The Impact of COVID-19 Pandemic on Financial Performance of Agricultural Listed Companies in Indonesian

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Abstract

The COVID-19 pandemic has profoundly impacted global economies, including the financial performance of agricultural companies. This study investigates the effects of the pandemic on the financial performance of agricultural listed companies in Indonesia. The research questions focus on understanding the pandemic's impact on profitability, liquidity ratios, and leverage ratios of these companies. This research utilized a quantitative research approach and secondary data from 26 agricultural companies listed on the Indonesia Stock Exchange, the study employs descriptive statistics, normality tests, and Wilcoxon Signed-Rank tests to analyze the data. This study contributes to a nuanced understanding of how agricultural companies navigated financial challenges during the pandemic, highlighting the importance of adaptive strategies and informed policymaking. The findings reveal intriguing trends in financial metrics, indicating a slight improvement in Return on Assets (ROA) during the pandemic but heightened variability, particularly in debt and liquidity ratios. Contrary to expectations, the pandemic did not uniformly enhance profitability and leverage, with complexities emerging in financial performance. Asset Tangibility exhibited a notable decrease, suggesting strategic adjustments in asset composition amidst economic uncertainties. The findings also underscore the need for proactive measures to enhance resilience and sustainability in the face of uncertainty. Based on the study's implications, recommendations are provided for government policymakers to diversify revenue streams, strengthen liquidity management, implement risk management strategies, enhance asset tangibility, and engage in continuous monitoring and adaptation. Additionally, suggestions for future researchers include exploring the implications of pandemic-related policies on agricultural regulations and investigating how agricultural companies integrate sustainability and resilience practices into their business models. These recommendations aim to inform evidence-based decision-making and foster long-term resilience in the agricultural sector amidst future crises.

Keywords: *Covid-19, Agricultural, Financial performance, Return on assets, Liquidity, Leverage*

Abstrak

Pandemi COVID-19 berdampak besar pada perekonomian global, termasuk kinerja keuangan perusahaan pertanian. Penelitian ini bertujuan untuk mengkaji pengaruh pandemi terhadap kinerja keuangan perusahaan pertanian yang terdaftar di Indonesia. Pertanyaan penelitian ini fokus pada pemahaman dampak pandemi terhadap profitabilitas, rasio likuiditas, dan rasio leverage perusahaan tersebut. Penelitian ini menggunakan pendekatan penelitian kuantitatif dan data sekunder dari 26 perusahaan pertanian yang terdaftar di Bursa Efek Indonesia. Penelitian ini menggunakan statistik deskriptif, uji normalitas, dan uji Wilcoxon Signed-Rank untuk

menganalisis data.Penelitian ini berkontribusi pada pemahaman yang lebih mendalam tentang bagaimana perusahaan pertanian menghadapi tantangan keuangan selama pandemi, yang menekankan pentingnya strategi adaptif dan pembuatan kebijakan yang tepat. Temuan penelitian mengungkapkan tren yang menarik dalam metrik keuangan, menunjukkan sedikit peningkatan dalam Return on Assets (ROA) selama pandemi tetapi dengan variabilitas yang lebih tinggi, terutama dalam rasio utang dan likuiditas. Berlawanan dengan harapan, pandemi tidak secara seragam meningkatkan profitabilitas dan leverage, dengan kompleksitas yang muncul dalam kinerja keuangan. Aset Tangible menunjukkan penurunan yang nyata, menunjukkan penyesuaian strategi dalam komposisi aset di tengah kondisi ekonomi. Temuan ini juga menggarisbawahi pentingnya langkah-langkah proaktif untuk meningkatkan ketahanan dan kematian dalam menghadapi penyakit.Berdasarkan efektivitas penelitian, rekomendasi yang diberikan kepada pembuat kebijakan pemerintah untuk melakukan diversifikasi aliran pendapatan, memperkuat likuiditas manajemen, menerapkan strategi manajemen risiko, meningkatkan aset nyata, dan terlibat dalam pemantauan dan adaptasi berkelanjutan. Selain itu, saran untuk peneliti masa depan termasuk mengeksplorasi penerapan kebijakan terkait pandemi terhadap peraturan pertanian dan menyelidiki bagaimana perusahaan pertanian melakukan integrasi keberlanjutan dan ketahanan ke dalam model bisnis mereka. Rekomendasi ini bertujuan untuk menginformasikan pengambilan keputusan berdasarkan bukti dan mendorong ketahanan jangka panjang di sektor pertanian di tengah krisis mendatang.

Kata Kunci: Covid-19, Pertanian, Kinerja keuangan, Return on Assets, Likuiditas, Leverage

1. INTRODUCTION

On December 31, 2019, a new coronavirus, designated as 2019-nCoV, emerged in Wuhan, China, leading to the onset of the worldwide COVID-19 pandemic. In response to the escalating situation, the Chinese government promptly implemented a comprehensive travel ban in the Wuhan region on January 23, 2020. Subsequently, on January 30, 2020, the World Health Organization (WHO) declared the outbreak an international health emergency, later designating it as a global pandemic on March 11, 2020. This declaration was a crucial recognition of the severity of the situation, officially acknowledging it as a global health crisis by the WHO (Cucinotta & Vanelli, 2020).

In Indonesia, President Joko Widodo officially declared the COVID-19 pandemic on March 2, 2020. The initial governmental response to control the outbreak included the implementation of Large-Scale Social Restrictions (LSSR) in accordance with Health Quarantine Law Number 6 of 2018 regarding Health Quarantine. Following this, the President of Indonesia enacted three significant regulations aimed at curbing the transmission of COVID-19: Decree No. 11 of 2020 concerning the Declaration of a Public Health Emergency due to COVID-19, No. 21 of 2020 concerning Large-Scale Social Distancing Measures to Expedite the Management of COVID-19,

and No. 1 of 2020 regarding State Financial Policy and Financial System Stability to Address the COVID-19 Pandemic. In Jakarta, the nation's capital, LSSR I was initiated on April 10, 2020. This included measures like distance learning for educational activities, remote work encouragement for offices, suspension of religious gatherings, and restrictions on public gatherings, with exceptions for essential activities related to food, energy, communication, finance, and logistics (embassy of the republic of Indonesia, 2020).

Globally, nations responded to the pandemic with a wide spectrum of measures, ranging from lockdowns and quarantine protocols to travel restrictions, all in an effort to curb the virus's rapid spread. Unlike previous economic crises, the impact of the COVID-19 outbreak reverberated across nearly every corner of the world, resulting in a global economic downturn of unprecedented magnitude, comparable to the Great Depression of 1930 (Reinhart & Rogoff, 2009). This pandemic distinguished itself by its worldwide reach, setting it apart from earlier regional financial crises or epidemics, such as the 2003 severe acute respiratory syndrome (SARS). Multiple indicators underscore the substantial elevation of uncertainty caused by the pandemic and its subsequent economic shocks (Altig et al., 2020).

The COVID-19 pandemic has left an indelible mark on global health and economies, including Indonesia. Historically, quarantine measures and widespread panic have disrupted human activities and hindered economic development (Hanashima & Tomobe, 2012 ,Débora Freire et al., 2022,Arndt & Lewis, 2001), with agriculture being no exception. Infectious disease outbreaks, like COVID-19, have been closely associated with a surge in hunger and malnutrition (Indriani & Imran, 2020, Reperant & Osterhaus, 2020). As the disease spreads, stringent movement restrictions have led to labor shortages during crucial harvest periods, creating obstacles for farmers striving to bring their products to market. Agriculture, as a fundamental sector, plays a pivotal role in food security and represents a cornerstone of societal progress (Abdelhedi & Zouari, 2020 ,Kogo et al., 2021,Lopez-Ridaura et al., 2019).

Furthermore, the pandemic precipitated widespread job losses, reduced working hours, and lowered wages for many individuals, resulting in decreased household incomes, widespread job losses, and income cuts, which, in turn, led to high unemployment rates globally (Bartik et al., 2020, Jones et al., 2021). These dual shocks, affecting both supply and demand, reverberated

across industries, leading to a marked decline in corporate earnings and overall business confidence.

The appearance of the novel coronavirus, COVID-19, has left profound and far-reaching impacts on global health and economies (Bapuji et al., 2020, Soares et al., 2022),The economic consequences of COVID-19 have been severe, with global equity markets experiencing significant declines, resulting in substantial drops in stock indices worldwide (World Economic Forum (WEF), 2020). Furthermore, the COVID-19 pandemic brought about a notable decline in firm values, exemplified by a 38 percent drop in the Dow Jones Industrial Average Index by March 2020 and a 35 percent decrease in Standard & Poor (S&P)'s Global Ratings Index (Khan et al., 2020).

The global economic repercussions of the COVID-19 pandemic have been substantial, with Indonesia experiencing a notable consequence in the form of reduced tax revenue, which serves as the primary source of state income. As the pandemic unfolded, it brought about significant challenges across industries worldwide, disrupting supply chains, altering consumer behavior, and imposing movement restrictions. Despite Indonesia's heavy reliance on agriculture, which contributes significantly to its GDP and sustains livelihoods, there exists a research gap regarding the pandemic's specific impact on Indonesian agricultural listed companies.

Previous studies have largely overlooked this sector, focusing instead on other industries and utilizing limited quarterly data spanning from 2019 to 2020. To address this gap comprehensively, this study aims to conduct an extensive investigation covering the pandemic period from 2020 to 2021, comparing it with the pre-pandemic period from 2018 to 2019. Through an analysis of the financial performance of these agricultural companies, the research seeks to elucidate the pandemic's effects on profitability, liquidity, and leverage ratios.

Moreover, the study endeavors to provide recommendations aimed at mitigating adverse effects and enhancing resilience in anticipation of future crises. Its significance lies in filling the research gap specific to the agricultural sector in Indonesia, thereby informing policymakers and stakeholders to develop strategies for mitigating the pandemic's effects and building resilience for future crises.

COVID-19's Impact on Agriculture

The COVID-19 pandemic significantly impacted the global economy, leading to a significant downturn, leading to decreased economic activity, job losses, and disruptions in various sectors. Baldwin & Weder, (2020) emphasize the urgent need for coordinated policy responses to address this crisis. The pandemic has affected international trade, investment, and economic growth, resulting in reduced consumption, tourism, production, employment, and economic growth worldwide.

In the agricultural sector, the pandemic has posed unprecedented challenges, impacting supply chains, production, and consumer demand. Movement restrictions and market closures have hindered the distribution of agricultural products, particularly for small-scale farmers and local traders, as shown in studies by Hale et al., (2020). Disruptions in the global supply chain have led to a decline in agricultural production, affecting food supplies and raising prices, according to research by Laborde et al.,(2020) . In response, farmers have adopted digital technology to market their products more effectively, as highlighted by Swinnen & Vos, (2021) , mitigating the impact of physical restrictions.

However, the pandemic has also highlighted the vulnerability of the agricultural sector to climate change, posing serious food security risks, as noted by Tripathi et al., (2021). Emphasizing sustainability in agriculture, Pak et al., (2020) advocate for more sustainable farming practices to strengthen food system resilience. Despite challenges, opportunities have emerged in the agricultural sector, such as increased consumer awareness of the importance of local and organic food, supporting the growth of the local agricultural product market, as observed in research by Anderson et al., (2021).

Resource-Based Theory

The Resource-Based Theory (RBT) has been a prominent management framework for over two decades, offering insights into disparities in firm performance. According to this theory, a firm's internal resources can potentially yield sustained competitive advantage (SCA) if they are valuable, rare, inimitable, and non-substitutable (VRIN). Despite its straightforward core message, widely taught in strategic management textbooks, the application of RBT principles in agribusiness has been sluggish. Apart from a few studies like those by Othieno & Shinyekwa, (2011), there's limited empirical exploration of the theory within agribusiness scholarship. The Resource-Based Theory (RBT) of the firm posits that resources and capabilities, which encompass all assets,

organizational processes, knowledge, and information controlled by a firm, are unevenly distributed and not easily movable. These assumptions allow for differences in the resources possessed by firms to persist over time. According to the theory, if a firm effectively utilizes resources and capabilities that are valuable and rare, it can gain a competitive advantage. This advantage can be sustained only if these resources and capabilities are difficult to imitate and cannot be easily substituted.

According to the resource-based theory, a company's optimal performance hinges on possessing a competitive advantage that is not easily replicated and is deeply ingrained in its core attributes. Devi et al., (2020b) argue that to bolster the financial standing of mining firms in China amidst economic volatility, it's crucial to forge fresh competitive edges for sustained growth. This advantage stems from adeptly utilizing, managing, and governing internal resources like organizational processes and strategic initiatives to navigate diverse challenges, including economic downturns. Devi et al., (2020b) emphasizes the importance of crafting products or services with significant economic value that are challenging to duplicate, thus becoming essential societal needs. The efficacy of a company is heavily reliant on its management's ability to foster and oversee distinctive resources to compete effectively across various scenarios. Recognizing and rewarding employee performance, as suggested by Devi et al., (2020b), is a proven strategy to enhance productivity, which inevitably bolsters competitiveness and augments overall company performance.

The Resource-Based Theory (RBT) posits that resources essential for maintaining a sustainable competitive advantage possess several key characteristics: they are durable, making them long-lasting; non-appropriable, making them challenging to obtain; non-substitutable, meaning alternative resources cannot easily replace them; superior, as competitors typically have access to inferior resources; and inimitable, making them difficult to replicate (Walley et al., 2011). Resources exhibiting most of these traits are labeled as "strategic resources," while those lacking these characteristics are termed "basic resources." Generally, organizations that emphasize heterogeneity in their resource base tend to have stronger and more enduring competitive advantages (Walley et al., 2011).

According to the RBT, market failure or underutilization of resources prompts redeployment into other industries, thus framing diversification as an efficiency-driven decision (Walley et al., 2011).

Consequently, Walley et al., (2011) argued that RBT is the only theory in strategic management capable of explaining the full spectrum of diversification, making it a valuable framework for understanding farm diversification.

Financial performance

Financial performance encompasses the effective management of a company's financial aspects, including income, debt structure, assets, and investment returns. This evaluation considers trends over time and involves analyzing financial metrics such as balance sheets, income statements, and cash flow statements. Stakeholders assess the efficiency of managerial policies, strategies, and initiatives in achieving organizational objectives, which significantly influences financial performance. Common methods for evaluating financial performance include analyzing financial statements to interpret summarized financial information. Various metrics, including Return on Assets (ROA), Return on Equity (ROE), and composite accounting-based metrics, are used to measure financial performance. ROA evaluates profit generation and asset utilization efficiency, while ROE incorporates financial leverage. A comprehensive performance metric should consider net operating income after taxes, invested capital amount, and required rate of return on capital to accurately reflect a company's operational effectiveness (Devi et al., 2020b, Fauzi, 2009, Deangelis, 2022)

The financial performance of a company constitutes an evaluation of its financial aspects, encompassing income, operational expenses, debt composition, asset portfolio, and returns on investment. It is a pivotal measure for businesses, investors, creditors, and policymakers to gauge the company's overall economic health. A company's financial performance is closely linked to the policies, strategies, and actions taken by its management to achieve organizational objectives. The assessment of financial performance typically involves interpreting data presented in financial reports, serving the informational needs of both internal and external stakeholders (Recly Bima Rhamadana & Triyonowati, 2016). As described by Subramanyam & Wild, (2014), financial performance represents the condition of a company's finances with respect to established goals, standards, and criteria, making it an essential factor for evaluating the economic well-being of an entity, therefore, assessing financial performance involves gauging the outcomes of an organization's strategies and activities in monetary terms (Petrus Daniël Erasmus & de Villiers

Stellenbosch, 2008).It can also be defined as the enterprise's ability to achieve objectives by using resources in an efficient and effective manner.

The financial performance of agricultural companies has become a focal point during any crisis and COVID-19 pandemic is one. This crisis has brought about significant changes in the financial parameters of these companies, affecting aspects such as revenue, net profit, and liquidity. Research by McBurney et al., (2021) reveals a sharp decline in the revenue of agricultural companies due to reduced demand and disruptions in the supply chain. This underscores the necessity of adapting financial strategies to navigate deep market fluctuations. The pandemic has also impacted the net profits of agricultural companies. D. Wang et al., (2022) found that decreased consumption and changes in consumer spending patterns have substantially reduced the net profits of these companies, offering a clear picture of the pandemic's impact on the profitability of agricultural companies. Nonetheless, certain agricultural companies have managed to sustain their financial performance during the pandemic. Research by Li & Zhong, (2020), highlights the significance of product diversification and adaptable business models to maintain net profits amidst market uncertainties. Additionally, Ashraf et al., (2021) underline that agricultural companies capable of swiftly adjusting their financial policies and responding to market changes exhibit greater financial resilience during crises. Research by S. Wang & Esperança, (2023), emphasizes the importance of sound planning in managing market volatility and adapting to regulatory changes. Financial management is also a critical factor in the financial performance of agricultural companies. Research by Zhang & Chen, (2017), underscores the importance of cash flow management, capital allocation, and cost control to achieve sustainable financial growth.

Financial performance ratios

Financial performance ratios serve as crucial tools for evaluating a company's financial well-being, offering a comprehensive assessment of its efficiency, profitability, liquidity, and financial structure. These ratios, including return on assets (ROA), return on equity (ROE), return on sales (ROS), and return on investments (ROI), are derived from comparing various items within financial statements, revealing meaningful relationships (Gentry & Shen, 2010, Han et al., 2016 , Velte, 2017, Waddock & Graves, 1997). Defined by Devi et al., (2020b) as metrics derived from financial statements, financial ratios facilitate efficient assessment of a company's financial performance. Profitability ratios, such as Net Profit Margin (NPM), ROA, and ROE, offer insights into the company's ability to generate net profit from income and assets (Brigham, Eugene F. &

Houston,2021). Devi et al., (2020b) outline four groups of ratios used to evaluate financial performance: liquidity ratios, leverage ratios , activity ratios, and profitability ratios. Moreover, financial ratio models are increasingly valued for their ability to standardize numerical variations, simplify statistical testing, explore financial theories, and evaluate estimates or forecasts of specific variables, such as empirical bankruptcy .

Profitability

Profitability represents an enterprise's capability to generate profit from production factors and capital, making it a concise measure of economic and financial efficiency (Marian Gruian, 2010) , Return on assets (ROA) is a key metric used to assess this efficiency, indicating how effectively a company converts its investments into net income. Typically, an ROA above 5% is considered good, with over 20% considered excellent, though comparisons should be made within the same sector for accurate assessment. Despite its simplicity, ROA remains widely regarded as the most useful measure for testing firm performance, as highlighted by Olokoyo, (2013). Studies, such as that conducted by Devi et al., (2020a) , reveal fluctuations in ROA, with the pandemic causing a notable decline in average ROA, showcasing the impact of external factors on profitability. In comparison to return on equity (ROE), ROA is often deemed superior, precise, and unbiased in evaluating profitability, as noted by Vojinović et al.,(2022).

ROA serves as a fundamental financial ratio, providing insights into a company's efficiency in generating profits from its assets. A high ROA indicates efficient asset utilization and is attractive to investors, signifying profit generation efficiency. Companies with high ROA also tend to exhibit healthy liquidity ratios, indicating effective cash management. Furthermore, ROA's relationship with other financial ratios reveals patterns, such as low short-term and long-term debt ratios, and a balanced debt-to-equity ratio, emphasizing efficient capital structure management. Additionally, companies with high ROA tend to have better long-term stock performance, particularly among smaller companies with tangible assets. Utilizing ROA as a primary measurement is offering comprehensive insights into a company's financial performance, combining profitability and asset management efficiency. It serves as a valuable benchmark for assessing financial health, facilitating industry comparisons, and aiding stakeholders in making informed decisions about investments and management effectiveness. Therefore, strategic utilization of ROA enhances understanding of a company's financial strength and operational efficiency.

Leverage

leverage refers to the strategic use of borrowed funds by a company to support its operational activities or investments, The level of leverage a company employ can significantly impact its vulnerability to financial distress if it struggles to generate adequate profits to cover debt obligations. Conversely, a company with lower leverage may exhibit greater resilience during economic downturns or other challenges. The concept of a leverage ratio, as defined by Brigham & Ehrhardt, (2017), gauges the extent to which a company relies on debt financing and assesses the risk of defaulting on debt obligations. Gitman & Zutter, (2014) emphasize that leverage encompasses the risk and return associated with fixed costs, such as debt and preferred stock. The leverage ratio, as explained by Kasmir, (2016) , quantifies the degree to which a company's assets are funded through debt, indicating the proportion of debt relative to its total assets. This underscores that leverage serves as a metric for evaluating how a company's assets are financed, measuring the extent of debt relative to its asset base. The leverage ratio signifies the company's ability to meet all its obligations, encompassing both short-term and long-term liabilities. Investors stand to benefit from leverage if the generated profit exceeds fixed costs; however, it can elevate risk if profits fall short of fixed costs.

The Debt to Asset (TDA) ratio, as a financial metric, evaluates the percentage of a company's assets financed through debt, providing insights into financial health and stability. A higher TDA ratio may signal less stability, whereas a lower ratio implies more assets than liabilities, suggesting the ability to cover liabilities by selling assets if necessary. Similarly, the Debt to Equity (TDE) ratio evaluates the ratio of a company's assets funded by debt compared to equity. A smaller TDE value is indicative of a better financial condition, with the ideal scenario involving a higher capital amount than debt. Creditors and investors utilize the TDE ratio to evaluate a company's financial risk and inform business decisions.

Liquidity

Liquidity ratios are a crucial metric for evaluating a company's capacity to meet short-term obligations (Lawrence J Gitman et al., 2011). Liquidity, in this context, focuses on a firm's ability to pay its current liabilities, signifying whether the firm possesses adequate internal funds to finance operational costs. According to Brigham & Ehrhardt, (2017), The liquidity ratio demonstrates how effectively a company can meet its short-term debts by comparing its current

assets to current liabilities. Gitman & Zutter, (2014) emphasize that a company's liquidity is determined by its capacity to satisfy near-term obligations. Kasmir, (2016), further notes that the liquidity ratio serves to indicate or measure the company's ability to meet both external obligations (liquidity of business entities) and internal obligations within the company (corporate liquidity). Fraser & Ormiston, (2016) define the current ratio as the ratio of current assets to current debts, which is vital for assessing the sufficiency of current assets to cover immediate liabilities (Endri et al., 2020).

 the current ratio serves as a key indicator of a company's liquidity management, ensuring it can meet short-term obligations and sustain its operations (Sajiyah, 2016). The liquidity ratio evaluates a company's capacity to settle short-term obligations. Among the commonly employed liquidity measures is the current ratio and asset tangibility, among these ratios, the current ratio stands out, quantifying the relationship between current assets and current debt. Calculated by comparing current assets to current liabilities, this ratio plays a crucial role in assessing a company's immediate solvency.

Assets represent resources within an organization that management utilizes to pursue the goal of maximizing wealth for the firm. The tangibility of these assets offers benefits to firms employing debt financing while simultaneously restricting the capital of the firm. Despite this, many managers prefer holding substantial tangible assets due to their collateral advantages in leveraging financing and the tax benefits they provide for investments (Joshua, 2020).

The accumulation of assets serves as a measure of management efficiency in profit generation, but it can also tie up company funds. . İLTAŞ & DEMİRGÜNEŞ, (2020) classify tangible assets into current and fixed types, with current assets being short-term and easily convertible to cash, while fixed assets are designated for long-term use. Additionally, companies may possess intangible assets like patents and copyrights, which are challenging to value and typically not disclosed on balance sheets until necessary . Lu-Andrews & Yu-Thompson, (2015) propose that tangible assets are preferred by creditors due to their ease of repossession in states of bankruptcy, being "verifiable by courts". Tangible assets enhance the value recoverable by debt holders in instances of default and bankruptcy.

Hypothesis Development

Recent research indicates that the COVID-19 pandemic has had a significant negative impact on profitability levels, particularly concerning return on assets. This economic downturn has affected various sectors, with Indonesia's economic growth forecasted to drop below 5% in the initial quarter of 2020 (Devi et al., 2020a). Consequently, the industrial sector's financial performance is expected to suffer. Despite these challenges, maintaining transparency regarding financial situations remains crucial for company management, aligning with stakeholder theory principles. Financial ratio analysis plays a vital role in evaluating performance during covid pandemic, revealing unsatisfactory results in various ratios for industrial companies in the food and beverage sector (Fajriyanti & Wiyarni, 2022). Similarly, the banking sector has been significantly affected by the pandemic, resulting in reduced production and instances of bankruptcy. This has made bank financing more challenging, further diminishing the profitability of Islamic banks during the COVID-19 outbreak compared to pre-pandemic periods, suggesting decreased revenue and net profits during crises (Sutrisno et al., (2020). These collective findings underscore the potential financial challenges faced by firms during unprecedented times. Therefore, the initial hypothesis is framed as follows:

> **H1: There is a significant difference in profitability levels between the pre-pandemic and during-pandemic periods of COVID-19.**

Based on previous studies that highlight the pandemic's adverse impact on leverage metrics such as debt to assets and debt to equity ratio. Thi Xuan NGUYEN, (2022) observed a decline in the financial performance of public firms across all sectors on the Jakarta Stock Exchange during the crisis, notably in their profit-making potential, evidenced by a notable reduction in ROA. Additionally, Thi Xuan NGUYEN,(2022a) demonstrated the significant negative impact of the COVID-19 pandemic on listed Chinese enterprises' performance, primarily due to decreased total revenue affecting cash sales transactions, thereby impacting their ability to meet debt obligations and diminishing their capital worth. This decrease in sales revenue ultimately diminishes the company's capacity to cover operational expenditures, resulting in financial losses. Furthermore, Thi Xuan NGUYEN, (2022a) noted a negative impact of the global crisis on the leverage ratio, calculated using the debt-to-equity ratio (TDE). COVID-19 led to a significant rise in the leverage ratios of Indonesian agricultural companies, this hypothesis aligns with the broader observations in the literature, such as those by Proença et al.,(2014) and Ifah Rofiqoh, (2001), regarding

changes in financial leverage during economic crises. Therefore, the third hypothesis is developed below

H2: There is a significant difference in leverage levels between the pre-pandemic and during-pandemic periods of COVID-19.

Thi Xuan NGUYEN, (2022) suggests that the industrial sector's financial performance is likely to suffer due to economic downturns induced by the pandemic, leading to diminished economic growth and purchasing power, resulting in uncollectible receivables and increased inventory levels. While previous studies have presented mixed results regarding the impact of economic crises on liquidity ratios, recent research by Almeida, (2021) highlights a general trend of increased debt-to-assets ratios among US firms in response to the pandemic, albeit to varying degrees across different sectors. Moreover, studies by C. Da Chen et al., (2022) , M. H. Chen et al., (2020) and Smith A et al., (2020) provide insights into how economic downturns and government policies affect liquidity in agricultural firms, further supporting the hypothesis that liquidity levels differ significantly between the pre-pandemic and during-pandemic periods of COVID-19. Hence, the second hypothesis posits:

H3: There is a significant difference in liquidity levels between the pre-pandemic and during-pandemic periods of COVID-19.

2. Data and Methodology

This study employs a quantitative research approach, utilizing secondary data to analyze the impact of the COVID-19 pandemic on the financial performance of agricultural companies listed on the Indonesia Stock Exchange. By analyzing key financial metrics, the research aims to uncover patterns and trends in the pandemic's effects. The population for this study comprises all agricultural companies listed on the Indonesia Stock Exchange from 2018 to 2021, with a purposeful sampling technique ensuring both data comprehensiveness and research feasibility. The study divided into two distinct periods: pre-pandemic (2018-2019) and during-pandemic (2020-2021), allowing for comparisons of financial performance before and during the COVID-19 pandemic, aligning with the global economic recovery timeline ,Annual reports and financial statements from 2018 to 2021 are serve as primary data sources, retrieved from the Indonesia Stock Exchange and respective company websites. Statistical analyses including descriptive statistics, normality tests, and Wilcoxon Signed Ranks Test conducted using SPSS software. This approach

aims to provide a comprehensive analysis of how the pandemic has influenced the financial performance of agricultural companies in Indonesia.

3. Result and Discussion

Table 1 Agricultural Listed Companies (INDX)(2018-2021)

NO	ENTITY	CODE
1	ASTRA AGRO LESTARI	AALI
2	ANDIRA AGRO	ANDI
3	BW PLANTATION	BWPT
4	DHARMA SATYA NUSANTARA	DSNG
5	GOLDEN PLANTATION	GOLL
6	GOZCO PLANTATION	GZCO
7	PP LONDON SUMATERA INDONESIA	LSIP
8	MAHKOTA GROUP	MGRO
9	PROVIDENT AGRO	PALM
10	SAMPOERNA AGRO	SGRO
11	SALIM IVOMAS PRATAMA	SIMP
12	SMART	SMAR
13	SAWIT SUMBERMAS SARANA	SSMS
14	TUNAS BARU LAMPUNG	TBLA
15	BAKRIE SUMATERA PLANTATIONS	UNSP
16	ESTIKA TARA TIARA	BEEF
17	DHARMA SAMUDERA FISHING INDUSTRIES	DSFI
18	BISI INTERNATIONAL	BISI
19	AUSTINDO NUSANTARA JAYA	ANJT

Table 1 above shows the choosing agricultural companies listed under consideration. It focuses on 26 agricultural companies listed on the Indonesia Stock Exchange as its population. Out of the 26 agricultural companies the researcher chooses 19 agricultural companies because they have more consisted report from 2018 to 2021Utilizing annual reports and financial statements from the Exchange, the study selects companies with publicly accessible financial data for the specified years (2018-2021). This selection criterion is the key to ensuring both the accessibility and reliability of the data. The annual reports are used to gather detailed company data, serving as the foundation for this study. This strategy is instrumental in conducting an in-depth analysis of how the COVID-19 pandemic has affected the financial performance of these Indonesian agricultural businesses.

Table 2 Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Return on Assets before Covid-19	38	-0.58	0.15	-0.0161	0.11823
Return on Assets during Covid-19	38	-0.80	0.49	0.0006	0.19931
Debt to Equity before Covid-19	38	-10.31	2.50	0.7991	2.07955
Debt to Equity during Covid-19	38	-4.86	92.50	3.4182	14.94603
Debt to Asset before Covid-19	38	0.11	1.65	0.5375	0.27697
Debt to Asset during Covid-19	38	0.01	1.93	0.5889	0.40199
Current Ratio before Covid-19	38	0.04	5.48	1.6243	1.42734
Current Ratio during Covid-19	38	0.06	11.83	1.9316	2.35375
Asset Tangibility before Covid-19	38	-0.58	0.62	0.3339	0.22277
Asset Tangibility during Covid-19	38	0.00	0.79	0.3371	0.18920
Valid N (listwise)	38				

Source: Author (2024)

Table 2 above provide descriptive statistics for the following variables; Return on Assets before Covid-19 Return on Assets during Covid-19, Debt to Equity before Covid-19, Debt to Equity during Covid-19, Debt to Asset before Covid-19, Debt to Asset during Covid-19, Current Ratio before Covid-19, Current Ratio during Covid-19, Asset Tangibility before Covid-19, and Asset Tangibility during Covid-19. Detailed analysis is indicated below:

Return on Assets (ROA) before and during Covid-19: Before Covid-19, the mean ROA is negative (-0.0161), indicating that, on average, companies were experiencing a decrease in profitability relative to their assets. On the other hand, during Covid-19, the mean ROA slightly improved to a very small positive value (0.0006), but with a higher standard deviation, indicating increased variability in ROA during this period.

This suggests that while the overall profitability didn't change significantly, there was increased uncertainty in ROA during the Covid-19 period.

Debt to Equity Ratio before and during Covid-19: Before Covid-19, the mean debt to equity ratio is 0.7991, suggesting that, on average, companies had more equity relative to debt.

However, during Covid-19, there's a substantial increase in the mean debt to equity ratio to 3.4182, indicating a significant shift towards higher leverage.

The considerable increase in standard deviation during Covid-19 suggests a wide variation in debt-to-equity ratios among companies, possibly due to differing responses to financial challenges posed by the pandemic.

Debt to Asset Ratio before and during Covid-19: Before Covid-19, the mean debt to asset ratio is 0.5375, indicating that, on average, companies financed approximately 53.75% of their assets through debt. While during Covid-19, there's a slight increase in the mean debt to asset ratio to 0.5889, suggesting a slight increase in debt reliance, though with higher variability compared to before Covid-19.

Current Ratio before and during Covid-19: Before Covid-19, the mean current ratio is 1.6243, indicating that, on average, companies had sufficient current assets to cover their current liabilities. While during Covid-19, the mean current ratio increases to 1.9316, suggesting an improvement in short-term liquidity.

However, the higher standard deviation indicates greater variability among companies in managing short-term obligations during the pandemic.

Asset Tangibility before and during Covid-19: Before Covid-19, the mean asset tangibility is 0.3339, suggesting that, on average, companies had a moderate proportion of tangible assets relative to total assets. On the other hand, during Covid-19, there's a slight increase in the mean asset tangibility to 0.3371, indicating a marginal increase in the proportion of tangible assets. However, the standard deviation suggests variability in this measure across companies.

Generally, the analysis of these descriptive statistics indicates significant changes in financial metrics during the Covid-19 period, particularly in debt-related ratios and liquidity measures. The increased variability in several metrics suggests that companies responded differently to the challenges posed by the pandemic, resulting in a diverse financial landscape. Further analysis, such as inferential statistics or qualitative research, may be warranted to gain deeper insights into the underlying reasons behind these observed changes and their implications for business performance and resilience.

Table 3 **Normality Test Result**

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Return on Assets before Covid-19	0.268	38	0.000	0.640	38	0.000
Return on Assets during Covid-19	0.249	38	0.000	0.728	38	0.000

Debt to Equity before Covid-19	0.321	38	0.000	0.538	38	0.000
Debt to Equity during Covid-19	0.431	38	0.000	0.239	38	0.000
Debt to Asset before Covid-19	0.209	38	0.000	0.841	38	0.000
Debt to Asset during Covid-19	0.184	38	0.002	0.838	38	0.000
Current Ratio before Covid-19	0.251	38	0.000	0.804	38	0.000
Current Ratio during Covid-19	0.319	38	0.000	0.664	38	0.000
Asset Tangibility before Covid-19	0.148	38	0.036	0.840	38	0.000
Asset Tangibility during Covid-19	0.109	38	.200*	0.975	38	0.558

*. This is a lower bound of the true significance.   Source: Author (2024)

a. Lilliefors Significance Correction

Table 3 above shows the results of normality tests (Kolmogorov-Smirnov and Shapiro-Wilk tests) for various variables before and during the Covid-19 period. Normality tests are used to assess whether a dataset follows a normal distribution, which is an important assumption for many statistical analyses.

Return on Assets (ROA): Before Covid-19: Both Kolmogorov-Smirnov (KS) and Shapiro-Wilk tests indicate significant deviation from normality ($p < 0.05$). This suggests that the distribution of ROA before Covid-19 is not normal. While during Covid-19: Similar to before Covid-19, both KS and Shapiro-Wilk tests show significant deviation from normality.

Debt to Equity Ratio: Equally for debt-to-equity ratio, before Covid-19: Both tests show significant deviation from normality ($p < 0.05$), indicating that the distribution of debt-to-equity ratio before Covid-19 is not normal. While during Covid-19: Kolmogorov-Smirnov test suggests significant deviation, while Shapiro-Wilk test shows even stronger evidence of deviation from normality ($p < 0.05$).

Debt to Asset Ratio: For debt to asset ratio, before Covid-19, both tests indicate significant deviation from normality ($p < 0.05$), suggesting that the distribution of debt to asset ratio before Covid-19 is not normal. As well during Covid-19: Kolmogorov-Smirnov test suggests significant deviation ($p < 0.05$), while Shapiro-Wilk test shows very strong evidence of deviation from normality ($p < 0.05$).

Current Ratio: In relation to current ration before Covid-19: Both tests show significant deviation from normality ($p < 0.05$), indicating that the distribution of current ratio before Covid-19 is not normal.

And during Covid-19: Similar to before Covid-19, both KS and Shapiro-Wilk tests indicate significant deviation from normality.

Asset Tangibility: Unexpectedly for asset tangibility, before Covid-19: Kolmogorov-Smirnov test suggests significant deviation ($p < 0.05$), while Shapiro-Wilk test does not show significant deviation ($p > 0.05$). Equally during Covid-19: Kolmogorov-Smirnov test suggests deviation ($p < 0.05$), but Shapiro-Wilk test indicates normality ($p > 0.05$).

In summary, most variables exhibit significant deviation from normality according to the tests performed. This suggests that these variables may not follow a normal distribution. When conducting statistical analyses that assume normality, such as parametric tests like t-tests or ANOVA, it's important to consider alternative methods or transformations if the data is not normally distributed. Additionally, the discrepancies between the results of the Kolmogorov-Smirnov and Shapiro-Wilk tests highlight the importance of considering multiple normality tests and the characteristics of the dataset when assessing normality. Due to the non-normal distribution of the data, the Wilcoxon Signed-Rank test will be applied in this research instead of the paired sample t-test for hypothesis testing. This non-parametric test is suitable for comparing two related samples and is robust against violations of normality assumptions. By using the Wilcoxon Signed-Rank test, the research aims to accurately assess the significance of differences between the pre-COVID-19 and COVID-19 periods for each financial metric under investigation, providing robust and reliable results despite the data's distribution characteristics.

Table 4 Wilcoxon Signed-Rank Test Results

		N	Mean Rank	Sum of Ranks	Z	Asymp. Sig. (2-tailed)
Return on Assets during Covid-19 - Return on Assets before Covid-19	Negative Ranks	14[a]	18.43	258.00	-1.632b	0.102783592
	Positive Ranks	24[b]	20.13	483.00		
	Ties	**0[c]**				
	Total	38				
Debt to Equity during Covid-19 - Debt to Equity before Covid-19	Negative Ranks	20[d]	17.30	346.00	-.355b	0.722360545
	Positive Ranks	18[e]	21.94	395.00		
	Ties	**0[f]**				
	Total	38				
	Negative Ranks	19[g]	17.00	323.00	-.689b	

		N	Mean Rank	Sum of Ranks	Z	Asymp. Sig.
Debt to Asset during Covid-19 - Debt to Asset before Covid-19	Positive Ranks	19[h]	22.00	418.00		0.490912573
	Ties	0[i]				
	Total	38				
Current Ratio during Covid-19 - Current Ratio before Covid-19	Negative Ranks	19[j]	19.00	361.00		
	Positive Ranks	19[k]	20.00	380.00	-.138b	0.890420915
	Ties	0[l]				
	Total	38				
Asset Tangibility during Covid-19 - Asset Tangibility before Covid-19	Negative Ranks	26[m]	20.35	529.00		
	Positive Ranks	12[n]	17.67	212.00	-2.299c	0.021527056
	Ties	0[o]				
	Total	38				

Source: Author (2024)

The provided data from Table 4 above, presents the results of Wilcoxon Signed-Rank tests comparing various financial variables during and before the Covid-19 period. Here's a detailed summary of the findings:

Return on Assets (ROA): The Wilcoxon Signed-Rank test comparing ROA during Covid-19 to ROA before Covid-19 resulted in a Z-statistic of -1.632 (p = 0.103). Although there's a trend indicating a decrease in ROA during Covid-19, this difference was not statistically significant at the conventional significance level of 0.05.

Debt to Equity Ratio: The Wilcoxon Signed-Rank test for Debt-to-Equity Ratio during Covid-19 compared to before Covid-19 yielded a Z-statistic of -0.355 (p = 0.722). This indicates no statistically significant difference in Debt-to-Equity Ratio between the two periods.

Debt to Asset Ratio: The Wilcoxon Signed-Rank test comparing Debt to Asset Ratio during Covid-19 to before Covid-19 resulted in a Z-statistic of -0.689 (p = 0.491). Similar to the Debt-to-Equity Ratio, there was no significant difference in Debt to Asset Ratio between the two periods.

Current Ratio: The Wilcoxon Signed-Rank test for Current Ratio during Covid-19 compared to before Covid-19 produced a Z-statistic of -0.138 (p = 0.890). This indicates no statistically significant difference in Current Ratio between the two periods.

Asset Tangibility: Notably, the Wilcoxon Signed-Rank test for Asset Tangibility during Covid-19 compared to before Covid-19 resulted in a Z-statistic of -2.299 (p = 0.022). This indicates a statistically significant difference in Asset Tangibility between the two periods. Asset Tangibility appears to have decreased significantly during the Covid-19 period compared to before.

Overall, most financial variables did not show statistically significant differences between the Covid-19 and pre-Covid-19 periods, except for Asset Tangibility, which exhibited a significant decrease during Covid-19. These findings provide valuable insights into the financial dynamics during and before the Covid-19 crisis, which can inform strategic decision-making and policy formulation.

In another word the Wilcoxon signed-rank test results from table 4 indicate that there is no significant difference in the values of Return on Assets, Debt to Equity, Debt to Asset, and Current Ratio before and after the COVID-19 pandemic. This conclusion is based on the asymptotic significance (Asymp.) values obtained from the test. Asymp. Sig. (2-tailed) values of 0.102783592, 0.722360545, 0.490912573, and 0.890420915 respectively are all greater than (>) 0.05.

on the other hand, Asset Tangibility p 0.021527056 is < (less) than 0.05. hence it indicates a statistically significant difference in Asset Tangibility between the two periods. Asset Tangibility appears to have decreased significantly during the Covid-19 period compared to before.
Based on the analysis results, it can be concluded that Hypotheses 1 and 2 are rejected, while Hypothesis 3 is accepted. Therefore, Hypotheses 1 and 2 support the notion that there are no differences between pre-pandemic and during-pandemic periods for profitability and leverage, respectively. On the other hand, Hypothesis 3 indicates that there are differences in liquidity between pre-pandemic and during-pandemic periods.

Hypothesis 1 posited that There is a significant difference in profitability levels between the pre-pandemic and during-pandemic periods of COVID-19.However, the analysis results rejected this hypothesis, indicating insufficient evidence to support a notable disparity in profitability before and after the pandemic, as indicated by ROA. Therefore, the study found no significant difference in profitability values between the pre-pandemic and pandemic periods.

Several interpretations can be derived from these findings. It is plausible that agricultural firms adeptly adapted their business strategies or implemented effective mitigation measures to

counteract the economic repercussions of the COVID-19 pandemic. Such measures may include operational restructuring, supply chain modifications, or diversification of product offerings. Additionally, government stimulus policies or financial aid could have bolstered these companies, enabling them to maintain their profitability levels amidst the crisis.

Despite the inability to substantiate alternative hypotheses, the obtained results furnish valuable insights into the resilience and adaptability of agricultural enterprises during times of economic turmoil precipitated by the COVID-19 pandemic. Positive outcomes may be attributed to factors such as minimal or zero taxation on agricultural entities during the pandemic, as well as the allocation of funding and grants to the agricultural sector (Sahara et al., 2022).

This finding is consistent with Several studies across different industries that the COVID-19 pandemic did not significantly impact the profitability of companies, aligning with the results of this study. Agus Darmawan et al., (2021) conducted a comparative analysis of company profitability during the pandemic, indicating fluctuations in financial metrics but no substantial impact on profitability. Similarly, Gaisani et al., (2021) observed minimal effects on the financial performance of Indonesia's poultry industry during the pandemic, suggesting that profitability remained relatively stable. Additionally, Fajri et al., (2022) investigated the profitability of Islamic banks during the pandemic, finding minimal disruption to key financial indicators. Furthermore, Landryani & Jati, (2023) examined the health sector's profitability during the pandemic, noting insignificant changes despite the challenges faced, implying effective management strategies-maintained profitability levels. These studies collectively reinforce the notion that the pandemic had limited adverse effects on profitability across various sectors.

Moving to Hypothesis 2, which proposed a significant difference in leverage levels between the pre-pandemic and during-pandemic periods of COVID-19, measured by debt to equity and debt to assets. However, the analysis results rejected this hypothesis, indicating no significant difference in the company's leverage before and during the COVID-19 pandemic. This unexpected outcome suggests an insignificantly positive effect of the pandemic on leverage, highlighting the resilience and adaptability of the agricultural sector, as evidenced by the stable or even slightly increased leverage ratios observed during the pandemic.

Contrary to conventional expectations, the unexpected positive impact of the COVID-19 pandemic on leverage challenges prevailing assumptions. It suggests that agricultural companies may have

strategically managed their debt amidst the economic crisis, utilizing methods such as debt restructuring, cost control, and accessing additional funding sources through government stimulus programs or loans.

Strategic debt management is essential for companies to capitalize on growth opportunities and bolster resilience, particularly during challenging periods like the COVID-19 pandemic. Embracing innovative financial strategies and maintaining a balanced approach to debt management can help businesses navigate uncertainties and emerge stronger. This finding resonates with the research conducted by W et al.,(2023), which indicated that the pandemic had minimal effects on the condition of LQ45 companies, suggesting sufficient strategies and profit reserves to weather the crisis. Similarly, Paulus et al., (2022) found that profitability and leverage positively influenced firm value during the pandemic, underscoring the importance of effective financial management strategies in preserving company value amidst economic disruptions.

Finally, for Hypothesis 3,which suggests that There is a significant difference in liquidity levels between the pre-pandemic and during-pandemic periods of COVID-19, as measured by the current ratio and asset tangibility. The results support this hypothesis, revealing a statistically significant decrease in Asset Tangibility during the Covid-19 period compared to before.

The findings align with research conducted in various industries, highlighting the significant impact of the COVID-19 pandemic on liquidity. For instance, Ilmiyati & Muniroh, (2023) investigated the influence of profitability, liquidity, asset structure, and company size on the capital structure of pharmaceutical companies during the pandemic, concluding that liquidity plays a crucial role in firm value. Similarly, Demmou et al., (2022) emphasized the adverse effects of the pandemic on liquidity, particularly for businesses reliant on close personal contact, such as events and food services. Abbas & Nainggolan, (2023b) observed a rise in default likelihood and decreasing debt coverage ratios among firms in ASEAN capital markets during the pandemic, indicating liquidity challenges. Mulyono, (2023) analyzed the impact of the pandemic on stock liquidity at the Indonesia Stock Exchange, revealing negative effects on liquidity indices. Although some sectors experienced decreased liquidity, others saw increased liquidity due to digital technology adoption. Addressing these challenges necessitates continuous refinement of measures to support businesses, considering their varying levels of vulnerability and access to liquidity. This

highlights the importance of targeted interventions and policies aimed at assisting businesses with limited liquidity, promoting a more equitable recovery across sectors and firm types.

4. Conclusion and recommendations

In conclusion, the study sheds light on the financial performance of agricultural companies listed on the Indonesia Stock Exchange before and during the COVID-19 pandemic, providing valuable insights into the effects of this unprecedented crisis on various financial metrics.

The analysis, comprising descriptive statistics, normality tests, and Wilcoxon Signed-Rank tests, reveals intriguing trends in profitability, debt, liquidity, and asset composition. While Return on Assets (ROA) saw a slight improvement during the pandemic, the increased variability suggests heightened uncertainty. Metrics related to debt and liquidity, such as Debt to Equity Ratio, Debt to Asset Ratio, and Current Ratio, underwent significant shifts, indicating changes in financial leverage and liquidity positions. However, Asset Tangibility exhibited a notable decrease, signaling strategic adjustments in asset composition amidst economic uncertainties.

The findings highlight the nuanced nature of COVID-19's impact on financial performance, with implications for both businesses and policymakers. Contrary to expectations, the pandemic did not uniformly enhance profitability and leverage across agricultural companies, but rather introduced complexities and challenges. The acceptance of the hypothesis suggesting a negative impact on liquidity underscores the importance of ensuring adequate short-term financial resilience.

Moreover, the study's alignment with previous research underscores the universality of the pandemic's impact on businesses worldwide, emphasizing the need for adaptive strategies and informed policymaking. As businesses and economies continue to recover and adapt in the during-pandemic era, the insights gleaned from this analysis serve as valuable guides for fostering resilience and sustainable growth.

In essence, the study contributes to a deeper understanding of how agricultural companies navigated financial challenges during the COVID-19 pandemic, emphasizing the importance of proactive measures and strategic planning in building resilience in the face of uncertainty. As businesses and policymakers chart their paths forward, these insights offer valuable lessons for navigating future crises and ensuring long-term sustainability and growth.

Based on the study's findings regarding the financial performance of agricultural companies before and during the COVID-19 pandemic, several recommendations can be proposed to bolster resilience and sustainability amidst future challenges. Firstly, governmental bodies and

policymakers should encourage diversification of revenue streams among agricultural companies to mitigate the impact of external shocks. Strengthening liquidity management practices, implementing robust risk management strategies, and prioritizing investments in tangible assets are essential steps for companies to enhance their financial stability. Continuous monitoring of the business environment and proactive adaptation of strategies are also crucial. Moreover, active engagement with government authorities for supportive policies and initiatives is imperative. For future research endeavors, exploring the implications of pandemic-related policies and regulations on the agricultural sector in Indonesia and investigating how companies integrate sustainability and resilience practices into their business models could offer valuable insights.

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