

DETERMINANTS OF PROFITABILITY IN ENERGY SECTOR COMPANIES LISTED ON IDX

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ABSTRAK

Penelitian ini bertujuan untuk menganalisis pengaruh *liquidity*, *firm size*, *working capital*, *efficiency*, *leverage* dan *sales growth* terhadap *profitability* dikarenakan ada fluktuasi performa perusahaan pada indeks energi yang terdaftar di IDX. Sampel yang digunakan dalam penelitian ini sebanyak 240 laporan keuangan perusahaan yang terdaftar pada indeks energi. Pada penelitian ini menggunakan beberapa indikator untuk diukur seperti variabel independen yang digunakan yaitu *current asset*, *total sales*, *net working capital*, *working capital turnover*, *debt to equity ratio* dan *sales growth*. Sedangkan variabel dependen yang digunakan yaitu *return on asset*. Dalam pengumpulan data diperoleh dari website resmi IDX serta teknik sampling yang digunakan yaitu purposive sampling. Dalam mengolah data sampel, penelitian ini menggunakan program *evIEWS 12* dan metode yang digunakan yaitu metode regresi linear berganda. Selain itu untuk mendapatkan uji statistik, penelitian ini menggunakan program *SPSS 25*. Berdasarkan hasil dapat disimpulkan bahwa *liquidity*, *leverage* dan *sales growth* tidak memiliki pengaruh signifikan terhadap *profitability*, sedangkan *firm size* dan *efficiency* berpengaruh positif signifikan terhadap *profitability*. Berbeda dengan *working capital* yang berpengaruh negatif signifikan terhadap *profitability*.

Kata Kunci: *Indeks Energi, IDX, Liquidity, Profitability*

ABSTRACT

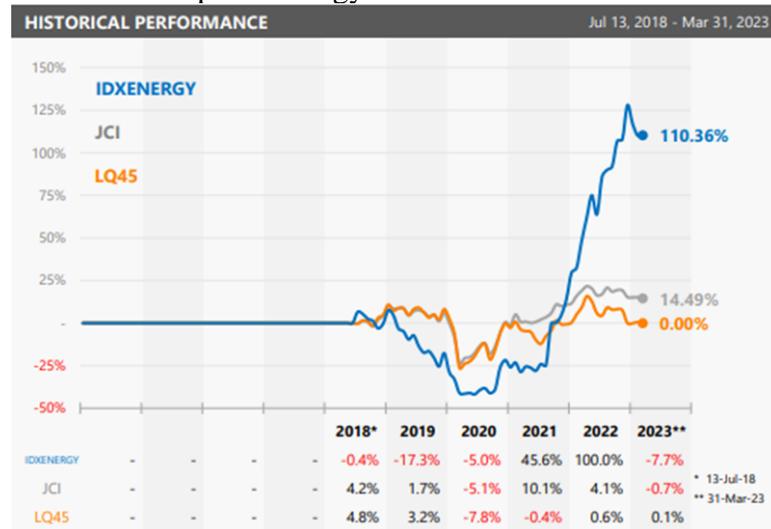
This study aims to determine the effect of liquidity, firm size, working capital, efficiency, leverage and sales growth on profitability due to fluctuations in company performance on the energy index listed on the IDX. The sample used in this study was 240 financial statements of companies listed on the energy index. This study uses several indicators to measure such as the independent variables used, namely current assets, total sales, net working capital, working capital turnover, debt to equity ratio and sales growth. While the dependent variable used is return on assets. The data collection was obtained from the official IDX website and the sampling technique used was purposive sampling. In processing the sample data, this study used the evIEWS 12 program and the method used was the multiple linear regression method. In addition to obtaining statistical tests, this study uses the SPSS 25 program. Based on the results it can be concluded that liquidity, leverage and sales growth do not have a significant effect on profitability, while firm size and efficiency have a significant positive effect on profitability. In contrast to working capital which has a significant negative effect on profitability.

Key Words: *Energy Index, IDX, Liquidity, Profitability*

INTRODUCTION

The energy sector is one of the sectors that humans need. Almost all activities require energy to carry them out. Currently, the energy sector is also having an impact due to shortages resulting from the Russian-Ukrainian war so world gas prices have soared (Aliu et al., 2023). This event had an impact on this sector so energy resources experienced a shortage and prices soared. Therefore, companies must have good financial performance to maximize profitability. The following is a graph of the performance of the energy sector index listed on the IDX (Indonesian Stock Exchange):

Figure 1
Performance Graph of Energy Indexes Listed on IDX 2018-2023



Source: (Indonesia Stock Exchange (IDX), 2023)

Based on the data above, there was a decline in the performance of the energy index from 2018 to mid-2020, then from 2020 to the end of 2022, the performance of the energy sector experienced a very drastic increase, reaching up to 130% compared to the first time the energy sector was released, namely in 2018.

Many studies on profitability get different results from several variables from one survey to another. One of them is liquidity, firm size, working capital, efficiency, leverage, and sales growth. According to Koroleva et al. (2021), liquidity positively and significantly affects profitability because "companies can fulfill their obligations to pay short-term debt using high liquidity, companies can focus more on using their assets to increase their net profit". He also believes that "a high current ratio can enable a company to take advantage of emerging business opportunities more quickly, such as expanding products or services, purchasing new assets, or acquiring other companies." In contrast to Hossain (2021) research, it obtained significant negative results because when a company has too high liquidity, it indicates that it is not utilizing these assets to maximize profits. The company may have too many unproductive current assets, which can reduce ROA.

Research conducted by Lim & Rokhim (2020) found that firm size has a positive and significant effect on profitability because the greater the sales, the higher the possibility of the company utilizing its assets effectively to meet market demand and increase profitability. This is in contrast to the research of Yadav et al. (2022), which obtained significant negative results because the larger the company, the more complex the management is required to manage it. Therefore, large companies often need help

managing their resources efficiently and effectively. If companies experience difficulties in managing their resources, their financial performance tends to decline so ROA will be negatively affected.

Research by Nguyen et al. (2020) found that the greater the working capital, the more it can be used to pay debts, and this will reduce interest costs on the debt, increasing profitability. In contrast, the research of Boisjoly *et al.* (2020) obtained the opposite result because working capital, such as inventory that was too high, resulted in a decrease in the product quality of a product until it became an expired product. This will have an impact on reducing a company's profits.

The research of Mehzabin et al. (2022) found that efficiency has a significant positive impact on profitability. When efficiency is large, the company is more efficient in using its working capital in its operating cycle. This means the company can produce more products or services with the same or less working capital. In this case, the company can improve the efficiency of its operations and increase revenue and net profit. Meanwhile, research by Lim & Rokhim (2020) obtained negative and significant results because the company was too focused on efficiency, so it forgot about the company's goals, namely increasing sales, such as spending money on marketing well and developing products according to consumer desires.

Cyril & Singla (2020) research found that "by using debt, companies can increase the potential profits that can be obtained by using these funds to finance investments or projects that produce a rate of return that is higher than the cost of borrowing." This means that leverage has a significant positive impact on profitability. In contrast Rezina et al. (2020), found that leverage had a negative and significant effect on profitability and argued that "companies that use debt to finance their operations, the interest expense that the company must pay will increase, thereby reducing net profit".

Based on research by Rezina et al. (2020) found that sales growth has a positive and significant influence on company profits. Rezina et al. (2020) state that the higher the sales growth ratio, the possibility of reducing product production costs per unit will also decrease, so profitability will increase. The negative influence of sales growth on profitability is that when sales increase, it will cause the profit margin to also increase, so management will take advantage of this opportunity to develop sales growth, which will cause profitability to decrease (Lim & Rokhim, 2020).

LITERATURE REVIEW

The Effect of Liquidity on Profitability

Research conducted by Hossain (2021) shows that liquidity has a negative impact on profitability. According to Hossain (2021), "liquidity levels that are too high reflect inefficient and not optimal use of company assets in generating profits. Companies may allow unproductive current assets to accumulate excessively, which can reduce profitability." This finding is different from research conducted by Lim & Rokhim (2020), Ammar & Hana (2021) and Koroleva et al. (2021), who found a positive and significant relationship between liquidity and profitability. Ammar & Hana (2021) argue that "when a company has good liquidity and can easily meet its short-term obligations, the company can focus more on using its assets to increase net profit. In addition, a high current ratio can give a company the ability to respond more quickly to emerging business opportunities, such as expanding products or services, acquiring new assets, or acquiring other companies."

H1: Liquidity has a positive and significant effect on Profitability.

The Effect of Firm Size on Profitability

Research conducted by Lim & Rokhim (2020), Derbali (2021), Ammar & Hana (2021) and Koroleva et al. (2021) shows that firm size has a positive impact on profitability. According to Lim & Rokhim (2020), "the greater the sales, the higher the possibility of the company utilizing its assets effectively to meet market demand and increase profitability". Yadav *et al.* (2022) found that firm size has a negative effect on profitability because the bigger the company, the more complex the management required to manage it. Therefore, large companies often experience problems in managing their resources efficiently and effectively. If companies experience difficulties in managing their resources, their financial performance tends to decline, so ROA will be negatively affected.

H2: Firm Size has a positive and significant effect on Profitability.

The Effect of Working Capital on Profitability

Research by Nguyen et al. (2020) also shows significant and positive results because when working capital is sufficient it can be used to pay debts and this will reduce interest costs on debt so that this will increase profitability. Similarly, research by Boisjoly et al. (2020) and Kwatiah & Asiamah (2020). In Sensini (2020) and Hossain (2020) research also obtained negative results on the relationship between working capital and profitability because working capital was negative because working capital such as inventory that was too high resulted in a decrease in the product quality of a product until it became an expired product. This will have an impact on reducing a company's profits.

H3: Working Capital has a positive and significant effect on Profitability.

The Effect of Efficiency on Profitability

The study conducted by Mehzabin et al. (2022) found that efficiency has a positive effect on profitability. When working capital turnover increases, the company is more efficient in using its working capital in its operating cycle. This means the company can produce more products or services with the same or less working capital. In this case, the company can improve the efficiency of its operations, increase revenue and net profit. The same results were also found in Ozili (2021), Hossain (2021) and Olmo et al. (2021) research. Meanwhile, research by Lim & Rokhim (2020) obtained negative results because the company focused too much on efficiency, so it forgot about the company's goals, namely increasing sales, such as spending money on marketing well and developing products according to consumer desires. In contrast to Nguyen's (2020) research, efficiency has no influence on profitability.

H4: Efficiency has a positive and significant effect on Profitability.

The Effect of Leverage on Profitability

A study conducted by Dhiab (2021) shows that leverage has a negative impact on profitability. This phenomenon arises because companies that use debt to fund their operations will face increased interest expenses, which in turn reduces net profit. Similar findings were found in research by Rezina et al. (2020) and Nguyen & Nguyen (2020) concluded that high levels of debt can be an obstacle to company profits. On the other hand, the results of research conducted by Cyril & Singla (2020) state that leverage contributes positively to profitability. Cyril & Singla (2020) argue that this is due to "the company's ability to maximize potential profits through the use of borrowed funds to support investments or projects that provide a higher rate of return than the cost of borrowing".

H5: Leverage has a negative and significant effect on Profitability.

The Effect of Sales Growth on Profitability

Research conducted by Hossain (2021) and Arifin et al. (2020) found that sales growth had a significant positive effect on profitability. This is because the higher the sales growth ratio, the possibility that product production costs per unit will also decrease so that profitability will increase. In contrast to research by Rahmawati & Mahfudz (2018) and Candy & Quinn (2023), the results were positive but not significant because when sales growth increases, there will also be an increase in costs, so this indirectly reduces profitability. The negative effect of sales growth on profitability is that when a company experiences rapid sales growth, the company may need to make additional expenditures to expand production capacity, employ more employees, increase inventory, and so on. If the company is unable to manage this growth effectively, then these additional costs can cause profit levels to decrease (Lim & Rokhim, 2020).

H6: Sales Growth has a positive and significant effect on Profitability.

RESEARCH METHODS

Population and Sample

This study used a population of 66 energy sector companies registered on IDX. The sample used is a complete company financial report for 5 years consisting of 2018 to 2022. Apart from that, there are criteria that must be met to be used as a research sample, such as a financial report that provides the required figures according to the variables you want to study so that they can be measured. From these criteria, there were 48 companies that met the criteria, and 18 companies that did not meet the criteria were eliminated. The following are details of the companies used as research samples:

Table 1.
Sample Determining Criteria

NO	Criteria	Total
1	Energy sector companies listed on IDX	66
2	Incomplete financial reports from 2018-2022	-11
3	The company does not present data on the variables studied	-7
Sample companies used		48
Total Observation 5 years x 48 companies		240

Source: Data processed by researchers (2023)

Variable Indicator

Profitability

The profitability measurement used is ROA. ROA is a ratio that measures a company's ability to gain profits based on the assets owned by the company. Here's the ROA formula:

$$\text{Return on Asset} = \frac{\text{Net Profit}}{\text{Total Asset}} \times 100\%$$

Source: Yadav et al. (2022)

Liquidity

The ratio used is the Current Ratio to measure a company's ability to pay off debt in a short period. Here's how to calculate the Current Ratio:

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}} \times 100\%$$

Source: Samo & Murad (2019)

Firm Size

Total sales are used to measure how big a company is. The following is the formula for finding total sales:

$$\text{Total Sales} = \ln(\text{Total sales})$$

Source: Lim & Rokhim (2020)

Working Capital

Net working capital is used to measure how much capital is needed to run a business and meet demand. The following is the formula for calculating net working capital:

$$\text{Net Working Capital} = \text{Current Assets} - \text{Current Liabilities}$$

Source: Alarussi & Alhaderi (2018)

Efficiency

Working capital turnover is used to calculate how effectively working capital is used to gain profits. The following is the formula for calculating working capital turnover:

$$\text{Working Capital Turnover} = \frac{\text{Net Sales}}{\text{Net Working Capital}} \times 100\%$$

Source: Cyril & Singla (2020)

Leverage

Debt to equity ratio is a comparison that assesses the company's ability to repay loans. The following is the formula for getting the DER value:

$$\text{Debt to Equity Ratio} = \frac{\text{Total Liabilities}}{\text{Total Equity}}$$

Source: Rezina et al. (2020)

Sales Growth

Sales growth is a measurement of how much the current year's sales are compared to the previous year's expenses. The following is the sales growth formula:

$$\text{Sales Growth} = \frac{\text{Total Sales}_{t-i} - \text{Total Sales}_{t-1}}{\text{Total Sales}_{t-1}} \times 100\%$$

Source: Hossain (2021)

Analysis Technique

This research uses panel regression data. There are several analytical methods needed in this research, such as tests to determine which model is suitable for this research data, such as the Hausman test, Chow test and Lagrange multiplier test. Apart from that, the tests used to examine each variable include descriptive statistical tests, f-tests, t-tests, and coefficient of determination tests. The applications used to test all the data in this research are the Eviews 12 and SPSS 25 applications.

RESULT AND DISCUSSION

Descriptive Statistics

The secondary data used in this research was taken from the official website of the Indonesia Stock Exchange (IDX), which means it is in accordance with the purposive sampling technique. Financial reports were taken from 66 companies included in the energy sector index from 2018 to 2023. One of the criteria for analysis is complete data on companies listed on the energy sector index. Based on one of these criteria, the remaining data is 240 data. The results of descriptive statistics in this study used the SPSS version 25 application. The following are the results of descriptive statistical tests:

Table 2.
Descriptive Statistics result

Descriptive Statistics					
	<i>N</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Mean</i>	<i>Std. Deviation</i>
<i>ROA</i>	240	-0,57901	0,61635	0,03305	0,14866
<i>CR</i>	240	0,02422	146,13021	2,88218	11,80998
<i>TS</i>	240	19,96268	32,48376	28,33171	2,00316
<i>NWC</i>	240	21,74705	31,44654	27,10929	1,94801
<i>WCT</i>	240	-170,96598	177,42515	2,44926	21,33034
<i>DER</i>	240	-43,08635	34,05558	1,19497	5,04166
<i>SG</i>	240	-2,41975	12,00110	0,44035	1,57096
<i>Valid N (listwise)</i>	240				

Source: Data processed by researchers (2023)

Based on descriptive statistical analysis, companies listed in the energy index show ROA values ranging from a minimum of -0,57901 to a maximum of 0,61635. The average ROA value is 0,03305, with a standard deviation of 0,14866. Meanwhile, for the CR variable, a minimum value was found of 0,02422 and a maximum value of 146,13021. The average CR value is 2,88218, with a standard deviation of 11,80998.

For the TS variable in companies included in the energy index, a minimum value of 19,96268 was recorded and a maximum value of 32,48376. The average TS value is 28,33171, with a standard deviation of 2,00316. Meanwhile, for the NWC variable in energy index companies, the minimum value is 21,74705 and the maximum value reaches 31,44654. The average NWC value is 27,10929, with a standard deviation of 1,94801.

From the table above, the WCT value shows variation, with the lowest value being -170,96598 and the highest value being 177,42515. The average WCT value is 2,44926, with a standard deviation of 21,33034. Meanwhile, the lowest DER value is -43,08635, while the highest value is 34,05558. The average DER is 1,19497, with a standard deviation value of 5,04166. In the SG variable for energy sector companies, a minimum value of -2,41975 was recorded and a maximum value of 12,00110. The average SG value is 0,44035, with a standard deviation of 1,57096.

Chow Test

Table 3.
Chow Test Result

<i>Effects Test</i>	<i>Statistic</i>	<i>d.f.</i>	<i>Prob.</i>
<i>Cross-section F</i>	3,6329	-47.186	0,00000
<i>Cross-section Chi-square</i>	156,30693	47	0,00000

Source: Data processed by researchers (2023)

Judging from Table 3, the value of prob. in the Chow test $0,00 < 0,05$ which means the fixed effect model is recommended for this research.

Hausman Test

Table 4.
Hausman Test Result

<i>Test Summary</i>	<i>Chi-Sq. Statistic</i>	<i>Chi-Sq. d.f.</i>	<i>Prob.</i>
<i>Cross-section random</i>	8,25609	6	0,21990

Source: Data processed by researchers (2023)

Judging from Table 4, the Hausman test probability result is 0,21990, where this value exceeds 0,05. This indicates that the random effect model is more suitable for this research. However, because the Hausman test is inconsistent with the Chow test, the Lagrange Multiplier test is needed.

Lagrange Multiplier Test

Table 5.
Lagrange Multiplier Test Result

	<i>Cross-section</i>
<i>Breusch-Pagan</i>	0,00000

Source: Data processed by researchers (2023)

The results of the Lagrange Multiplier test in table 5 show that this research is suitable for using the random effect model because the Breusch-Pagan results are less than 0,05. These results mean that the random effect model is more recommended because the results are consistent with the Hausman test.

F Test

Table 6.
F Test Result

<i>Model</i>	<i>Prob. (F-Statistic)</i>
Regresi Data Panel	0,00000

Source: Data processed by researchers (2023)

The f test results in table 6 show the prob. $0,00 < 0,05$ which means the independent variable has a stimulant or simultaneous effect on the dependent variable.

Coefficient of Determination Test

Table 7.
Coefficient of Determination Test Result

<i>Variabel Dependenden</i>	<i>R-squared</i>	<i>Adjusted R-squared</i>
<i>ROA</i>	0,29010	0,27182

Source: Data processed by researchers (2023)

The purpose of the Coefficient of Determination test is to test how many percent an independent variable can explain the dependent variable. Based on the results of the Coefficient of Determination test in table 5, it shows that the Adjust R-squared is 0,27182 or 27,182%. This means that the variables not studied in this study can explain the dependent variable by 27,182%, the rest is explained by variables outside of those studied.

T-Test

Table 8.
T-test results

<i>Variable</i>	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-Statistic</i>	<i>Prob.</i>	<i>Result</i>
<i>CR</i>	-0,00108	0,00072	-1,49349	0,13670	H ₁ ditolak
<i>TS</i>	0,04323	0,00631	6,84956	0,00000	H ₂ diterima
<i>NWC</i>	-0,01373	0,00631	-2,17680	0,03050	H ₃ ditolak
<i>WCT</i>	0,00098	0,00039	2,53116	0,01200	H ₄ diterima
<i>DER</i>	-0,00275	0,00171	-1,60930	0,10890	H ₅ ditolak
<i>SG</i>	-0,00465	0,00551	-0,84400	0,39950	H ₆ ditolak
<i>C</i>	-0,81343	0,12901	-6,30516	0,00000	

Source: Data processed by researchers (2023)

From table 8, it can be concluded that there are 3 variables that have no significant influence, namely current ratio, debt to equity ratio and sales growth on profitability. There are two independent variables that have a significant positive effect on profitability, namely total assets and working capital turnover and one variable that has a significant negative effect, namely net working capital.

Discussion

Current Ratio

With a probability result of $0,13670 > 0,05$, meaning it does not have a significant influence and a coefficient value of $-0,00108$, it can be concluded that the current ratio has a negative but insignificant impact on profitability, the current ratio does not directly affect ROA because the current ratio only considers current assets, while ROA considers all assets, both current and fixed. The same results were also found in research by Adelopo et al. (2018), Dhiab (2021), Alarussi & Alhaderi (2018), Zainudin et al. (2018) and Derbali (2021). In contrast to Lim & Rokhim (2020) and Samo & Murad (2019) research who found significant positive results and research by Hossain (2021) found a significant negative effect of the current ratio on profitability. Based on these results, it means that H1 is rejected.

Total Sales

Based on the t test results table, there is a probability value of $0,00000 < 0,05$ and a coefficient value of $0,04323$. It can be concluded that total assets have a positive and significant impact on profitability. Total assets have a significant positive effect because the greater the sales, the higher the possibility of the company utilizing its assets effectively to meet market demand and increase profitability. The same results were also found by Lim & Rokhim (2020), Derbali (2021), Ammar dan Hana (2021) and Koroleva et al. (2021), different from the research of Yadav et al. (2022) which obtained a significant negative effect. This means that H2 can be accepted.

Net Working Capital

Based on table 4.6, the results shown are with a probability value of $0,03050 < 0,05$ and a coefficient with a value of $-0,01373$. With this value, it can be concluded that net working capital has a significant negative influence on profitability. This is because high company capital indicates that the company is not effective in utilizing financial resources, which can result in a decrease in profit ratios. Similar findings were also expressed by Sensini (2020) and Hossain (2020) who found a negative impact of net working capital on profitability. In contrast, research by Nguyen et al. (2020), Boisjoly et

al. (2020) and Kwatiah & Asiamah (2020) show the positive and significant influence of net working capital on profitability. Therefore, it can be concluded that hypothesis H3 is rejected.

Working Capital Turnover

In table 4.6, the t-test results show a probability value of $0,01200 < 0,05$ and a coefficient value of $0,00098$. When working capital turnover increases, it means that the company is more efficient in using its working capital in its operating cycle. This means the company can produce more products or services with the same or less working capital. In this case, the company can improve the efficiency of its operations, increase revenue and net profit. The same results were also found in Ozili (2021), Hossain (2021) and Olmo et al. (2021) research which shows that WCT has a significant positive effect on ROA. Meanwhile, Lim & Rokhim (2020) research obtained negative results. In contrast to Nguyen (2020) research, efficiency has no influence on profitability. So H4 is accepted.

Debt to Equity Ratio

Based on the t test results table, there is a probability value of $0,10890 > 0,05$ and a coefficient value of $-0,00275$. This means that the debt to equity ratio has a negative but insignificant effect on profitability. According to Bui & Nguyen (2021), there are several companies that already have sufficient capital and choose to use their own capital or use leverage if they only need more capital so that leverage will not affect the company's profits. The same thing was also found in research by Harisa et al. (2019). In contrast to the research of Rezina et al. (2020) and Dhiab (2021) who found significant negative results on profitability, while research by Cyril & Singla (2020) found a significant positive effect of leverage on profitability. Based on these results, it means that H5 is rejected.

Sales Growth

Based on the t test results table, there is a probability value of $0,39950 > 0,05$ and a coefficient value of $-0,00465$. Rahmawati & Mahfudz (2018) research obtained negative results but they were not significant because when sales growth increases there will also be an increase in costs so this indirectly reduces profitability. Meanwhile, research by Fuertes-Callén & Cuellar-Fernández (2019), Hossain (2021) and Arifin et al. (2020) found that sales growth had a significant positive effect on profitability. In contrast to research by Lim & Rokhim (2020) which obtained significant negative results. Based on these results, H6 is rejected.

CONCLUSIONS AND SUGGESTIONS

Conclusions

The results of the analysis show that firm size and efficiency have a positive and significant effect on profitability. This is different from working capital, which gets negative and significant results in profitability. The research results of the variables liquidity, leverage and sales growth have a negative but insignificant effect on profitability.

Suggestions

There are several suggestions for several parties, such as companies that should pay more attention to liquidity, which is recommended only at sufficient levels or not excessive or even too low, increasing and maintaining high sales to increase profit margins, adequate working capital or reducing inventory shortages. For sales, appropriate

efficiency or not focusing too much on being too efficient in using funds so that it hampers the company's profits and development, not excessive leverage so that interest expenses are not too large and maintaining sales growth from year to year as a sign that a company can survive in the future. Investors can pay attention to firm size, efficiency and sales growth variables because these variables positively affect profitability. Investors can consider this before investing in the company. Apart from that, there are several suggestions for future research to analyze company profitability using variables other than liquidity, firm size, working capital, efficiency, leverage and sales growth. This is to develop research models for the future.

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