

## **Analysis of the Effect Liquidity and Solvability to Profitability (Case Study of Coal Mining Sub-Sector Companies Listed in Indonesia Stock Exchange)**

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### **Abstract**

The purpose of this study was to determine the effect of liquidity and solvability on profitability in the Coal Mining Sub-Sector Companies listed on the Indonesia Stock Exchange period 2017-2022. This research method uses a quantitative approach with multiple regression analysis. The source of this research uses secondary data sourced from the financial statements of the Coal Mining Sub-Sector Company listed on the Indonesia Stock Exchange. The sample of this study was 15 with Benjamin Graham's strategy elimination companies using Purposive Sampling techniques. The results of this study indicate that partially liquidity has a significant effect on profitability and solvability has a significant effect on profitability. Simultaneously the results obtained that Liquidity, Solvability and Asset Growth significantly influence Profitability. Determination coefficient value of 0,33 shows that Liquidity and Solvability provide diversity of 33% on profitability, while the remaining 67% is influenced by other factors not observed in this study.

**Keywords:** Benjamin Graham, Liquidity, Solvability, Profitability



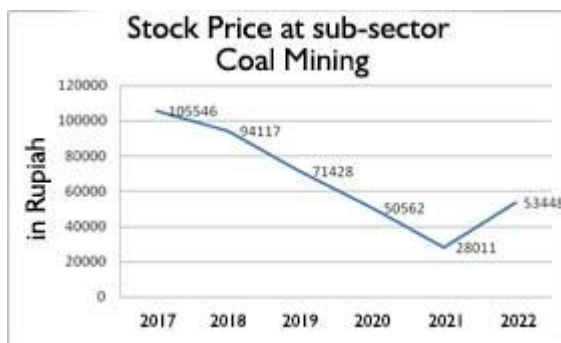
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### **INTRODUCTION**

Fundamental factors are the basis of investors in making investment decisions in the capital market. To see the fundamental condition of a company, the main measurement tool used is the company's financial statements consisting of profit and loss statements, balance sheets and the company's cash flow conditions. The company's profit and loss position, the state of the company's balance sheet, the comparison between equity and debt, and the condition of cash flows must always be considered to be able to detect the state of the company whether it is still good enough to operate or vice versa. They use financial statements to show different information needs. Jogiyanto (2013: 59) states that the information needed by investors in the capital market is not only fundamental information, but also technical information. Fundamental information is obtained from the company's internal conditions, and technical information is obtained from outside the company, such as economics, politics, finance and other factors. Information obtained from the company's internal conditions commonly used is financial statement information.

Coal mining companies are companies incorporated in the mining sector listing on the Indonesia Stock Exchange (IDX). Mining companies are very important for the Indonesian economy because the company is tasked with exploring the mining and mineral potential of Indonesia. The performance of mining companies is needed to maintain the stability of Indonesian mining. One indication of good performance in the mining sector is the ability of coal mining companies to produce consistent profitability over time. Many factors that can affect a company's profitability are liquidity, solvency and asset growth. The better the

condition of the variable, the better the profitability of the company will be. One indication of the company's ability in terms of profitability is reflected in the many investors' interest in buying shares of coal mining which in the end will be reflected in the wrong price. The following are the phenomena related to the financial performance of coal companies that are increasingly sagging based on data on closing prices of the coal mining sector:

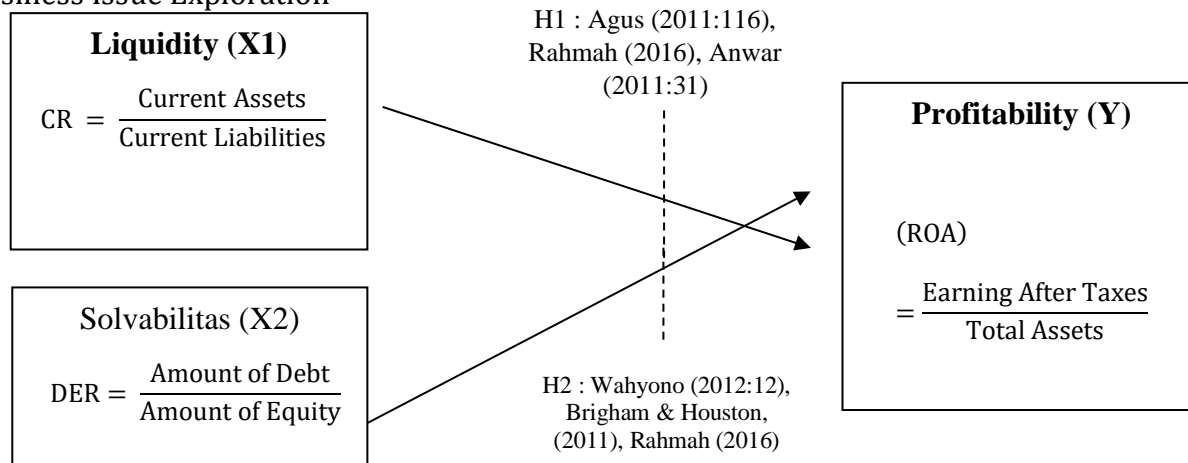


**Figure 1. Price of Closing Shares in the 2017-2022 Coal Mining Sub Sector**

Course: <http://www.idx.co.id>. (Data Processed by Researchers, 2023)

Based on the data in the table above regarding the closing price of shares of the Coal Mining Sub Sector from 2017 to 2022 shows a downward trend each year. The data shows the closing price of shares starting in 2017 of Rp. 105,546, - and continues to decline every year until 2021 amounting to Rp. 28,011, -. The declining share price indicates that investors' interest in investing in the coal sector is decreasing. This is because one reason is the company's ability to generate lower profits. This was reinforced by Hendra Sinadia (in [www.dunia-energi.com](http://www.dunia-energi.com), 2016) which stated that the profitability of coal companies fell by around 60% in 2016-2020. In 2021, profitability is expected to fall again by 10%. And news from CNBC Indonesia (2021) where in general the shares of coal mining companies have decreased significantly. this indicates that the ability of coal companies to produce profit is increasingly weak due to the impact of declining coal prices on the international market.

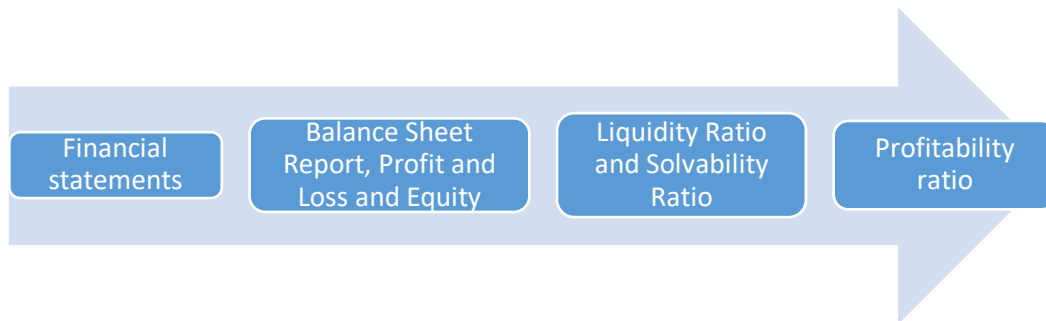
#### Business Issue Exploration



**Figure 2. Conceptual Framework**

The method used in this study is descriptive and verificative research method with a quantitative approach, because there are variables that will be examined the relationship and the purpose to provide a structured, factual and accurate description of the facts and the

relationship between the variables studied, namely Liquidity and Solvability against profitability.



**Figure 3. Root Causes**

The list population of Coal sector mining companies :

**Table 1.**

No	Stock code	Issuer Name	Date of IPO
1	ADRO	Adaro Energy Tbk	16-Jul-08
2	ARII	Atlas Resources Tbk	8-Nov-11
3	ATPK	Bara Jaya Internasional Tbk	17-Apr-02
4	BORN	Borneo Lumbung Energi & Metal Tbk	26-Nov-10
5	BRAU	Berau Coal Energy Tbk	19-Agu-10
6	BSSR	Baramulti Suksessarana Tbk	8-Nov-12
7	BUMI	Bumi Resources Tbk	30-Jul-90
8	BYAN	Bayan Resources Tbk	12-Aug-08
9	CPDW	Indo Setu Bara Resources Tbk	18-Sep-1990
10	DEWA	Darma Henwa Tbk	26-Sep-07
11	DOID	Delta Dunia Makmur Tbk	15-Jun-01
12	FIRE	Alfa Energi Investama Tbk	9-Jun-17
13	GEMS	Golden Energy Mines Tbk	17-Nov-11
14	GTBO	Garda Tujuh Buana Tbk	9-Jul-09
15	HRUM	Harum Energy Tbk	6-Oct-10
16	ITMG	Indo Tambangraya Megah Tbk	18-Des-2007
17	KKGI	Resource Alam Indonesia Tbk	1-Jul-91
18	MBAP	Mitrabara Adiperdana Tbk	10-Jul-14
19	MYOH	Myoh Technology Tbk	27-Jul-00
20	PKPK	Perdana Karya Perkasa	11-Jul-07
21	PTBA	Bukit Asam Tbk	23-Dec-02
22	PTRO	Petrosea Tbk	21-May-90
23	SMMT	Golden Eagle Energy Tbk	29-Feb-00
24	TOBA	Toba Bara Sejahtera Tbk	6-Jul-12
25	TKGA	Permata Prima Sakti Tbk	06-Jan-1992

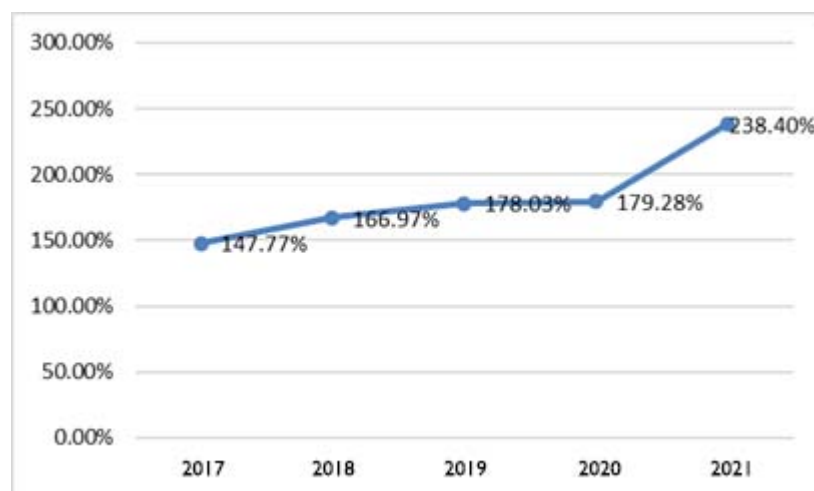
Information	Amount Of Companies
<b>Population :</b> Coal mining companies listed on the Indonesia Stock Exchange for the period 2014-2018	<b>25</b>
The Coal Mining Sub Sector Company that publishes annual reports with the period ending 31 December 2013 to 2017	(7)
Less companies experience delisting during the period observation	(3)
Allowed Benjamin Graham's strategy	(0)
<b>The company be sampled</b>	<b>15</b>

The result is:

**Table 2.**

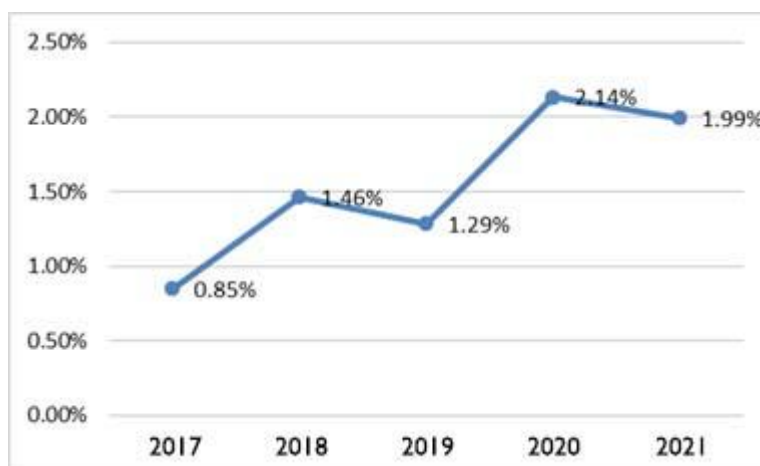
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15	TOBA	Toba Bara Sejahtera Tbk	6-Jul-12

The liquidity ranges between 9.9% and 928.9% with an average value of 182.1% with a standard deviation of 1.406. Based on Graph 2.2. Moving Transferable Liquidity Increases Biggest Liquidity in the Coal Mining Sub Sector Companies purchased on the Indonesia Stock Exchange is 2023 and completed in August 2022. on the Indonesia Stock Exchange for the 2017-2022 period.



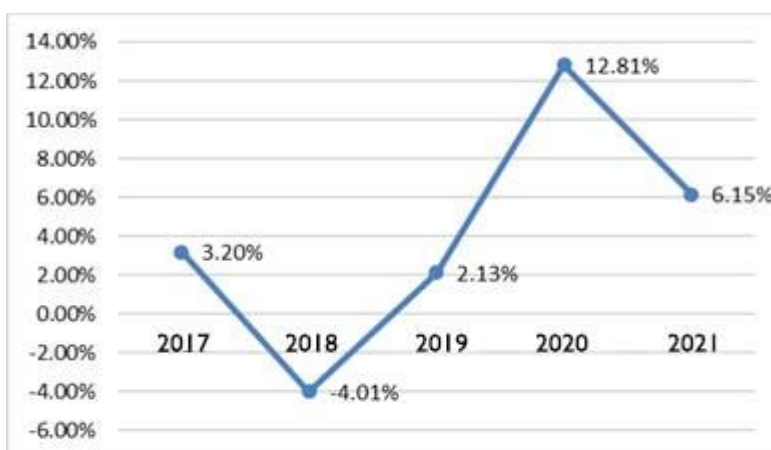
**Figure 4. Liquidity Development in Coal Mining Sub-Sector Companies listed on the Indonesia Stock Exchange (%)**

Solvability in Coal Mining Sub-Sector Companies listed on the Indonesia Stock Exchange has fluctuated which tends to increase during 2017 to 2022, with the largest Solvability in 2022 while the smallest in 2017. The following graph shows the development of the value of Solvability in the Company The Coal Mining Sub Sector listed on the Indonesia Stock Exchange for the 2017-2022 period.



**Figure 5. Solvability Development in Coal Mining Sub Sector Companies listed on the Indonesia Stock Exchange**

ROA for Coal Mining Sub-Sector Companies listed on the Indonesia Stock Exchange moved up and down where in 2018 there was a decline and then increased sharply until 2021 and declined again in 2022, with the largest ROA in Coal Mining Sub Sector Companies which is listed on the Indonesia Stock Exchange in 2022 while the smallest is in 2017. The following graph shows the development of the value of Return on Assets in the Coal Mining Sub-Sector Companies listed on the Indonesia Stock Exchange for the 2017-2022 period.



**Figure 6. ROA developments in Coal Mining Sub-Sector Companies listed on the Indonesia Stock Exchange**

### **Hypothesis testing** **Partial Test (t Test)**

The regression coefficient significance test is used to analyze if the researcher intends to know the influence between independent and dependent variables with one of the independent variables made fixed or controlled (Sugiyono, 2012: 235). The partial results of the regression coefficient significance in this study using SPSS 23.0 are as follows:

## Liquidity

To find out whether Liquidity has a significant effect on Profitability in the Coal Mining Sub-Sector Companies listed on the Indonesia Stock Exchange, a t test is carried out with the following hypothesis:

$H_0: \beta_1 = 0$ , partially the Liquidity variable does not have a significant effect on Profitability in the Coal Mining Sub Sector Companies listed on the Indonesia Stock Exchange

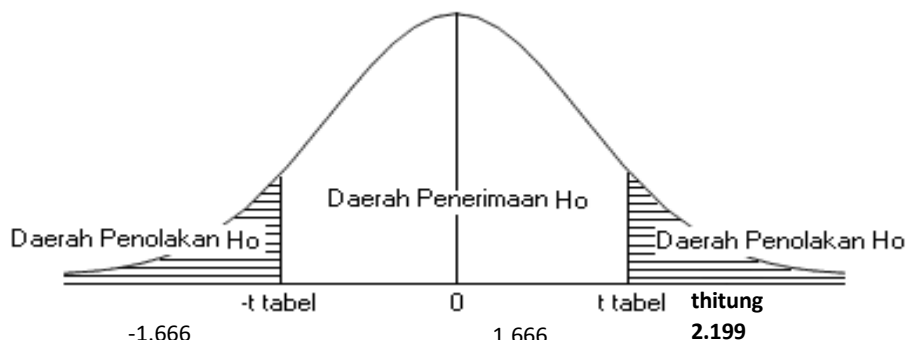
$H_1: \beta_1 \neq 0$ , partially the Liquidity variable has a significant effect on Profitability in the Coal Mining Sub-Sector Companies listed on the Indonesia Stock Exchange.

**Table 3. Partial Hypothesis Testing Liquidity to ROA (t test)**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	-.054	.045		-1.197	.235
Liquidity	.053	.018	.328	2.915	.005
Solvability	-.094	.873	-.012	-.108	.914

Source : Results of Data Processing with SPSS 23.0, 2023

Significance level ( $\alpha$ ) of 5% and degrees of freedom (df) =  $n - (k + 1) = 75 - (2 + 1) = 72$  found value  $t_{table}$  of value  $t_{table}$  two-party t distribution of  $\pm 1,666$ , to facilitate understanding the test criteria, value  $t_{count}$  dan  $t_{table}$  compared, as follows:



**Figure 7. Regional Acceptance and Rejection of Hypothesis 1**

Liquidity variables obtained by  $t_{count}$  of 2.915 with  $t_{table}$  amounting to 1.666 so because of value  $t_{count} > t_{table}$  that is  $2,915 > 1,666$  so that  $H_0$  is rejected which means that partially the Liquidity variable has a significant effect on Profitability in the Coal Mining Sub-Sector Companies listed on the Indonesia Stock Exchange.

## Solvability

To find out whether Solvability has a significant effect on Profitability in the Coal Mining Sub Sector Companies listed on the Indonesia Stock Exchange, a t test is carried out with the following hypothesis:

$H_0: \beta_2 = 0$ , partially the Solvability variable does not have a significant effect on Profitability in the Coal Mining Sub-Sector Companies listed on the Indonesia Stock Exchange

$H_1: \beta_2 \neq 0$ , partially the Solvability variable has a significant effect on Profitability in the Coal Mining Sub-Sector Companies listed on the Indonesia Stock Exchange



Table 4. Solvability Hypothesis Testing for ROA

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	-.054	.045		-1.197	.235
Liquidity	.053	.018	.328	2.915	.005
Solvability	-.094	.873	-.012	-.108	.914

Source : Results of Data Processing with SPSS 23.0, 2019

Significance level ( $\alpha$ ) of 5% and degrees of freedom ( $df$ ) =  $n - (k + 1) = 75 - (2 + 1) = 72$  is found  $t_{table}$  value of t-two distribution  $t_{table}$  values of  $\pm 1,666$ , to facilitate understanding the criteria testing, the values of  $t_{count}$  and  $t_{table}$  are compared, as follows:

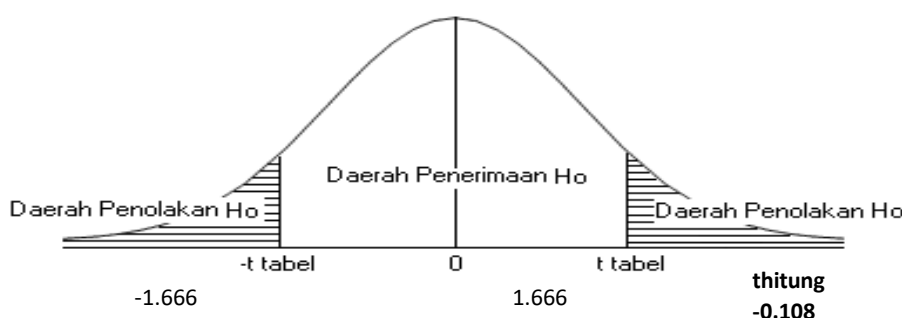


Figure 8. Regional Acceptance and Rejection of Hypothesis 2

For the second hypothesis, the Solvability variable is obtained that the value of  $t_{count}$  is - 0.108 with a  $t_{table}$  of 1.666 so that the value of  $-t_{count} > -t_{table}$  is  $-0.108 > -1.666$  so that  $H_0$  is accepted which means that partially Solvability has no significant effect on Profitability in Mining Sub-Sector Coal is listed on the Indonesia Stock Exchange.

### Simultant Test (F-test)

To prove the truth of the first hypothesis used the F statistical test, which is to answer the significance of the effect of all independent variables together on the agreed (dependent) variables. Hypothesis testing is formulated as follows:

$H_0: \beta_1 = \beta_2 = 0$ , meaning that there is no simultaneous significant influence between variabel Liquidity and Solvability on Profitability in the Coal Mining Sub-Sector Companies listed on the Indonesia Stock Exchange

$H_1: \beta_1 \neq \beta_2 \neq 0$ , meaning that there is a simultaneous significant effect between the variables of Liquidity and Solvency on Profitability in the Coal Mining Sub-Sector Companies listed on the Indonesia Stock Exchange

The results of simultaneous hypothesis testing using SPSS 23 are as follows:

Table 5. Simultant Hypothesis Testing (Test F)  
ANOVA<sup>a</sup>

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	.408	2	.204	4.390	.016 <sup>b</sup>
Residual	3.346	72	.046		
Total	3.754	74			

a. Dependent Variable: Profitability

b. Predictors: (Constant), Solvability, Liquidity

Source : Results of Data Processing with SPSS 23.0, 2023

Based on the above output, the value of  $F_{\text{count}} = 4.390$  is greater than  $F_{\text{table}} (3.72) = 2.378$  so that  $H_0$  is rejected, indicating that there is a significant effect of simulant Liquidity and Solvability on Profitability in the Mining Sub Sector Companies Coal is listed on the Indonesia Stock Exchange.

#### Business Solution

The results of the first hypothesis testing showed that liquidity had a significant effect on profitability in the coal mining sub-sector listed on the Indonesia Stock Exchange, which showed that the increase in liquidity tended to be followed by increasing profitability. This is supported by hypothesis testing indicated by the value of  $t_{\text{count}} > t_{\text{table}}$  that is  $2.915 > 1.666$  and the value of p-value for Liquidity is 0.005 smaller than  $\alpha = 0.05$  (5%).

The results of testing the second hypothesis found that Profitability does not have a significant effect on profitability in the Coal Mining Sub-Sector Companies listed on the Indonesia Stock Exchange, which shows that increasing profitability tends not to be followed by increasing profitability. This is supported by hypothesis testing indicated by the value -  $t_{\text{hitung}} > - t_{\text{table}}$  which is  $-0.108 > -1.666$  and the p-value for Profitability is 0.914 greater than  $\alpha = 0.05$  (5%).

The test results regarding the Effect of Liquidity and Solvability on Profitability in Coal Mining Sub Sector Companies listed on the Indonesia Stock Exchange, the results obtained that the value of  $F_{\text{count}} = 4.390$  is smaller than  $F_{\text{table}} (3.72) = 2.378$  and p-value (0.016)  $< 0.05$  which indicates that  $H_0$  is rejected or in other words Liquidity and Solvability together have a significant effect on Profitability. The coefficient of determination of 0.67 shows that Liquidity and Solvability provide a diversity of 33% of ROA. While the remaining 67% is influenced by other factors not observed in this study. The results of this study are in line with the results of research conducted by Hilmi and Hidayati (2014) which stated that Liquidity and Solvability simultaneously had a significant effect on profitability in manufacturing companies listed on the Indonesia Stock Exchange.

Based on the results of the above research it is clear that together liquidity and solvency ratios have a significant influence on the profitability achieved by the sector listed on the Indonesia Stock Exchange, here are business solutions that may be applied in real terms to the company as follows:

1. Regarding the liquidity ratio, there are several strategic solutions implemented by the company:
  - a. The company must be able to increase the availability of its current assets with the greater the level of current assets owned, the better the position of liquidity and the better the company's ability to meet its short-term obligations.
  - b. Companies should also be able to reduce current liabilities optimally, excessive current debt position can result in the ability of companies to meet short-term obligations will be disrupted, therefore efforts to minimize short-term debt should be done.
2. Regarding solvability, there are several strategic solutions implemented by the company:
  - a. Companies should be able to minimize overall debt both long-term and short-term debt, in this way it is expected that the company's debt equity ratio position will be stable in the long run
  - b. Companies also have to strengthen their own capital capacity by getting a better level of capital owned by the company, so the position of the debt equity ratio will be better.
3. Regarding profitability, there are several strategic solutions implemented by the company:
  - a. Companies must improve work efficiency by minimizing production costs. This will give positive implications in increasing net income or earnings after taxes. High net income



reflects better management performance and makes the continuity of the company in the long term more secure.

- b. Regarding the total assets owned by the company, the company must ensure that, the total assets owned by the company must be used as effectively and as efficiently as possible in the framework of optimizing net income.

#### Implementation Plan

Based on the results of research and discussion on the Effect of Liquidity and Solvability on Profitability (ROA) in Coal Mining Sub Sector Companies listed on the Indonesia Stock Exchange for the 2017-2022 period, the authors can draw the following conclusions:

1. Liquidity in Coal Mining Sub-Sector Companies listed on the Indonesia Stock Exchange during the 2017-2022 period tends to move with the largest Liquidity in the Coal Mining Sub-Sector Companies listed on the Indonesia Stock Exchange in 2022 and the smallest in August 2017. The liquidity ranges between 9.9% and 928.9% with an average value of 182.1% with a standard deviation of 1.406. The smallest average liquidity is PT. Atlas Resources Tbk which is equal to 22.42% and companies that have the largest average liquidity are PT. Resource Alam Indonesia Tbk which is equal to 321.78%.
2. Solvability in the Coal Mining Sub-Sector Companies listed on the Indonesia Stock Exchange fluctuated which tended to increase during 2017 to 2022, with the largest solvency in 2021 while the smallest in 2017. Solvability in listed Coal Mining Sub Sector Companies on the Indonesia Stock Exchange, the range between -9.9% and 11.9% with an average value of 1.5% with a standard deviation of 0.029. The smallest solvency average in the Coal Mining Sub-Sector is PT. Resurces Alam Indonesia Tbk that is equal to 0.22% and companies that have the largest solvency average are PT. Delta Dunia Makmur Tbk which is equal to 6.49%.
3. Profitability in the Coal Mining Sub-Sector Companies listed on the Indonesia Stock Exchange moved up and down where in 2018 the decline then increased quite sharply up to 2021 and declined again in 2022, with the largest ROA in the Coal Mining Sub Sector Companies listed on the Indonesia Stock Exchange is in 2021 while the smallest is in 2018. The ROA (Return on Assets) of the Coal Mining Sub-sector listed on the Indonesia Stock Exchange is between -77.9% and 122.4% with an average value of average of 4.1% with a standard deviation of 0.225. The smallest average profitability in the Coal Mining Sub-Sector is PT. Bara Jaya Internasional Tbk which is equal to -27.56% and companies that have the largest average profitability are PT. Resource Alam Indonesia Tbk which is equal to 29.18%.
4. Liquidity has a significant effect on profitability in the Coal Mining Sub-Sector Companies listed on the Indonesia Stock Exchange. This is supported by hypothesis testing indicated by the value of  $t_{count} > t_{table}$  is  $2.199 > 1.992$  and the p-value for Liquidity is 0.005 smaller than  $\alpha = 0.05$  (5%).
5. Solvability does not have a significant effect on profitability in the Coal Mining Sub-Sector Companies listed on the Indonesia Stock Exchange. This is supported by hypothesis testing indicated by the value -  $t_{hitung} > -t_{table}$  which is  $-0.108 > -1.666$  and the p-value for Profitability is 0.914 greater than  $\alpha = 0.05$  (5%).
6. Simultant results are obtained that Liquidity and Solvability have a significant effect on Profitability in the Coal Mining Sub-Sector Companies listed on the Indonesia Stock Exchange, where the results show that the value of  $F_{count} = 13.947$  is smaller than  $F_{count} = 4.390$  smaller than  $F_{table} (3.72) = 2.378$  and p-value  $(0.016) < 0.05$  which indicates that  $H_0$  is rejected. The coefficient of determination of 0.355 shows that liquidity and solvency provide a diversity of 33% of profitability, while the remaining 67% is influenced by other factors not observed in this study.

**Implementation Plan****Liquidity**

The company will optimize current assets owned by the company, especially cash, and the company will pay short-term obligations in a timely manner with this policy, so that the company's current assets will be increased and the company's current debt can be reduced to a minimum.

**Solvability**

The company will minimize the plan for taking debt if it feels that it is not necessary. Short and long term debt will be carried out during that time to fulfill the production process and it is felt that it will generate potential profits. On the other hand the company will increase its own capital capacity to produce a good solvency position in the long term.

**Profitability**

The company will plan the efficiency of production costs as well as possible, with this policy the selling price can be positioned in a position that is quite competitive in the market which will eventually increase sales volume and be followed by potential profits achieved by the company expected by this policy time to time.

**CONCLUSION**

Based on the results of the research and the conclusions that have been presented, the author will propose suggestions in the hope that they can be useful for all interested parties. There are also suggestions that the author will point out are: Management of the company to pay attention to liquidity again which can be used as a measure to assess how much the rate of return (return) of invested capital in the business so that it can affect investors in making investment decisions in the company. Management of the company to pay attention to profitability (ROA) which is an important problem related to company profits. Profitability (ROA) can directly affect the magnitude of the risk borne by shareholders and how much the rate of return (return) from the capital invested in the business so that it can influence investors in making decisions to invest in the company. For next research, it can add other independent variables to study where the coefficient of determination is known to be 33% so that still as many as 67% of the variables that have not been observed that affect profitability (ROA) other than the variables studied in this study.

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