growth) and profitability (ROA, NPM). If pharmaceutical companies experience stable sales growth after the pandemic, this indicates that they are able to adapt and continue to grow sustainably. In addition, a good level of profitability will support healthy growth without excessive dependence on debt.

Corporate Resilience Theory

Corporate resilience theory focuses on a company's ability to withstand and recover from major disruptions, such as a pandemic, while maintaining or even improving financial performance (Xiao & Cao, 2017). The COVID-19 pandemic has tested the resilience of pharmaceutical companies around the world. Companies that are able to navigate challenges, such as supply chain disruptions and changes in demand, may demonstrate greater resilience than before the pandemic. The implementation of digital technology can also increase corporate resilience in facing future challenges. In relation to this study, this theory is very relevant to liquidity (CR),

profitability (ROA, NPM), and company growth (Sales Growth). Pharmaceutical companies that are able to maintain good levels of liquidity during the pandemic demonstrate strong financial resilience. In addition, companies that successfully maintain or increase profitability and growth after the pandemic can be said to have better business resilience.

Profitability

Brigham and Houston (2001a, h. 89) profitability state that profitability is the final outcome of multiple financial strategies and decisions. It is represented by ratios that combine the effects of liquidity, asset efficiency, and leverage on operational outcomes. (Agus Sartono, 2014) defines profitability as the firm's capacity to produce profits from its sales, assets, and equity. Investors value profitability ratios highly, as they indicate the potential for dividend income. Additionally, (Liang & Natsir, 2019) view profitability as a reflection of management effectiveness in producing returns from investments and sales.

According to Brigham and Daves (Eugene F Brigham & Daves, 2019) the profitability ratio is examined to what extent it provides useful clues to the effectiveness of the company's operations. Based on the definitions above, it can be said that profitability is the company's ability to generate net profit in a certain period.

Liquidity

According to Munawir in (Liang & Natsir, 2019) liquidity is "a ratio that can show the company's ability to pay its financial obligations that must be met or settled immediately, or the company's ability to pay its financial obligations when they are due." Meanwhile, according to Harahap (2007:301) "the definition of the liquidity ratio is a ratio used to describe the company's ability to settle short-term obligations. Based on the definition above, it can be concluded that the liquidity ratio is a ratio that can measure the extent of the company's ability to meet its short-term obligations. With that, we can conclude that the function of this ratio is to find out how the company's ability to finance and how the company pays its obligations when they are due."

Leverage

Referring to Ross et al., (2008), financial leverage is a measure of the company's level of dependence on the use of debt. So financial leverage describes the proportion of company asset financing using debt. The more great the debt owned by the company, the more greater the level of leverage. Weidman et al., (2018) stated that DER is a measuring tool for measuring financial leverage. DER is the ratio of debt to equity. DER shows how much of a company uses debt to finance the company. According to Fakhruddin, (2008) "leverage is the amount of debt used to finance/purchase company assets. A company with debt greater than equity is called a company with a high level of leverage". The level of leverage of a company can be measured using the leverage ratio or solvency ratio. According to (Kasmir, 2019) "The solvency ratio or leverage ratio is a ratio used to measure the extent to which a company's assets are financed by debt. This means how much debt burden the company bears compared to its assets. In a broad sense, it is said that leverage is used to measure a company's ability to pay all its obligations, both short-term and long-term if the company is dissolved". Leverage can be quantified through several solvency or leverage ratios, including the Debt to Asset Ratio, Debt to Equity Ratio, Long-Term Debt to Equity Ratio, and Times Interest Earned. From these definitions, leverage is understood as a financial measure that compares debt to assets, indicating a company's ability to fulfill its liabilities and its strategy in using debt to maximize profitability.

Efficiency

The Total Asset Turnover (TATO) ratio indicates how efficiently a company uses all of its assets to produce sales. A high TATO value shows strong efficiency. Hutapea et al., (2017) noted that this ratio reveals how well a firm manages its resources to maximize sales output. A higher TATO not only reflects operational efficiency but also contributes to improved profitability and potentially enhances the company's stock market performance.

Company Growth

Company growth reflects the extent to which a business establishes its position within the broader economic system or within its specific industry sector (Siallagan & Machfoedz, 2006). Safitri & Dr. Suwitho (2015) define growth as the change in total assets—whether an increase or a decrease—occurring within a single accounting period. (Taswan, 2003) adds that asset growth serves as an indicator of both future profitability and the company's future expansion potential.

Shareholders see company growth as something that must be maximized because if company growth increases, the stock market price and profits will also increase. From a financial perspective, however, company growth is not always profitable. Rapid growth can be considered a problem at the company's source, and unless management is aware of this impact and takes quick action to address it, rapid growth can lead to bankruptcy.

Agus Sartono (2014) explains that as a company experiences rapid growth, its demand for funding to support expansion also increases. Consequently, the need for internal financing encourages firms to retain earnings rather than distribute them as dividends. Thus, growing companies are expected to prioritize reinvestment over dividend payouts. Company growth, therefore, can be reflected through changes in total assets during a specific period, with past asset growth serving as an indicator of future profitability.

Framework and Hypothesis

The COVID-19 pandemic has brought major changes to various economic sectors, including the pharmaceutical industry. Before the pandemic, the performance of pharmaceutical companies was stable with a focus on regular products such as chronic disease drugs, supplements, and medical devices. However, throughout the pandemic, the demand increases sharply for certain health products such as antiviral drugs, supplements, and personal protective equipment, which has a huge impact on all aspects of the company's financial performance.

The pandemic has bring a significant impact on the profitability of pharmaceutical companies. Demand for products has increased drastically, especially products directly related to handling COVID-19. This change is expected to affect several financial aspects, such as:

1) Profitability. Company profits during the pandemic may have increased due to the surge in demand for certain products. However, whether this continues post-pandemic needs to be tested. ROA and NPM are profitability measures used to see this change.
2) Leverage. Government policies and regulations influence company decisions in terms of funding. Using DER, we can see whether companies tend to borrow more to fund product development during the pandemic or vice versa.
3) Liquidity. CR is used to quantify a company's cability to fulfill its short-term obligations. During the pandemic, cash flow may be affected due to supply chain disruptions and changes in consumption patterns.

4) Operational Efficiency. The pandemic forced companies to adapt in a more efficient way, such as through the use of digital technology. Efficiency measurement is carried out using TATO (Total Asset Turnover).
5) Company Growth. Sales Growth is used to see revenue growth, especially related to increased product sales during the pandemic.

Apart from the impact of the pandemic, the implementation of digital technology by pharmaceutical companies is also considered a key factor that can affect long-term financial performance. Companies that adopt digital technology faster are thought to have higher operational efficiency and are better able to adapt to economic disruptions that occur during the pandemic.

This study will compare the financial performance of pharmaceutical companies in two periods, namely:
1) During the Covid Pandemic period (2020-2021): There was extraordinary disruption due to the Covid-19 pandemic
2) Post-pandemic (2022-2023): The period when companies must adapt to drastically changing economic conditions, including companies starting to implement digital technology in their operations. This period is a time of revival for economic recovery.

The research model can be described as follows:

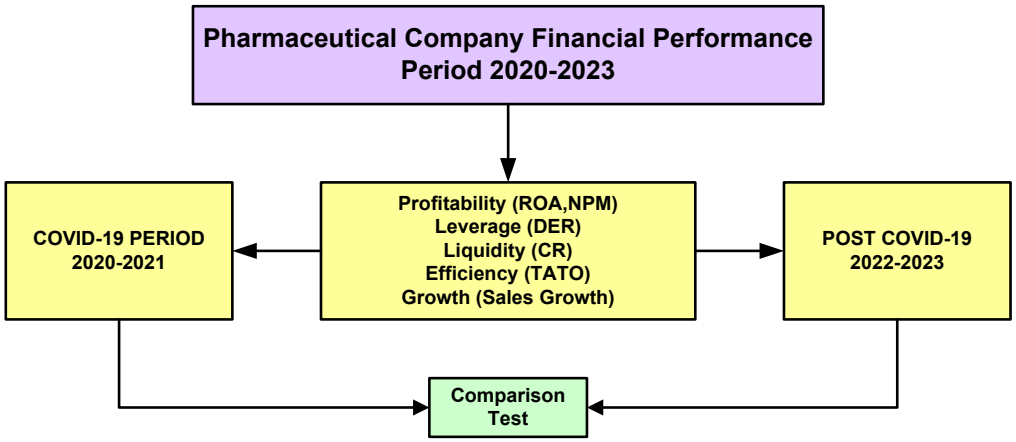

Figure 1. Research Model

Drawing from the previously discussed theoretical framework and conceptual basis, the following research hypothesis is proposed:
H1: There is a significant difference in the financial performance of pharmaceutical companies, as measured by ROA, listed on the IDX between the Covid-19 pandemic period (2020–2021) and the post-pandemic period (2022–2023).
H2: There is a significant difference in the financial performance of pharmaceutical companies, as reflected in the NPM, listed on the IDX during the Covid-19 pandemic (2020–2021) and after the pandemic (2022–2023).
H3: There is a significant difference in the financial performance of pharmaceutical companies, based on the DER, listed on the IDX between the pandemic period (2020–2021) and the post-pandemic period (2022–2023).
H4: There is a significant difference in the financial performance of pharmaceutical companies, measured using the CR, listed on the IDX during the Covid-19 pandemic (2020–2021) compared to the post-pandemic years (2022–2023).

H5: There is a significant difference in the financial performance of pharmaceutical companies, as indicated by the TATO, listed on the IDX between the Covid-19 period (2020–2021) and the post-pandemic period (2022–2023).
H6: There is a significant difference in the financial performance of pharmaceutical companies, as measured by Sales Growth, listed on the IDX during the pandemic years (2020–2021) and in the post-pandemic years (2022–2023)

2. RESEARCH METHOD

The population of this study is a pharmaceutical company that has gone public and is listed on the Indonesia Stock Exchange (IDX) in the period 2020-2023. On the IDX, this industry is in the healthcare or health sector. The sampling method uses a purposive sampling technique, where the sample is determined with certain considerations according to the research objectives. The criteria for the companies used as samples are as follows: Public companies listed on the IDX in the period 2020 to 2023 continuously, the company provides the required financial reports in the period 2020 to 2023.

Based on these criteria, out of 30 listed companies, there are 11 company samples that can be analyzed.

Operationalization of Variables and Instruments

This study aims to investigate whether there is a difference between the financial performance of Profitability, Leverage, Liquidity, Efficiency, and Growth of Companies in the pharmaceutical sector listed on the Indonesia Stock Exchange during and after the Covid-19 pandemic.
The research object and measurement of variables are described in the following table:

Table 1. Operationalization of Variables

Variable	Proxy	Measurement	Data Scale	Refference
Profitability	Return on Asset (ROA)	$\text{Return on Asset} = \frac{\text{Net Profit}}{\text{Total Asset}}$	Ratio	(Martina et al., 2022)
	Net Profit Margin (NPM)	$\text{Net Profit Margin} = \frac{\text{Net Profit}}{\text{Sales}}$	Ratio	(Martina et al., 2022)
Leverage	Debt to Equity Ratio (DER)	$\text{DER} = \frac{\text{Total Liabilities}}{\text{Total Equity}}$	Ratio	(Kasmir, 2016)
Liquidity	Current Ratio (CR)	$\text{Current Ratio} = \frac{\text{Current Asset}}{\text{Current Liability}}$	Ratio	(Sarif & , Mukhammad Idrus, 2023)
Efficiency	Total Asset Turnover (TATO)	$\text{Total Asset Turnover} = \frac{\text{Sales}}{\text{Total Asset}}$	Ratio	(M. Sari & Muniarty, 2020)
Company Growth	Sales Growth	$\text{Sales Growth} = \frac{\text{Total Sales(n)} - \text{Total Sales(n} - 1)}{\text{Total Sales (n} - 1)}$	Ratio	(Pradana & Imelda, 2023)

3. RESULTS AND DISCUSSIONS

The research subjects used in this study are companies in the health sector or healthcare that have gone public that are listed on the Indonesia Stock Exchange that are listed on the Indonesia Stock Exchange during the period 2020 to 2023. Health sector companies or healthcare are designated as subjects in this study because of their very important role as producers in health services, medicines and medical devices during the Covid-10 pandemic.

The population consists of 30 companies, then sample selection is carried out using purposive sampling techniques to filter companies engaged in the pharmaceutical and medical device sectors, and provide complete financial reports for the years 2020-2021 and 2022-2023. The selected samples that meet the criteria are 11 companies with 264 observation data.
The object of research in this study is company performance consisting of Profitability which is proxied by ROA and NPM, then Leverage which is proxied by Debt to Equity Ratio (DER), Liquidity is proxied by Current Ratio (CR), Financial efficiency is measured by Total Asset Turnover (TATO), and Company growth is measured by Sales Growth.

Data Normality Test Results
Data normality tests were conducted using SPSS software using the Kolmogorov Smirnov Test method.

The results of the normality test are displayed in the Table 2. The significance level used is 5%. Data is categorized to normally distributed if meet the sig. value is greater than 0.05.
The test for normality conducted using the Kolmogorov-Smirnov method, where the result is presented in Table 2. below:

Table 2. Normality Test Results
Source: Data processing results by researchers

Period	Variable	Signifc. Level	Sig.	Description
During Covid Period (2020-2021)	2COV-ROA	0.05	.200*	Normal distributed
	2COV_NPM	0.05	.200*	Normal distributed
	2COV_DER	0.05	.000	not normally distributed
	2COV_CR	0.05	.000	not normally distributed
	2COV_TATO	0.05	.000	not normally distributed
	2COV_SALES_GRO	0.05	.200*	Normal distributed
Post Covid Period (2022-2023)	2POST_ROA	0.05	.025	not normally distributed
	2POST_NPM	0.05	.004	not normally distributed
	2POST_DER	0.05	.000	not normally distributed
	2POST_CR	0.05	.003	not normally distributed
	2POST_TATO	0.05	.000	not normally distributed
	2POST_SALES_GRO	0.05	.000	not normally distributed

Hypothesis Test Results
This study employs hypothesis testing to assess whether the financial performance of companies during the COVID-19 period differs significantly from that in the post-COVID-19 era. For data satisfying the assumption of normality, the Paired Sample t-test is applied to evaluate mean differences between paired observations. In cases where the data deviate from normality, the Wilcoxon Signed Rank Test is used as a non-parametric alternative. A two-tailed approach is adopted in the t-test, and hypothesis decisions are determined based on the significance value (Sig.). A Sig. value below 0.05 leads to the rejection of the null hypothesis (Ho), supporting the presence of a significant difference. Conversely, a Sig. value above 0.05 results in the acceptance of Ho, suggesting no significant difference. The outcomes of these hypothesis tests are summarized in the following table.

Table 3. Hypothesis Test Results (2020-2021 and 2022-2023)
Source: Data processing results by researchers

Period	Variable	Sig. (2-tailed)	Description
2 years of Covid and 2 years of Post Covid	ROA	.426	insignificant
2 years of Covid and 2 years of Post Covid	NPM	.948	insignificant
2 years of Covid and 2 years of Post Covid	DER	.029	significant

2 years of Covid and 2 years of Post Covid	CR	.661	insignificant
2 years of Covid and 2 years of Post Covid	TATO	.538	insignificant
2 years of Covid and 2 years of Post Covid	SALES_GROWTH	.987	insignificant

Based on the results of the hypothesis test above, it can be explained as follows:

1) "There is no significant difference in ROA 2 years during Covid-19 and 2 years post Covid-19
2) There is no significant difference in NPM 2 years during Covid-19 and 2 years post Covid-19
3) There is a significant difference in DER 2 years during Covid-19 and 2 years post Covid-19
4) There is no significant difference in CR 2 years during Covid-19 and 2 years post Covid-19
5) There is no significant difference in TATO 2 years during Covid-19 and 2 years post Covid-19
6) There is no significant difference in Sales_Growth 2 years during Covid-19 and 2 years post Covid-19"

After conducting statistical tests to assess the possibility of differences in financial performance through ROA measurements during the Covid-19 period (2020-2021) and after the Covid-19 pandemic (2022-2023) with the findings presented above, below is an explanation of the findings of this study.

Empirical evidence from the Indonesia Stock Exchange (IDX) reveals that the financial metrics of pharmaceutical firms, represented by ROA, NPM, CR, TATO, and Sales Growth, did not exhibit notable differences when comparing the two-year span of the COVID-19 pandemic to the two years that followed. This means that statistically, the financial performance of pharmaceutical companies is relatively stable despite significant changes in external situations, such as the global health crisis followed by an economic recovery phase. This finding can be attributed to several underlying factors. One primary reason is the stable, and in some cases rising, demand during the pandemic, when pharmaceutical firms experienced heightened consumption of medical supplies, including drugs, supplements, and healthcare instruments. This helped maintain the stability of their ROA, despite economic pressures on other sectors. Second, managed post-pandemic transition: Post-pandemic, although COVID-19-related demand decreased, pharmaceutical companies may have succeeded in diversifying products or adjusting business strategies to maintain stable profitability. Third, the pharmaceutical industry is a defensive sector that tends to be less affected by changes in the economic cycle, so that fluctuations in financial performance are relatively small. Fourth, because of the success of operational efficiency, namely the ability of pharmaceutical companies to improve operational efficiency may be a supporting factor for ROA stability during both periods. These findings diverge from those of T. N. Sari & Dura (2022) who concluded that the ROA of pharmaceutical companies on the IDX showed significant differences before the pandemic and in the post–new normal period. Supporting this contrasting view, Manalu et al. (2024) reported that both the NPM and ROA ratios of pharmaceutical companies differed substantially between the pre-holding phase (2018–2019) and the post-holding phase (2020–2022).

The findings indicate that the financial performance of pharmaceutical firms, specifically in terms of Net Profit Margin (NPM), did not significantly differ when comparing the pandemic period with the period following COVID-19. This stability reflects the pharmaceutical sector's ability to face global economic challenges and maintain consistent profitability. Several possible reasons that could explain this result include, first, an increase in revenue during the

pandemic: During the pandemic, demand for medicines, supplements, and medical devices increased significantly. However, this increase did not always have a direct impact on NPM because production and distribution costs also increased, especially due to supply chain disruptions. Another possibility is that companies made post-pandemic adjustments. Post-pandemic, although demand related to COVID-19 decreased, pharmaceutical companies were still able to maintain profit margins through product diversification and operational efficiency. The next possibility is due to the characteristics of NPM which is influenced by many factors, including fixed and variable costs. In this case, the stability of NPM may reflect the ability of pharmaceutical companies to manage operating costs well amidst fluctuations in revenue. The Stable Nature of the Industry may also explain this finding. The pharmaceutical industry is known to be defensive in nature, where demand for health products remains regardless of economic conditions. This contributes to the stability of profit margins. In contrast to the present study, Sari & Dura (2022) reported that pharmaceutical companies exhibited distinct differences in ROA and NPM between the pre-pandemic period and the post–new normal era. Likewise, the study by Manalu et al., (2024) found that both NPM and ROA ratios varied significantly before (2018–2019) and after (2020–2022) the holding period in the pharmaceutical sector.

The study's statistical results demonstrated a notable variation in the Debt-to-Equity Ratio (DER) of pharmaceutical companies when comparing the COVID-19 pandemic period to the post-pandemic period, suggesting a shift in capital structure during these times. These results indicate an adjustment in the company's funding structure during the two periods, reflecting the dynamics of the pharmaceutical sector's financial needs and strategies. Several factors that can explain this difference include: During the pandemic, some pharmaceutical companies may increase debt to meet the high demand for health products. Debt is used to expand production capacity, meet distribution needs, or overcome supply chain disruptions. Post-pandemic, the need to use debt begins to decline as COVID-19-related demand decreases. Companies can shift their focus to debt repayment or rely on internal funding for operational activities. In addition, pharmaceutical companies have begun to change their funding policies post-pandemic, such as reducing reliance on debt to reduce future financial risks. Fluctuations in Equity such as from retained earnings or additional investments can also affect the DER ratio. The findings of this study are in line with the results found by (Manalu et al., 2024) which stated that there was a significant difference in the DER ratio before holding (2018-2019) and after holding (2020-2022) of pharmaceutical industry companies.

The findings of this study suggest that there was no significant variation in the Current Ratio (CR) of pharmaceutical companies, indicating that their liquidity position remained stable across the COVID-19 pandemic and post-pandemic periods. This stability indicates that the pharmaceutical sector is able to maintain adequate liquidity amidst various economic conditions and significant external challenges. Several reasons that can explain this result are, firstly, because companies are able to maintain Consistent Liquidity management, where during the pandemic and post-pandemic, pharmaceutical companies may have a good liquidity management strategy, ensuring that current assets remain balanced with current liabilities. Another cause is the increase in revenue during the pandemic, where during the pandemic, increased revenue from sales of health products can help companies maintain liquidity, while post-pandemic, companies remain stable despite a decrease in demand related to COVID-19. Another explanation is from the Characteristics of the Pharmaceutical Industry itself, where the pharmaceutical industry tends to have stable operating cash flows, which helps maintain liquidity in various economic conditions. The findings of this study can also be explained when

companies are able to carry out their operational efficiency. The ability of pharmaceutical companies to manage working capital efficiently, such as managing inventory and accounts receivable, also contributes to the stability of CR. The findings of this study are not in line with the findings by (Manalu et al., 2024) which stated that there was a significant difference in the CR ratio before holding (2018-2019) and after holding (2020-2022) of pharmaceutical industry companies.

The findings from the statistical tests suggest that the financial performance of pharmaceutical companies, as proxied by TATO, did not exhibit any notable differences between the two-year period during the COVID-19 pandemic and the two years following it, based on data from companies listed on the IDX. This proves that the ability of pharmaceutical indsutry to manage physical resources to generate income is relatively consistent during both periods. Several reasons that can explain this result are, first, because of stable demand. During the pandemic, demand for pharmaceutical products such as medicines and medical devices increased. Although demand related to COVID-19 decreased after the pandemic, demand for pharmaceutical products in general remained stable, so there was no significant change in the efficiency of asset use. Second, the characteristics of the pharmaceutical industry which has large fixed assets, such as production facilities and laboratories, which tend not to change much in the short term. This makes TATO relatively stable despite changes in economic conditions. Then operational efficiency in pharmaceutical companies is likely to be successful, ensuring that their fixed assets and working capital are used optimally to give rise to income. The findings of this study are not in line with the findings by (Manalu et al., 2024) which stThe results of this study contrast with those of Manalu et al, (2024) who found a significant difference in the TATO ratio between the pre-holding period (2018–2019) and the post-holding period (2020–2022) of pharmaceutical companies.

This study found that there is insignificant evident difference between performance of pharmaceutical companies, as measured by Sales Growth, between the COVID-19 pandemic and post-pandemic periods. This stability reflects the ability of the pharmaceutical sector to maintain sales growth amidst changes in market dynamics, reflecting sales growth as a key indicator of business expansion and the company's success in responding to market changes. Several reasons that can explain this result are the existence of stable product demand. During the pandemic, the increasing need for health products provided a temporary boost to sales. Post-pandemic, although demand for COVID-19 related products decreased, the general need for pharmaceutical products remained stable. In addition, the diversification of the pharmaceutical product portfolio, where many pharmaceutical companies have succeeded in diversifying their products to maintain sales even though people's consumption patterns have changed post-pandemic. Another explanation is due to the strong influence of the domestic market, where most pharmaceutical companies in Indonesia serve the domestic market, whose demand tends to be stable despite changes in the global economy. It is also possible that efficiency in distribution has been realized, namely during and after the pandemic, pharmaceutical companies may have increased distribution and logistics efficiency, so that they can maintain consistent sales growth. There is a lack of research specifically comparing the sales growth of pharmaceutical companies in Indonesia during and after the COVID-19 pandemic. However, there are several studies that analyze the difference in sales volume before and after the pandemic, although not specifically in the pharmaceutical sector. The findings of this study are not in line with (Malik et al., 2023) who studied the comparison of sales volume before and after the COVID-19 pandemic at PT. BAT Jakarta. The findings of this study indicate a significant change in sales volume between the pre-pandemic and post-pandemic periods. This contradicts the results reported by (Nurazizah, 2021)), who documented a 71%

increase in sales during the pandemic relative to the pre-pandemic period at Apotek Populer Farma in Bekasi.

4. CONCLUSIONS AND SUGGESTIONS

The analysis conducted on the research sample leads to the conclusion that there were no significant differences in the financial performance of pharmaceutical companies, as measured by ROA, NPM, CR, TATO, and Sales Growth, between the two years of the COVID-19 pandemic (2020-2021) and the two years following the pandemic (2022-2023). However, the study did reveal a significant difference in the DER ratio between these two periods.

Based on the results of the research that has been conducted, the following suggestions can be given:

1) Stability of financial performance through ROA shows the success of management in facing external challenges. However, the company needs to continue to look for growth opportunities, especially through product innovation and market development.
2) Consistency of financial performance through NPM shows that pharmaceutical companies are a relatively stable sector for investment, both in crisis situations and economic recovery, this can be a reference for investors in investing. For the Company, these results highlight the importance of operational efficiency strategies and product diversification to maintain profitability.
3) For investors in investing, they should pay attention to CR, because the stability of CR reflects that pharmaceutical companies have sufficient liquidity to meet short-term obligations, thus indicating a relatively low financial risk. For the Company, this stability shows that the company's working capital management strategy has been successful, but it is still important to optimize liquidity to face future challenges.
4) TATO did not experience any significant difference during the Covid-19 pandemic and after the Covid-19 pandemic. Investors in investing should pay attention to the stability of TATO, which indicates the ability of pharmaceutical companies to remain efficient in using assets to generate revenue, which is a positive fundamental indicator. Meanwhile, for the company, although these results show success in maintaining efficient asset usage, the company needs to continue to find ways to increase asset productivity to drive further growth.
5) The company needs to re-evaluate their funding strategy to ensure that the debt-equity structure supports long-term stability. For investors, the difference in DER reflects changes in the risk profile of pharmaceutical companies. Investors need to pay attention to this funding structure when making investment decisions.
6) For investors, in investing, they should pay attention to the stability of Sales Growth which reflects the ability of pharmaceutical companies to maintain sales levels despite changes in external conditions, making it an attractive investment choice. Meanwhile, for the company, although these results show the company's success in responding to market challenges, it is important to continue to innovate to drive higher sales growth.

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