# Do Sustainable Energy Companies Have Better Financial Performance? Evidence from the Indonesian Energy Sector

Review of Integrative Business & Economics Research

Mutia Nurlaila Mastho'ah
Universitas Pasundan, Faculty of Economics and Business, Bandung, Indonesia

Mujibah A. Sufyani
Universitas Pasundan, Faculty of Economics and Business, Bandung, Indonesia

Ardi Gunardi*
Universitas Pasundan, Faculty of Economics and Business, Bandung, Indonesia

Erik Syawal Alghifari
Universitas Pasundan, Faculty of Economics and Business, Bandung, Indonesia

Juanim Juanim
Universitas Pasundan, Faculty of Economics and Business, Bandung, Indonesia

**ABSTRACT**

Sustainable energy is considered a crucial input for any organization due to its significant impact on corporate liquidity and performance. Therefore, it is pivotal to assess the impact of sustainable energy on firm liquidity and performance. Since disruptions in sustainable energy adversely affect the performance of manufacturing firms by directly reducing production and strengthening operational leverage, it is important to investigate the impact of sustainable energy on firm liquidity and performance. Therefore, the objective of this study is to investigate the impact of sustainable energy supply on firm liquidity and performance by considering robust test results. Using financial data from 79 energy sector firms spanning from 2017 to 2022, the current investigation utilizes panel data methodology to measure the impact of sustainable energy disruption on firm liquidity and performance. The results show that the supply of sustainable energy sources has a significant impact on liquidity. It is recommended that in the long run, companies consider adopting alternative energy sources to mitigate potential performance losses.

Keywords: energy sector, financial performance, Indonesia, liquidity, sustainable energy.

Received 14 March 2024 | Revised 10 July 2024 | Accepted 20 August 2024.

## 1. INTRODUCTION

Effective financial performance does not only facilitate the creation of value and profits but also requires businesses to respond effectively to market changes (Yulianti et al., 2024). Inefficiencies can lead to bankruptcy and business dissolution. Almost all authors agree on the importance of financial performance management in ensuring company's ability to access liquidity (Knoll & Senge, 2019). The short-term interest and impact of financial decisions on company performance have widely been a subject of debate in corporate


ISSN: 2304-1013 (Online); 2304-1269 (CDROM); 2414-6722 (Print)

finance literature (Anton & Nucu, 2020; Najib et al., 2021). Companies should conduct financial statement analysis as financial reports evaluate company operations and compare the previous year's conditions with the current year to determine whether the company is growing, enabling the company to make future decisions based on performance (Barauskaite & Streimikiene, 2021). Managing financial performance is crucial for businesses as it can help achieve a balance between assets and current liabilities to meet working capital imbalances but also potentially face unexpected liquidity shocks to cover operational costs (Asif et al., 2022).

Sustainable energy is an energy source that can generate electricity, which can be processed and used, and has non-depletable and non-carbon-emitting properties that can endanger the environment and the health of the community around energy-positive or operational energy fields (Amran et al., 2020). Energy resilience is a key element for a country's sustainable livelihood (Gatto & Drago, 2020). Energy is not only an essential production factor for economic activities and growth but also a strategic raw material that can threaten economic activities in times of crisis, especially when prices are uncontrolled due to limited supply (Gitelman et al., 2023). The energy crisis in the UK is a 'perfect storm': extremely hot summer conditions (likely to be followed by very cold winters in Europe until the end of this year) and limited supply from Russia (as one of the contributing factors) (Hussain et al., 2023). The economic recovery of the Bamboo Curtain countries is currently leading to increased energy demand, causing coal prices to reach an all-time high in early October 2021, dropping from previously marketable prices of US$230 per ton. As Asia shifts its energy to Europe, prices in Asia, represented by LNG spot prices, have increased rapidly, exceeding USD 25 per MMBtu (Vivoda, 2022).

The profit (return) affects a company's ability to obtain loans and equity financing, its liquidity position, and its ability to adapt to change (Isayas, 2022). Ratios commonly used as a measure of a company's financial performance are Return on Assets (ROA) and Return on Equity (ROE). The higher the value of a company's ROA, the more effectively the company utilizes its assets and generates profits (Alarussi & Gao, 2023). The average Return on Assets (ROA) condition in the Energy Sector companies for the period 2017-2022 has continuously decreased with successive figures of 17.96%, 17.25%, 7.87%, 6.76%, 6.03%, and then in 2022, it drastically decreased to 2.48% (www.idx.co.id processed by the author). High ROE reflects a company's success in generating profits from its equity capital. The average Return on Equity (ROE) condition in the Energy Sector companies for the period 2017-2022 has been fluctuating. In 2017, it was at 8.22%; the following year, in 2018, it increased to 8.37%; in 2019, it further increased to 9.97%. Meanwhile, in 2020, the average Return on Equity (ROE) decreased again to 6.66%, and in the following year, in 2021, it decreased again to 2.88%, a drastic decrease from the previous year. Furthermore, in 2022, it increased again to 9.18% (www.idx.co.id processed by the author).

In addition to ROA, the research also uses Return on Equity, Liquidity, and Sustainable Power Supply. One of the benefits of knowing liquidity ratios is that companies can anticipate necessary funding anticipation in emergency situations. The average Liquidity Ratio condition in the Energy Sector companies for the period 2017-2022 has been fluctuating. In 2017, it was at 1.35%; the following year, in 2018, it increased to 1.49%; in 2019, it decreased again to 1.48%. Meanwhile, in 2020, the average Liquidity Ratio increased again to 1.64%, and in the following year, precisely in 2021, it increased to 1.74%. Furthermore, in 2022, it decreased again to 1.50% (www.idx.co.id processed by the author). Meanwhile, the average Sustainable Power Supply condition in the Energy Sector companies for the period 2017-2022 has been fluctuating. In 2017, it was


ISSN: 2304-1013 (Online); 2304-1269 (CDROM); 2414-6722 (Print)

at -2.46; in the following year, in 2018, it decreased to -2.48; in 2019, it increased to -1.93. Meanwhile, in 2020, the average Sustainable Power Supply increased again, this year being the highest average at 0.74, and in the following year, precisely in 2021, it decreased again to 0.85. And in 2022, it experienced a very drastic decrease to -4.27 (www.idx.co.id processed by the author).

There have been several previous studies that directly examine the factors that impact financial performance management on business performance (Saragih et al., 2020; Mio et al., 2022). In the summer, when uninterrupted power supply often fails, companies must manage alternative energy supply in the form of investments in heavy-duty generators, etc., increasing total production costs (Barman et al., 2023). Continuous changes in fuel prices can disrupt operational budgets when expensive fuel is needed to operate generators to maintain stable production (Azarpour et al., 2022). As a precaution, where a company cannot provide sustainable energy, production must be stopped or halted, directly affecting revenue, and leading to bankruptcy (Olujobi et al., 2022). The ongoing discussion clarifies that serious issues of continuous energy supply disruptions, in any form of power outages, can affect business operations' liquidity and performance by adding total costs and breaking sales targets. Therefore, it is necessary to determine the impact of sustainable energy/electricity supply on cash requirements and the working capital field, ultimately affecting performance in ways to cannot be ignored.

Indonesia is a country that not only offers potential job opportunities but is also rich in energy resources, especially renewable energy sources (Langer et al., 2021). Therefore, in addition to the many business opportunities it brings, its energy sector also attracts foreign investors. Typically, the economic prosperity of a society (measured, for example, by gross domestic product) is related to the amount of energy consumed by society. The energy sector is one of the most active sectors on the Indonesia Stock Exchange in terms of trading, volume, and value. Furthermore, sustainable energy is considered the pivotal input for any organization due to its significant impact on liquidity and business performance. Therefore, it is crucial to demonstrate the impact of sustainable energy on liquidity and company performance.

The purpose of this research is to measure the impact of electricity crises as a determinant of liquidity and financial performance. Electricity is widely considered a fundamental driver of performance across various sectors of the economy (Xu et al., 2022). However, ensuring a sustainable electricity supply is an important input for the success of most businesses, especially in manufacturing. In many developing countries, sustainable electricity supply remains a major challenge, impeding the operational activities of companies across sectors. The absence of electricity supply affects almost all sectors of business. Many prior studies conducted have established logical reasoning about the loss of performance due to unreliable electricity supply, resulting in billions of losses for companies.

Unsustainable electricity supply can hinder business performance in many ways. First, this may require companies to make substantial and expensive investments to generate sustainable power sources, thereby escalating operational costs and ultimately high operational leverage (Asif et al., 2021; Xu et al., 2022). Second, due to the inability to invest in such costly investments, small businesses may have to halt production due to power outages, which can further increase labor and raw material costs within the production process. Third, many business units may outsource certain manufacturing activities, thereby inflating production costs further.

The current research also seeks to determine the moderating role of company size in the working capital-performance relationship. The current work contributes to


ISSN: 2304-1013 (Online); 2304-1269 (CDROM); 2414-6722 (Print)

literature in many ways. First, it directly addresses the failure of sustainable energy supply as a determinant of working capital by expanding on previous evidence. Second, it provides direct evidence of the role of energy crises on company performance by examining the moderation role of company size. Although the relationship between energy crises and company efficiency is still unclear, there must be an approach to resolution by considering the company size, as suggested by the current practitioner survey, to enable managers to manage working capital needs and textile company performance considering real-time factors. Currently, research specifically aims at prioritizing the suffering due to power crises in listed energy companies. To the best of the author's knowledge, no research has explored the transition between pre and post-energy crisis, making it difficult for companies to incorporate data from selected energy company dashboards for the period 2017-2022 (Asif et al., 2022).

## 2. METHODS

This study employed a descriptive verification method to elucidate how sustainable energy affects liquidity in energy sector companies listed on the Indonesia Stock Exchange during the period 2017-2022. With this approach, the researcher will collect data on sustainable energy, liquidity, and financial performance from selected companies for descriptive analysis and to answer the relationships among the variables under consideration. This study involved four variables, including sustainable energy as an independent variable, financial performance and liquidity as dependent variables, and leverage, sales growth, size, and tangibility as control variables.

The sustainable energy variable as an independent variable is measured by dividing the change in expense by gross sales, referring to Asif et al. (2022). The financial performance variable as a dependent variable is proxied by ROA referring to Novitasari et al., (2023) with net income divided by total assets. The liquidity variable as a second dependent variable is proxied by the current ratio referring to Hatane et al., (2023) by dividing current assets by current liabilities. The next variables serve as control variables. The leverage variable is proxied using the Debt to Asset Ratio (DAR) based on Nukala & Rao, 2021) by dividing total debt by total assets. Sales growth is measured based on Martin et al. (2018) by calculating the difference between last year's sales and current year's sales, which is then divided by last year's sales. Size is proxied by the logarithm of total assets (Makri & Kabra, 2023). The tangibility variable is measured based on Asif et al. (2022) by dividing fixed assets by total assets.

The sampling technique employed is based on a non-probability sampling method using a purposive sampling approach. According to purposive sampling approach, companies that have been and are still listed on the Indonesia Stock Exchange during the period 2017-2022 and have issued annual reports and financial statements on the Indonesia Stock Exchange from 2017 to 2022 are selected, resulting in 40 companies as samples. In conducting the analysis, panel data regression analysis is performed using EViews and robust least square test.

## 3. RESULTS AND DISCUSSION

This research utilizes secondary data obtained from the financial reports of companies' 4th quarter, sourced from the official website of the Indonesia Stock Exchange (BEI) www.idx.co.id and the official websites of each respective company. Descriptive statistical analysis is employed in this study to provide a descriptive overview of the variables used.


ISSN: 2304-1013 (Online); 2304-1269 (CDROM); 2414-6722 (Print)

The sample consists of energy companies listed on the Indonesia Stock Exchange for the period 2017-2022.

Table 1. Descriptive Research Results

| | QR | ROA | SE | DAR | SG | SIZE | TAN |
|---|---|---|---|---|---|---|---|
| Mean | 2.693419 | 3.955640 | -5.607746 | 0.509207 | -0.679178 | 20.32487 | 0.370734 |
| Median | 1.285000 | 3.272036 | -0.340975 | 0.509487 | -0.120294 | 19.60765 | 0.317426 |
| Maximum | 144.2500 | 59.25829 | 145.0579 | 1.730327 | 0.822431 | 28.27728 | 0.928404 |
| Minimum | 0.080000 | -57.90084 | -785.8743 | 0.001578 | -63.02037 | 12.98733 | 1.79E-06 |
| Std. Dev. | 11.00675 | 14.01955 | 60.85665 | 0.258601 | 4.369895 | 3.673626 | 0.267288 |
| Observations | 234 | 234 | 234 | 234 | 234 | 234 | 234 |

The data processing results in Table 1 provide a general overview of descriptive statistics for the dependent, independent, and control variables, with a total of 234 observed data points. The data indicates that the sustainable energy variable exhibits a large dispersion, as indicated by the standard deviation exceeding the mean, suggesting poor data distribution. Similarly, liquidity also exhibits a large dispersion due to the standard deviation being greater than the mean, indicating poor data distribution. Similarly, financial performance shows a large dispersion, with the standard deviation being greater than the mean, suggesting poor data distribution. Liquidity represents a company's ability to settle short-term debts with the company's total assets.

A higher liquidity ratio signifies the ability to repay more debts (Alarussi, 2021). Additionally, a higher liquidity value implies a higher risk borne by investors (Calcagnini et al., 2022).

Table 2. Liquidity Model Panel Data Analysis Test Results

| Variable | Common Effect Model (CEM) | Fixed Effect Model (FEM) | Random Effect Model (REM) |
|---|---|---|---|
| Constant | 4.497916*** | -1.988577 | 5.926167 |
| | (0.303075) | (4.227525) | (4.589162) |
| SE | 0.002724*** | 0.002547 | 0.000590 |
| | (0.000764) | (0.001232) | (0.003210) |
| DAR | -1.489043*** | -0.698365 | 2.403757 |
| | (0.328326) | (0.665159) | (5.353663) |
| SG | 0.013505 | -0.012163 | 0.085913 |
| | (0.006458) | (0.015547) | (0.072113) |
| SIZE | -0.088900*** | 0.298914 | -0.172060 |
| | (0.014113) | (0.202952) | (0.256095) |
| TAN | -0.038552** | -2.047043 | -1.686267 |
| | (0.362440) | (0.868144) | (3.121281) |
| $R^2$ | 0.282159 | 0.724795 | 0.003187 |
| Adjusted $R^2$ | 0.266417 | 0.662512 | -0.018673 |


ISSN: 2304-1013 (Online); 2304-1269 (CDROM); 2414-6722 (Print)

| Variable | Common Effect Model (CEM) | Fixed Effect Model (FEM) | Random Effect Model (REM) |
|---|---|---|---|
| Test Chow | - | 6.695654 | - |
| Hausman test | - | 0.000000 | - |
| Autocorrelation Test | | | Not occur |
| Heteroscedasticity Test | | | Not occur |
| Multicollinearity Test | | | Not occur |

Based on the F-test shows a Probability Value (F) of 0.0000 < 0.05, indicating that this model test is suitable for use in the study. The multiple coefficients of determination or R-Square value is 0.724795, indicating that the influence of SE and control variables on CR is 72.4795%, with the remaining (100-72.4795) % being influenced by other unexamined variables.

The next variable is the Return on Total Assets (ROA). The higher a company's ROA, the greater the profit it generates, and the more efficient its asset utilization (Alarussi & Gao, 2023).

Table 3. Panel Data Regression Analysis Test Results for Profitability Model

| Variable | Common Effect Model (CEM) | Fixed Effect Model (FEM) | Random Effect Model (REM) |
|---|---|---|---|
| Constant | 27.67673 | 19.95454 | 35.75443 |
| | (2.246131) | (7.807169) | (7.108884) |
| SE | 0.017879** | 0.013050** | 0.014312** |
| | (0.004433) | (0.003644) | (0.003167) |
| DAR | -12.99347* | -8.193984* | -15.74753* |
| | (1.992211) | (2.686635) | (5.335914) |
| SG | -0.048851 | -0.085362 | -0.166353 |
| | (0.044392) | (0.055409) | (0.148727) |
| SIZE | -0.582300 | -0.264726 | -0.808656 |
| | (0.082921) | (0.357382) | (0.320585) |
| TAN | -14.66122 | -17.34596 | -19.89816 |
| | (1.391948) | (3.827771) | (4.455194) |
| $R^2$ | 0.351303 | 0.722581 | 0.174647 |
| Adjusted $R^2$ | 0.337077 | 0.659797 | 0.156547 |
| Chow Test | - | 10.871378 | - |
| Hausman Test | - | 0.000000 | - |
| Autocorrelation Test | | | Not occur |


ISSN: 2304-1013 (Online); 2304-1269 (CDROM); 2414-6722 (Print)

| Variable | Common Effect Model (CEM) | Fixed Effect Model (FEM) | Random Effect Model (REM) |
|---|---|---|---|
| Heteroscedasticity Test | | | Not occur |
| Multicollinearity Test | | | Not occur |

The multiple coefficients of determination or R-Square value is 0.722581, indicating that the influence of SE and control variables on ROA is 72.2581%, with the remaining (100-72.2581) % influenced by other unexamined variables. Additionally, the researcher conducted a robust test on the model, which yielded results related to the liquidity model using the quick ratio proxy.

Table 4. Robust Liquidity Model Test Results

| Variable | Common Effect Model (CEM) | Fixed Effect Model (FEM) | Random Effect Model (REM) |
|---|---|---|---|
| Constant | 3.991362 | -4.265430 | 5.154996 |
| | (0.274171) | (4.356910) | (3.754603) |
| SE | 0.002314 | 0.002323 | 0.000627 |
| | (0.000810) | (0.001249) | (0.002914) |
| DAR | -0.923335 | -0.408302 | 2.231478 |
| | (0.308946) | (0.608381) | (5.169596) |
| SG | 0.017837 | -0.017346 | 0.069837 |
| | (0.005597) | (0.015804) | (0.057952) |
| SIZE | -0.082345 | 0.380768 | -0.162102 |
| | (0.012272) | (0.209285) | (0.234748) |
| TAN | -0.252941 | -1.540361 | -0.680288 |
| | (0.307019) | (0.757092) | (2.546901) |
| $R^2$ | 0.240602 | 0.687030 | 0.003010 |
| Adjusted $R^2$ | 0.223949 | 0.616200 | -0.018854 |
| Chow Test | - | 5.773301 | - |
| Hausman Test | - | 0.000000 | - |
| Autocorrelation Test | | Not occur | |
| Heteroscedasticity Test | | Not occur | |
| Multicollinearity Test | | Not occur | |


ISSN: 2304-1013 (Online); 2304-1269 (CDROM); 2414-6722 (Print)

The multiple coefficients of determination or R-Square value is 0.687030, indicating that the combined influence of SE and control variables on QR is 68.7030%, with the remaining (100-68.7030) % being influenced by other unexamined variables.

Further testing was conducted on the profitability model (ROE) with the following test results.

Table 5. Profitability Model Robust Test Results

| Variable | Common Effect Model (CEM) | Fixed Effect Model (FEM) | Random Effect Model (REM) |
|---|---|---|---|
| Constant | 0.439945 | 0.275082 | 0.547929 |
| | (0.051186) | (0.290399) | (0.244240) |
| SE | -0.000245 | -0.000325 | -0.000270 |
| | (0.000159) | (0.000156) | (0.000487) |
| DAR | -0.045060 | -0.044984 | -0.109333 |
| | (0.041891) | (0.071237) | (0.146216) |
| SG | -0.010865 | -0.003820 | 0.002169 |
| | (0.005592) | (0.002902) | (0.006951) |
| SIZE | -0.010578 | -0.003685 | -0.013192 |
| | (0.002012) | (0.013980) | (0.011112) |
| TAN | -0.347278 | -0.314086 | -0.428634 |
| | (0.030366) | (0.081684) | (0.148932) |
| $R^2$ | 0.391733 | 0.644798 | 0.045043 |
| Adjusted $R^2$ | 0.378393 | 0.564410 | 0.024101 |
| Chow Test | - | 8.168593 | - |
| Hausman Test | - | 0.000000 | - |
| Autocorrelation Test | | Not occur | |
| Heteroscedasticity Test | | Not occur | |
| Multicollinearity Test | | Not occur | |

The multiple coefficient of determination or R-Square value is 0.644798, indicating that the combined influence of SE and control variables on CR is 64.4798%, with the remaining (100-64.4798)% being influenced by other unexamined variables. The testing was continued with Robust Test 2 (Robust Least Square), and the results are presented in the following table.


ISSN: 2304-1013 (Online); 2304-1269 (CDROM); 2414-6722 (Print)

Table 6. Robust Least Square Results

| Variable | Liquidity Model (CR) | Profitability Model (ROA) |
|---|---|---|
| Constant | 3.299866 | 24.81868 |
| | (0.298857) | (3.405133) |
| SE | 0.001788 | 0.011580 |
| | (0.000875) | (0.005680) |
| DAR | -1.468812 | -8.929509 |
| | (0.267440) | (2.334881) |
| SG | 0.015351 | -0.103075 |
| | (0.008423) | (0.111572) |
| SIZE | -0.038566 | -0.571340 |
| | (0.012855) | (0.147521) |
| TAN | -0.836323 | -13.06873 |
| | (0.215234) | (1.909410) |
| $R^2$ | 0.154077 | 0.152507 |
| Adjusted $R^2$ | 0.343143 | 0.327479 |

The hypothesis test results indicate that all variables have an impact because the probability value is < 0.1, except for SG > 0.1. Based on the robust test results using different indicators and the analysis of robust least square data, inconsistencies were observed only in the ROE model, where SE has a negative impact, and that model is declared robust.

The average liquidity value in the Energy Sector companies from 2017 to 2022 experienced fluctuations, with a notable increase observed only in 2021. Therefore, maintaining a balance between liquidity and performance is crucial to avoid adverse outcomes. A company can be considered liquid if it can repay its debts when they are due. High liquidity levels can mitigate the risk of a company failing to meet its obligations to creditors, thereby improving performance in the eyes of investors and influencing them to invest. The higher the liquidity of a company, the more capable it is of repaying its debts, making investors interested in buying its shares and leading to an increase in stock prices.

Examining the average financial performance, approximated by ROA, in the energy sector companies from 2017 to 2022, reveals a consistent yearly decline, with a downward trend in 2022. This indicates that the financial performance of the companies is not very good because the return on assets consistently decreased. This situation signals poor performance for the companies as they struggle to generate profits. However, out of 39 companies, 14 showed an increase in return on assets in 2022, signifying improved profitability for some energy companies. This signals that energy companies are improving their performance in generating profits, which can boost their confidence in attracting investors.


ISSN: 2304-1013 (Online); 2304-1269 (CDROM); 2414-6722 (Print)

The results of hypothesis testing results from the panel data regression analysis indicate that among all variables, only SE and TAN have a significant impact because the probability value is < 0.05, with SE having a probability value of 0.0411 and TAN of 0.0001. The robust and robust least square hypothesis testing results showed that the SE (sustainable energy) variable has an impact because the probability value is < 0.1. The positive impact of sustainable energy on liquidity is highly significant, possibly due to larger companies having higher liquidity and better operational cost management. Moreover, high leverage and tangibility indicate that when companies invest more in long-term liabilities and fixed assets, there is less available for working capital, thereby affecting the company's liquidity. This study corroborates previous research by Asif et al. (2022) stating that sustainable energy significantly affects liquidity.

The influence of sustainable energy on financial performance can be seen from the $R^2$ result of the panel data analysis, which is 0.722581, indicating that the influence of SE and control variables on ROA is 72.2581%. This suggests that using sustainable energy will lead to efficient financial performance and increased investment in the energy sector. Utilizing sustainable energy has the potential to mitigate expenses and enhance revenue generation. This study aligns with research by Asif et al. (2022) and Zhao et al. (2018), showing that total renewable energy has a positive impact on financial performance. This implies that the higher the amount of renewable energy consumed in the company's production process, the better its financial performance to achieve sustainable development (Kuo et al., 2022).

The findings of this study are in line with existing literature that highlights the financial benefits of adopting sustainable energy practices (Zhao et al., 2018). The insights from Indonesia's energy sector can be extended to other countries facing similar energy challenges. For example, regions undergoing energy transitions, such as parts of Europe or Asia, could apply similar strategies to mitigate the risks associated with energy costs and enhance financial performance. Moreover, the positive relationship between sustainable energy use and financial outcomes observed here aligns with the broader trends in energy management research (Kuo et al., 2022).

## 4. CONCLUSION

Based on the analysis of sustainable energy, liquidity, and financial performance of energy sector companies on the Indonesia Stock Exchange from 2017 to 2022, it can be concluded that there were fluctuations in the values of sustainable energy and liquidity of companies during that period. While fluctuations occurred with both increases and decreases, a declining trend in the values of sustainable power supply among companies emerged in 2022. This trend can be attributed to the challenges faced by small and medium-sized companies in managing expensive alternative energy sources due to limited capital investment. Conversely, the liquidity of companies tends to increase in 2021, indicating the importance of maintaining a balance between liquidity and performance to avoid adverse effects. However, the financial performance of companies, measured by return on assets (ROA), exhibited a consistent annual decline, with a further downturn observed in 2022, indicating persistently unsatisfactory levels of financial performance. The use of sustainable energy has a positive and significant impact on the liquidity and financial performance of companies. This suggests that the use of renewable energy can improve financial performance efficiency and investments in the energy sector, especially for large companies with higher liquidity and the ability to manage operational costs.


ISSN: 2304-1013 (Online); 2304-1269 (CDROM); 2414-6722 (Print)

Several recommendations can be considered to address the issues found. First, energy sector companies need to reconsider and carefully consider the concept of sustainable energy. It is important for companies to have a comprehensive understanding of sustainable energy and clearly distinguish between sustainable and unsustainable practices. Additionally, companies need to set clear goals related to sustainable energy as a basis for measuring business performance. Second, in the long run, companies should choose alternative energy sources that can reduce costs, improve performance, and provide environmental protection. Finally, energy sector companies should maintain a balance between liquidity and performance. High liquidity levels can help companies meet obligations to creditors and improve performance, thus attracting investors to invest their capital. By implementing these recommendations, it is hoped that energy sector companies can improve their efficiency, performance, and business sustainability.

## ACKNOWLEDGEMENT

The authors thank the anonymous referees for their helpful comments and suggestions.

## REFERENCES

[1] Alarussi, A. S. A. (2021). Financial ratios and efficiency in Malaysian listed companies. Asian Journal of Economics and Banking, 5(2), 116-135.
[2] Alarussi, A. S., & Gao, X. (2023). Determinants of profitability in Chinese companies. International Journal of Emerging Markets, 18(10), 4232-4251.
[3] Amran, Y. A., Amran, Y. M., Alyousef, R., & Alabduljabbar, H. (2020). Renewable and sustainable energy production in Saudi Arabia according to Saudi Vision 2030; Current status and future prospects. Journal of Cleaner Production, 247, 119602.
[4] Anton, S. G., & Nucu, A. E. A. (2020). The impact of working capital management on firm profitability: Empirical evidence from the Polish listed firms. Journal of risk and financial management, 14(1), 9.
[5] Asif, R., Fiaz, M., & Zulfiqar, Z. (2022). The Impact of Sustainable Energy on Liquidity and Financial Performance of the Textile Industry. SAGE Open, 12(4), 21582440221141704.
[6] Azarpour, A., Mohammadzadeh, O., Rezaei, N., & Zendehboudi, S. (2022). Current status and future prospects of renewable and sustainable energy in North America: Progress and challenges. Energy Conversion and Management, 269, 115945.
[7] Barauskaite, G., & Streimikiene, D. (2021). Corporate social responsibility and financial performance of companies: The puzzle of concepts, definitions and assessment methods. Corporate Social Responsibility and Environmental Management, 28(1), 278-287.
[8] Barman, P., Dutta, L., Bordoloi, S., Kalita, A., Buragohain, P., Bharali, S., & Azzopardi, B. (2023). Renewable energy integration with electric vehicle technology: A review of the existing smart charging approaches. Renewable and Sustainable Energy Reviews, 183, 113518.
[9] Calcagnini, G., Gardini, L., Giombini, G., & Carrera, E. S. (2022). Does too much liquidity generate instability?. Journal of Economic Interaction and Coordination, 17(1), 191-208.


ISSN: 2304-1013 (Online); 2304-1269 (CDROM); 2414-6722 (Print)

[10] Gatto, A., & Drago, C. (2020). Measuring and modeling energy resilience. Ecological Economics, 172, 106527.
[11] Gitelman, L., Magaril, E., & Kozhevnikov, M. (2023). Energy security: new threats and solutions. Energies, 16(6), 2869.
[12] Hatane, S. E., Chandra, J. E., Purnamawati, I. G. A., & Semuel, H. (2023). Determinant Factors of Corporate Social Responsibility Disclosures in Hospitality and Tourism Companies in Indonesia and Thailand. Indonesian Journal of Sustainability Accounting and Management, 7(1), 179-190.
[13] Hussain, S. A., Razi, F., Hewage, K., & Sadiq, R. (2023). The perspective of energy poverty and 1st energy crisis of green transition. Energy, 275, 127487.
[14] Isayas, Y. N. (2022). Determinants of banks' profitability: Empirical evidence from banks in Ethiopia. Cogent economics & finance, 10(1), 2031433.
[15] Knoll, L., & Senge, K. (2019). Public debt management between discipline and creativity. Accounting for energy performance contracts in Germany. Historical Social Research/Historische Sozialforschung, 44(2 (168), 155-174.
[16] Kuo, Y. C., Wu, Y. M., & Liu, Y. X. (2022). Identifying Key Factors for Sustainable Manufacturing and Development. Review of Integrative Business and Economics Research, 11(1), 30-50.
[17] Langer, J., Quist, J., & Blok, K. (2021). Review of renewable energy potentials in Indonesia and their contribution to a 100% renewable electricity system. Energies, 14(21), 7033.
[18] Makri, M., & Kabra, K. C. (2023). Integrated Reporting and Firm Value in an Emerging Economy: The Moderating Role of Firm Size. Indonesian Journal of Sustainability Accounting and Management, 7(1), 235–247
[19] Martin, R., Yadiati, W., & Pratama, A. (2018). CSR disclosure and Company Financial Performance: Do High and Low–Profile Industry Moderate the Result? Indonesian Journal of Sustainability Accounting and Management, 2(1), 15–24.
[20] Mio, C., Costantini, A., & Panfilo, S. (2022). Performance measurement tools for sustainable business: A systematic literature review on the sustainability balanced scorecard use. Corporate social responsibility and environmental management, 29(2), 367-384.
[21] Najib, M., Abdul Rahman, A. A., & Fahma, F. (2021). Business survival of small and medium-sized restaurants through a crisis: The role of government support and innovation. Sustainability, 13(19), 10535.
[22] Novitasari, M., Wijaya, A. L., Agustin, N. M., Gunardi, A., & Dana, L. P. (2023). Corporate social responsibility and firm performance: Green supply chain management as a mediating variable. Corporate Social Responsibility and Environmental Management, 30(1), 267-276.
[23] Nukala, V. B., & Rao, S. S. P. (2021). Role of debt-to-equity ratio in project investment valuation, assessing risk and return in capital markets. Future Business Journal, 7(1), 13.
[24] Olujobi, O. J., Yebisi, T. E., Patrick, O. P., & Ariremako, A. I. (2022). The legal framework for combating gas flaring in Nigeria's oil and gas industry: can it promote sustainable energy security?. Sustainability, 14(13), 7626.
[25] Saragih, J., Tarigan, A., Pratama, I., Wardati, J., & Silalahi, E. F. (2020). The impact of total quality management, supply chain management practices and operations capability on firm performance. Polish Journal of Management Studies, 21(2), 384-397.


ISSN: 2304-1013 (Online); 2304-1269 (CDROM); 2414-6722 (Print)

[26] Susan, M., Winarto, J., & Gunawan, I. (2022). The determinants of corporate profitability in Indonesia manufacturing industry. Review of Integrative Business and Economics Research, 11, 184-190.
[27] Vivoda, V. (2022). LNG export diversification and demand security: A comparative study of major exporters. Energy Policy, 170, 113218.
[28] Xu, G., Dong, H., Xu, Z., & Bhattarai, N. (2022). China can reach carbon neutrality before 2050 by improving economic development quality. Energy, 243, 123087.
[29] Yulianti, A. S., Suteja, J., Alghifari, E. S., Gunardi, A., & Sarman, R. (2024). The Effect of Financing Decision on Firm Value: An Analysis of Mediation and Moderation. Review of Integrative Business and Economics Research, 13(3), 441-450.
[30] Zhao, C., Guo, Y., Yuan, J., Wu, M., Li, D., Zhou, Y., & Kang, J. (2018). ESG and Corporate Financial Performance: Empirical Evidence from China's Listed Power Generation Companies. Sustainability, 10, 2607.


ISSN: 2304-1013 (Online); 2304-1269 (CDROM); 2414-6722 (Print)