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Du Pont System Analysis To Assess The Company'S Financial Performance (Case Study Of a Coal Sub-Sector Mining Company For The 2018-2022 Period)

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Abstract. *The purpose of this study is to determine the financial performance of coal mining companies using the Du Pont System. The analysis method uses Du Pont System with variables, namely Total Asset Turnover (TATO), Net Profit Margin (NPM), and Return On Investment (ROI). This research was conducted with a quantitative descriptive approach. The data used is secondary data in the form of financial statements. The results of the study using Du Pont System showed that one company with a variable Net Profit Margin that was above the industry average of % was PT Golden Energy Mines Tbk of 27.8%, and four companies with a variable Net Profit Margin that was below the industry average. Total Asset Turnover and multiplier equity ratio are still below the industry standard average. And for the assessment of return on investment du pond, only one company whose value is above 30%, namely PT Golden Energy Mines Tbk at 57.99% and four other companies are still below industry standards. And for the assessment of return on equity du pond 5 companies that are the object of research still have values below industry standards so that it can be said that the company's efficiency in managing all assets to generate profits is not good enough.*

Keywords : *Du Pont System, Net Profit Margin, Total Asset Turnover, Return On Investment*

A. INTRODUCTION

The mining sector is one of the pillars of a country's economic development, because of its role and existence as a provider of energy resources that are indispensable for a country's economic growth. The rich potential of natural resources will be able to grow the openness of companies to explore the mining of these resources. Companies in the general mining industry can be in the form of integrated businesses in the sense that the company has a development business from construction, exploration, processing, and production as a business unit or in the form of separate businesses, each of which stands alone, according to Yudi Herliansyah (2012) in Sonia (2013).

Financial performance reflects the ability of a company to manage and allocate existing resources can be measured by analyzing and evaluating financial statements to see the company's overall financial performance. So that it can be used as a basis for determining the company's operational strategy for the future. Through the analysis of financial statements, it can be known a company's success in carrying out operational activities and as an assessment of work performance of all parts of the company.

According to Rudianto (2013), financial performance is the result or achievement that has been achieved by company management in managing company assets effectively during a certain period. Financial performance information is needed in assessing potential changes in economic resources to predict the production capacity of available resources. By knowing the measurements, a company can assess the performance of a company in terms of finance. Assessment of the company's financial performance is important for the company to allocate its assets effectively and efficiently in order to achieve the company's goal of obtaining maximum profit to maintain the company's existence.

A measuring tool that can be used to assess the company's financial performance in terms of the use of assets in carrying out operations to increase revenue is *the Du Pont System* analysis. *Du Pont* is a successful entrepreneur who has his own way of analyzing his company's financial statements. This method is actually almost the same as ordinary financial statement analysis, but the approach is more integrative by using components from two parts of financial statements as elements of analysis.

The *Du Pont System* analysis is an analysis that covers all activity ratios and profit margins on sales to show how these ratios affect profitability." (Weston and Bringham (1994)). *Du Pont system* analysis is a tool used to measure company performance that combines financial ratios, namely profitability ratios and activity ratios. The profitability ratio used in *du pont* is *net profit margin* (NPM) and the activity ratio used is *total assets turnover* (TATO). Both ratios used are taken from the net profit contained in the company's resources. The approach with *Du Pont system* financial analysis is *return on investment* (ROI) and *Return Of Equity* (ROE) can be done through Dupont System analysis, which is an analysis that combines the ratio of activity and profitability generated through the multiplication between the profits of sales components and the efficiency of using total assets in generating these profits (Syamsuddin, 2009: 64).

As for the objects of research conducted at *public listed* companies engaged in coal mining for the 2018-2022 period which include: PT Adaro Energy Tbk, PT Golden Energy Mines Tbk, PT Indo Tambang Mega Raya Tbk, PT Harum Energy Tbk, and PT Resource Alam Indonesia Tbk.

From this background, the author took the title "DU PONT SYSTEM ANALYSIS TO ASSESS THE COMPANY'S FINANCIAL PERFORMANCE (Case Study of Coal Sub-Sector Mining Companies for the 2018-2022 Period)".

B. LITERATURE REVIEW

Financial Performance

According to Hery (2016: 13) financial performance is a formal effort to evaluate the efficiency and effectiveness of the company in generating profits and certain cash positions. By measuring financial performance, it can be seen the prospect of growth and financial development of the company from relying on the resources it has. The company is said to be successful if the company has achieved a certain performance that has been determined.

According to Atma Hayat et al (2018: 13), financial performance is the result or achievement that has been achieved by company management in managing company assets effectively during a certain period.

Financial Statements

According to Brigham & Houston (2015), financial statements are several pieces of paper with numbers written on them, but it is also important to think about the real assets that are behind the numbers.

According to Mamduh M. Hanafi and Abdul Halim, financial statements are reports that are expected to provide information about the company, and combined with other information, such as industry, economic conditions, can provide a better picture of the company's prospects and risks.

Du Pont System

According to Arthur J. Keown, et al (2011) *Du Pont* analysis is a method used to analyze company profitability and equity return.

According to Arthur J. Keown, et al (2011) the advantages of *the Du Pont* System include:

- 1) Enable management to see more clearly what drives returns on equity and what is the relationship between margin and net income, asset turnover and debt ratios.
- 2) As one of the financial analysis techniques that is comprehensive and management can determine the level of efficiency of asset utilization.
- 3) Can be used to measure the profitability of each product produced by the company so that it is known which products are potential.
- 4) In analyzing financial statements using a more integrative approach and using financial statements as an element of analysis.

While the disadvantages of *the Du Pont* System analysis are:

- 1) The ROI of a company is difficult to compare with the ROI of other similar companies, because of differences in accounting practices used.
- 2) Using ROI alone cannot be used to make comparisons between two or more problems to reach satisfactory conclusions. Finance is a report that is expected to provide information about the company, and combined with other information, such as industry, economic conditions, can give a better picture of the company's prospects and risks.

Ratios used in *du pont system*

1. Profitability Ratio

a. Return On Investment

According to Kasmir (2010: 202) that, *Return On Investment* is a ratio that shows the return (Return) on the amount of assets used in the company a measure of management efficiency. This ratio shows the yield of all assets it controls regardless of funding sources and is usually measured as a percentage. The smaller this ratio the worse and vice versa, which means that this ratio is used to measure the effectiveness and overall operation of the company. The calculation formula is as follows:

$$ROI = NPM \times TATO$$

b. Return On Equity (ROE)

According to Hery (2016: 107), ROE is a ratio that shows how much equity contributes in creating net income. The higher the return on equity means the higher the amount of net profit generated from each rupiah of funds embedded in equity. According to Hantono (2015: 12), ROE is a ratio that shows the level obtained by business owners from the capital that has been spent on the business.

$$ROE = \frac{\text{Net Profit} \times 100}{\text{Total Equity}}$$

c. Net Profit Margin

Net Profit Margin according to Kasmir (2010: 199) is a measurement of the company's ability to generate profits and certain sales levels. The high profit margin achieved by the company shows that the better the company's efficiency, and vice versa. The calculation formula is as follows:

$$NPM = \frac{\text{Net Profit After Tax (EAT)} \times 100}{\text{Net Sales}}$$

2. Activity Ratio

a. Total Asset Turnover

According to Harahap (2010: 305) said "*Total Asset Turnover (TATO)* is a ratio that describes asset turnover measured from sales volume. The greater this ratio, the better it shows that assets can rotate faster in achieving profits". The formula used in calculating asset turnover is as follows:

$$TATO = \frac{\text{Total Net Sales}}{\text{Total Assets}} \times 1 \text{ time}$$

Formula *Du Pont System*

Du Pont System Analysis is an activity carried out in the process of analyzing financial statements through comparisons between components of financial statements for the purpose of evaluating the performance of a legal entity. The Du Pont method provides insight into the various factors that cause the ups and downs of a company's financial performance. According to Moridu, (2020: 42) "Du Pont System analysis is an approach to assess financial performance because of the relationship between sellers, assets and profits generated". The formula is as follows:

$$\begin{aligned} \text{ROE Du Pont} &= (\text{Net Profit Margin}) \times (\text{Total Asset Turnover}) \times (\text{Multiplier Equity}) \\ &= \frac{\text{Earning After Tax}}{\text{Total Sales}} \times \frac{\text{Total Sales}}{\text{Total Asset}} \times \frac{\text{Total Asset}}{\text{Total Equity}} \end{aligned}$$

Source : Atmaja (2008 : 419)

Operational Variables

Variable	Ratio	Measurement
<i>Total Asset Turnover</i>	TATO	$TATO = \frac{\text{Sales}}{\text{Total Asset}}$
<i>Net Profit Margin</i>	NPM	$NPM = \frac{EAT}{\text{Total Sales}}$
<i>Multiplier Equity Ratio</i>	MER	$MER = \frac{\text{Total Asset}}{\text{Total Equity}}$
<i>Return On Investment Du Pond</i>	ROI – DP	$ROI \text{ Du Pont} = TATO \times NPM$
<i>Return On Equity Du Pond</i>	ROE - DP	$ROE \text{ Du Pont} = ROI \text{ Du Pont} \times MER$

C. RESEARCH METHODOLOGY

This study used descriptive and quantitative research methods. This research is an applied research which is a research conducted to obtain information that is used as a consideration in solving a problem. In addition, a descriptive approach is also used to analyze by describing or describing the data that has been collected as it is and comparing with the observations of researchers who provide conclusions on the results of the analysis. With that quantitative approach means a form of data analysis in the form of numbers using statistical calculations.

The population in this study was all pharmaceutical companies, with a sample of 5 companies. The companies sampled in this study were selected using a sampling technique, namely the *purposive sampling* method. The sampling technique of data sources by considering the objects sampled is registered on the IDX in 2018-2022, publishes financial statements during the observation period (2018-2022) and does not have missing data. The companies sampled include: PT Adaro Energy Tbk, PT Golden Energy Mines Tbk, PT Indo Tambang Mega Raya Tbk, PT Harum Energy Tbk, and PT Resource Alam Indonesia Tbk.

The data used is secondary data from the Indonesia Stock Exchange. The data is in the form of financial statements. The source of data in this study is in the form of financial statement data published on the Indonesia Stock Exchange and obtained from the IDX website, namely <http://www.idx.co.id>. The data needed is in the form of financial statements for each company for 2018-2022. The data analysis technique to be used is quantitative data analysis techniques, namely the analysis of financial data which includes balance sheet statements and income statements. There are several steps taken, namely:

- Collecting financial data of coal mining companies from 2018-2022.
- Existing financial data will be classified as required in the formula.
- Simplifying the financial data needed in the table from 2018-2022.
- Enter financial data that has been classified in tables into existing formulas.
- Analyze financial performance from 2018 to 2022 based on the calculation of existing formulas.

D. RESULTS AND DISCUSSION

The results of the research along with the results of discussions from 5 coal mining companies listed on the Indonesia Stock Exchange. Du Pont System approaches more integrative and uses the composition of financial statements as an element of analysis in assessing the company's financial performance, *Du Pont System* considers the *return on investment* (ROI) figure important so he starts from this figure Harahap (2006: 333). The financial statement data used consists of income statements and balance sheets for the period 2018 to 2022. After calculations were made to the *Du Pont System*, the results were analyzed about the variables used as research.

Performance appraisal using *du pont system* analysis. According to Lianto in Yolanda and Harimurti (2017), *du pont system* is a method used in assessing the effectiveness of company operations, because in *du pont* analysis includes elements of sales, assets used and profits generated by the company. Meanwhile, according to Hani (2015), *du pont system* is a comprehensive financial performance measurement tool, because it is able to directly describe the two main reports of the Balance Sheet and Profit and Loss financial statements.

By using the *Du Pont System*, it can be seen the increase or decrease of each element of financial statements with an integrative approach and using the composition of financial statements as an element of analysis that describes the relationship between financial statement items in more detail. Here is a table that shows the average NPM, TATO, and ROI of all companies for three years, as follows:

a. Determining the value of *Net Profit Margin* for 2018-2022 in coal mining companies will be carried out with the following calculations :

Table 1
Net Profit Margin

Company	2018 (%)	2019 (%)	2020 (%)	2021 (%)	2022 (%)	Average
PT Adaro Energy Tbk	6,76	6,03	2,48	37,32	26,26	15,77
PT Golden Energy Mines Tbk	14,34	8,55	11,78	42,70	61,63	27,8
PT Indo Tambang Mega Raya Tbk	17,93	10,46	3,26	2,85	45,43	15,99
PT Harum Energy Tbk	8,59	4,50	12,01	11,24	29,70	13,21
PT Resource Alam Indonesia Tbk	0,41	4,29	-7,98	17,40	22,95	7,41
Average	9,61	6,77	4,31	22,30	37,19	16,04

The average NPM value of coal sub-sector mining every year is known to have decreased in 2019 by 9.61% to 6.77% in 2019. Furthermore, it decreased to 4.31% in 2020, in 2021 it increased to 22.30% until 2022 it increased by 37.19%. When viewed from the average value of NPM per company at PT Adaro Energy Tbk of 15.77%, PT Golden Energy Mines Tbk of 27.8%, PT Indo Tambang Mega Raya Tbk of 15.99%, PT Harum Energy Tbk of 13.21%, and PT Resource Alam Indonesia Tbk of 7.41%. If the industry standard for NPM is $\geq 20\%$, which can be interpreted that the company is able to generate net profit in carrying out its sales activities. By considering the average value, it can be concluded that there is one company with a value above 20%, namely PT Golden Energy Mines Tbk at 27.8%. So

only one company can be said to be able to generate net profit in carrying out sales activities, while the other four companies still have substandard numbers which means that the company's efficiency in sales activities to generate profits is not good enough.

b. Determining the Total Asset Turnover (TATO) of Coal Sub-Sector Mining Companies for the 2018-2022 Period

Table 2
Total Asset Turnover (TATO)

Company	2018 (times)	2019 (times)	2020 (times)	2021 (times)	2022 (times)	Average
PT Adaro Energy Tbk	0,51	0,49	0,40	0,53	0,75	0,54
PT Golden Energy Mines Tbk	1,49	1,42	1,30	1,91	2,59	1,74
PT Indo Tambang Mega Raya Tbk	1,39	1,42	1,02	1,25	1,38	1,29
PT Harum Energy Tbk	0,72	0,56	0,29	0,37	0,70	0,53
PT Resource Alam Indonesia Tbk	0,49	0,91	0,66	1,00	1,50	0,91
Average	0,92	0,96	0,73	1,01	1,38	1,00

The average value of coal mining sub-sector TATO every year is known to be still unstable. In 2018 the TATO value was 0.92 times, 2019 was 0.96 times, 2020 was 0.73 times, 2021 was 1.01 times and in 2022 it was 1.38 times. When viewed from the average value of TATO per company at PT Adaro Energy Tbk of 0.54 times, PT Golden Energy Mines Tbk of 1.74 times, PT Indo Tambang Mega Raya Tbk of 1.29 times, PT Harum Energy Tbk of 0.53 times, and PT Resource Alam Indonesia Tbk of 0.91 times. If the industry standard for tattoos is ≥ 2 times, this can mean that the company is able to generate net sales by utilizing its assets. By considering the average value, it can be concluded that the average TATO value of the 5 companies is still below 2 times. That way it can be concluded that the companies sampled for five years still have values below industry standards, which means that the effectiveness of using all company assets in sales activities is not good enough.

c. Determining the Multiplier Equity Ratio (MER) of Coal Sub-Sector Mining Companies for the 2018-2022 Period

Table 3
Multiplier Equity Ratio (MER)

Company	2018 (%)	2019 (%)	2020 (%)	2021 (%)	2022 (%)	Average
PT Adaro Energy Tbk	1,64	1,81	1,61	1,16	1,65	1,57
PT Golden Energy Mines Tbk	2,22	2,18	2,33	2,62	2,02	2,27
PT Indo Tambang Mega Raya Tbk	1,49	1,37	13,69	1,39	1,35	3,86
PT Harum Energy Tbk	1,20	1,12	1,10	1,34	1,29	1,23
PT Resource Alam Indonesia Tbk	1,35	1,35	1,29	1,34	1,38	1,34
Average	1,58	1,57	4,00	1,57	1,54	2,058

The average value of MER mining in the coal sub-sector every year is known to be still unstable. In 2018 the MER value was 1.58%, 2019 was 1.57%, 2020 was 4.00%, 2021 was 1.57% and in 2022 was 1.54%. When viewed from the average value of MER per company at PT Adaro Energy Tbk of 1.57%, PT Golden Energy Mines Tbk of 2.27%, PT Indo

Tambang Mega Raya Tbk of 3.86%, PT Harum Energy Tbk of 1.23%, and PT Resource Alam Indonesia Tbk of 1.34%. If the industry standard for MER is $\geq 40\%$, this can mean that the company is able to generate net sales by utilizing its capital. By considering the average value, it can be concluded that the average MER value of the 5 companies is still below 40%. That way it can be concluded that the companies sampled for five years still have values below industry standards, which means that the effectiveness of using all company assets in sales activities is not good enough.

d. Determining Return On Investment (ROI) of Du Pont Coal Sub-Sector Mining Companies for the 2018-2022 Period

Table 4
Du Pont Return On Investment (ROI - DP)

Company	2018 (%)	2019 (%)	2020 (%)	2021 (%)	2022 (%)	Average
PT Adaro Energy Tbk	3,46	2,89	0,99	19,64	19,73	9,34
PT Golden Energy Mines Tbk	21,38	12,13	15,37	81,69	159,40	57,99
PT Indo Tambang Mega Raya Tbk	24,96	14,85	3,34	3,56	62,56	21,85
PT Harum Energy Tbk	6,18	2,50	3,55	4,14	20,68	7,41
PT Resource Alam Indonesia Tbk	0,20	3,90	5,30	17,40	34,38	12,24
Average	11,24	7,25	5,71	25,29	59,35	21,77

The average ROI-DP value of coal sub-sector mining every year is known to experience ups and downs. In 2018 the ROI-DP value was 11.24%, 2019 decreased to 7.25%, in 2020 it decreased to 5.71%, 2021 to 2022 increased, 2021 by 25.29% and in 2022 by 59.35%. When viewed from the average ROI-DP value per company at PT Adaro Energy Tbk of 9.34%, PT Golden Energy Mines Tbk of 57.99%, PT Indo Tambang Mega Raya Tbk of 21.85%, PT Harum Energy Tbk of 7.41%, and PT Resource Alam Indonesia Tbk of 12.24%. If the industry standard for ROI is $\geq 30\%$, which can mean that the company is able to generate net income by utilizing its assets. From this data, it is known that there is one company whose value is above 30%, namely PT Golden Energy Mines Tbk by 57.99%. While other companies are still below 30%. Although the average ROI-DP value of the industry increases every year, it does not show that the average company can meet the existing ROI-DP standards. Of the five companies, it is known that there is only one company that meets industry standards which shows that the financial performance of coal mining companies for five years has a value below industry standards so that it can be said that the company's efficiency in managing all assets to generate profits is not good enough.

e. Determining Return On Equity (ROE) of Du Pont Coal Sub-Sector Mining Company for the 2018-2022 Period

Table 5
Return On Equity Du Pont (ROE - DP)

Company	2018 (%)	2019 (%)	2020 (%)	2021 (%)	2022 (%)	Average
PT Adaro Energy Tbk	0,84	0,87	0,64	0,61	1,24	0,84
PT Golden Energy Mines Tbk	3,31	3,09	3,04	5,01	5,23	3,94
PT Indo Tambang Mega Raya	2,07	1,94	14,01	1,73	1,79	4,31

Tbk						
PT Harum Energy Tbk	0,87	0,62	0,32	0,49	0,90	0,64
PT Resource Alam Indonesia Tbk	0,66	1,23	0,86	1,34	2,07	1,23
Average	1,55	1,55	16,45	1,84	2,25	2,19

The average ROE-DP value of coal sub-sector mining every year is known to experience ups and downs. In 2018 the ROE-DP value was 1.55%, 2019 decreased to 1.55%, in 2020 it increased to 16.45%, 2021 decreased by 1.84% in 2022 it increased by 2.25%. When viewed from the average ROE-DP value per company at PT Adaro Energy Tbk of 0.84%, PT Golden Energy Mines Tbk of 3.94%, PT Indo Tambang Mega Raya Tbk of 4.31%, PT Harum Energy Tbk of 0.64%, and PT Resource Alam Indonesia Tbk of 1.23%. If the industry standard for ROE-DP is $\geq 40\%$, which can be interpreted that the company is able to generate net profit by utilizing its capital. From this data, it is known that five companies are still below 30%. Although the average ROE-DP value of coal mining companies increases every year, it does not show that the average company can meet the existing ROE-DP standards. Thus, it can be said that the financial performance of coal mining companies for five years has a value below industry standards so that it can be said that the company's efficiency in managing all assets to generate profits is not good enough.

E. CONCLUSIONS AND SUGGESTIONS

Based on the results of the analysis of financial performance assessment in coal sub-sector mining companies for the 2018-2022 period using the du pont system, it can be concluded that:

1. The company's assessment of the Net Profit Margin of coal mining companies for the 2018-2022 period is only one company with a value above 20%, namely PT Golden Energy Mines Tbk of 27.8 %. So only one company can be said to be able to generate net profit in carrying out sales activities, while the other four companies still have substandard numbers which means that the company's efficiency in sales activities to generate profits is not good enough.
2. The company's assessment of the *Total Asset Turnover* of coal mining companies for the 2018-2022 period that the companies sampled for five years still have values below industry standards, which means that the effectiveness of using the company's overall assets in sales activities is not good enough.
3. The Company's assessment of the Multiplier Equity Ratio of coal mining companies for the 2018-2022 period that the companies sampled for five years still have values below industry standards, which means that the effectiveness of using the company's overall assets in sales activities is not good enough.
4. The company's assessment of Du Pont's Return On Investment of coal mining companies for the 2018-2022 period that of the five companies, it is known that there is one company whose value is above 30%, namely PT Golden Energy Mines Tbk at 57.99 %. While the other four companies have not met industry standards which show that the financial performance of coal mining companies for five years has a value below industry standards so that it can be said that the company's efficiency in managing all assets to generate profits is not good enough.
5. The company's assessment of Du Pont's *Return On Equity* of coal mining companies for the 2018-2022 period that the companies sampled for five years still have values below industry standards, which means that the effectiveness of using the company's overall assets in sales activities is not good enough.

As for the advice that the author gives, namely:

1. Based on the *du pont system* analysis of the net profit margin ratio that fluctuates when viewed in the previous year, the suggestion for the five companies that are the object of this study is to reduce costs that are considered unnecessary so that net profit *after tax* or net profit can increase, because sales or *net sales* show good performance and always increase for five years.
2. The *du pont system* analysis based on the total asset turn over ratio shows poor performance, because it always does not meet industry standards for 5 years. So there needs to be a re-evaluation.
3. The *du pont system* analysis based on the multiplier equity ratio shows poor performance, because it always does not meet industry standards for 5 years. So there needs to be a re-evaluation.
4. The *du pont system* analysis on the return on investment ratio also fluctuates, although not too significantly. The five companies that are the object of this study are advised to increase net profit margin, namely reducing expenses or costs that are considered unnecessary so that *net profit after tax* can increase.
5. Du Pont system analysis on the *return on equity du pont ratio* is still declining so that the company is expected to pay more attention to the return on profits generated by the company by utilizing existing capital.

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