



WWJMRD 2021; 7(12): 86-92

www.wwjmr.com

International Journal

Peer Reviewed Journal

Refereed Journal

Indexed Journal

Impact Factor SJIF 2017:

5.182 2018: 5.51, (ISI) 2020-

2021: 1.361

E-ISSN: 2454-6615

DOI: 10.17605/OSF.IO/TV5PG

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Comparative Analysis of the Financial Performance of Companies in the Metal and Other Mineral Mining Sector for the 2015-2019 Period

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Abstract

Economic conditions, supply constraints, facilities and policies are currently the challenges faced by mining industry companies in the mineral and other metal sub-sectors. This requires the company to improve the performance in order to maintain its existence. Financial performance is one of the important performance appraisal bases for companies. The purpose of this study is to compare the performance of mineral and other metal sub-sector mining companies listed on the Indonesia Stock Exchange (IDX) in the period 2015 to 2019. The type of research is descriptive comparative. The study was conducted on four companies in selected sub-sectors based on the main listing board on the IDX. Data processing techniques and data analysis using Anova. The results show that there are significant differences in financial performance between mining sector companies in the mineral and other metals sub-sector for the 2015-2019 period in terms of liquidity, solvency and activity ratios. As for the profitability ratio, there is no significant difference in financial performance.

Keywords: Comparison of Financial Performance, Financial Ratios, Anova, Metal and Other Mineral Mining Sector.

1. Introduction

The mining sector is a strategic sector in the economy and is one of the mainstays of the government because it provides significant benefits. Some of the leading commodities from the mining sector are coal, nickel, gold, copper, silver, tin iron ore and bauxite (Investor.id, 2018). The potential of Indonesia's mining sector commodities such as nickel occupies the third position at the global level, while gold contributes around 39 percent of world reserves (Kumparanbisnis, 2020). Based on data from the Ministry of Energy and Mineral Resources (2020), the mining sector, especially the mineral and coal sub-sector (minerba) contributes to Non-Tax State Revenue of Rp45.49 trillion. This achievement contributed around 11% of the total Non-Tax State Revenue of the 2019 State Revenue and Expenditure Budget.

Opportunities for innovation to increase added value, especially in the mineral and other metal mining sector commodities, are still very open (www.esdm.go.id). The existence of a downstream policy requires companies engaged in the mineral and other metals sub-sector to be able to transform to produce value-added products (<https://ekonomi.bisnis.com/>). Downstream policy is stated in Law No.4/2009 concerning Mineral and Coal Mining, also supported by Law No.3/2014 concerning industry which further strengthens these opportunities. However, there are also challenges for companies operating in this sector, including uncertain national and global economic conditions, unstable mining commodity prices, constraints on energy supply and infrastructure as well as company performance. This requires companies engaged in the metal and other mineral mining sector to continuously improve the company's performance in order to maintain its existence.

The performance of other metal and mineral sub-sector companies can be measured using financial information or also using non-financial information. Even so, most company performance is measured by financial ratios within a certain period (Chariri and Ghazali, 2007). Financial performance is one of the basic assessments of the company's financial condition based on an analysis of the company's financial ratios (Munawir, 2014). To find

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out the company's financial performance, information about the financial statements is needed. Financial statements are one of the perspectives that can provide an overview of the condition or performance of the company, as well as being the basis for decision making. Financial Accounting Standards (Indonesian Accounting Association, 2017) states that "The purpose of financial statements is to provide information regarding the financial position, performance and changes in financial position of a company that is useful for a large number of users in making economic decisions".

Financial performance can be measured using financial ratios. Financial Ratios according to Kasmir (2016) consist of liquidity ratios, solvency ratios, activity ratios, and profitability ratios. Hery (2015) states that financial ratios are numbers obtained from the comparison between one financial statement post and other items that have a relevant and significant relationship. Measurements can be made if there is a comparison ratio. Comparative financial ratios are needed to evaluate the level of management's achievement against the set targets and to determine the company's position in the industry.

Based on this description, the authors are interested in conducting research on "Comparison of the Financial Performance of Companies in the Metal and Other Mineral Mining Sector in the 2015-2019 period". This comparison can provide benefits for management, namely to determine the extent of the company's ability in the midst of industrial competition as well as consideration in evaluating financial performance using financial ratios. The benefits for stakeholders are knowing the performance of these companies for decision making.

Based on the background of the problems that have been described previously, the objectives of this study are:

- 1 To find out whether there is a significant difference in financial performance between the mining sector companies in the metal and other mineral sub-sector for the 2015-2019 period seen from the liquidity ratio.
- 2 To find out whether there are significant differences in financial performance between companies in the mining sector in the metal and other mineral sub-sector for the 2015-2019 period seen from the solvency ratio.
- 3 To find out whether there are significant differences in financial performance between companies in the metal and other mineral sub-sector mining sector for the 2015-2019 period, seen from the activity ratio.
- 4 To find out whether there are significant differences in financial performance between companies in the metal and other mineral sub-sector mining sector for the 2015-2019 period seen from the profitability ratio.

2. Previous Research

Research on financial performance comparisons has been carried out by several researchers, including the Pangemanan et al., (2017) study regarding the analysis of the financial performance of eight other metal and mineral sub-sector mining companies listed on the Indonesia Stock Exchange for the period 2012-2015. This study uses the Z-score method to determine the potential for bankruptcy or the health of the company both now and in the future. The next study on the comparison of the company's financial performance was conducted by Latuconsina and Rizal (2018), with the sample being state-owned mining companies in Indonesia and China in 2014-2016, using

analysis of liquidity, solvency, activity and profitability ratios.

Profitability ratio analysis is used to assess the effectiveness of the use of available resources and their influence on the level of financial performance, which is a study conducted by Asyikin and Veronika (2011) by comparing the financial performance of Government-Owned Pharmaceutical Companies (BUMN) with private pharmaceutical companies listed on the Stock Exchange. Indonesian Securities for the 2003-2009 observation period. The analysis of profitability and liquidity ratios was also carried out by Ibrahim (2015) with his research on the comparison of financial performance between conventional and Islamic banking in the United Arab Emirates. Ratio analysis of profitability, liquidity and solvency, was carried out by Sidiki et al. (2014) in his research on the comparison of the financial performance of cigarette companies listed on the IDX. Sampul (2013) conducted a study on the comparison of the financial performance of BUMN and BUMS in the pharmaceutical sector based on profitability ratio analysis and used the Anova test to prove the hypothesis. While Basyith and Ismi (2019) used the variables of liquidity, solvency and activity in their research to determine the effect of these variables on the financial performance of companies in the PMA and PMDN mining sectors on the Indonesia Stock Exchange. The use of liquidity, solvency and activity variables was also carried out by Ermaya (2015) in his research on measuring the financial performance of companies in the mineral and other metal sub-sector for the period 2009 – 2013.

3. Research Methods

The type of research used is descriptive comparative research because this research describes the properties and actual conditions of two or more research objects, which are then compared, aiming to find out the difference between the financial performance of the two or more research objects. Judging from the type of data, this research includes quantitative research using secondary data sources in the form of financial reports and literature studies. Data collection is done by downloading information from the Indonesia Stock Exchange (IDX) website.

The sampling technique in this study was carried out by purposive sampling, namely taking sample members from the population with certain considerations (Indriantoro and Supomo, 2014). Sampling considerations in this study are as follows:

- 1) The sample of companies in this study is only limited to finance companies in the mining sector in the metal and other mineral sub-sectors on the main listing board of the Indonesia Stock Exchange. The main characteristics of the main board are for issuers that have a large size and have a track record, operate in the same core business for more than 36 months, record operating profit in the last financial year, audited financial statements for more than three years, opinion on financial statements is fair. without exception for the last two years, and net tangible assets of more than IDR 100,000,000,000 (www.idx.co.id). The list of names of companies that are the object of this research are:

Table 1: List of Research Object Company Names.

No.	Company Names
1	PT.Aneka Tambang Tbk (Antam)
2	PT.Timah Tbk. (Timah)
3	PT Vale Indonesia Tbk (Vale)
4	PT Pelat Timah Nusantara (Latinusa)

PT.Aneka Tambang Tbk and PT Timah Tbk is a State-Owned Enterprise (BUMN), PT Vale Indonesia Tbk and PT Pelat Timah Nusantara are Private Owned Enterprises (BUMS). The availability of public data is also one of the

criteria for selecting the object of research.

- 2) Financial performance assessment is carried out by comparing financial ratios in terms of liquidity ratios, solvency ratios, activity ratios and profitability ratios.

The period of research data is from 2015 to 2019

Operationalization of variables is needed to determine research indicators so that hypothesis testing using tools can be carried out properly. In more detail the operationalization of the variables measured in this study can be seen in the following table:

Table 2: Variable Operations.

Variable	Sub Variable	Dimension	Indicator	Measurement	Scale
Variable x = Ratios	x ₁ Liquidity Ratio: the ratio used to measure how liquid a company is.	Current Ratio	<ul style="list-style-type: none"> Current Assets Current Liabilities 	$\frac{\text{Current Assets}}{\text{Current Liabilities}}$	Ratio
		Quick Ratio	<ul style="list-style-type: none"> Current assets inventory current liabilities 	$\frac{\text{Current Assets} - \text{Inventory}}{\text{Current Liabilities}}$	Ratio
		Cash Ratio	<ul style="list-style-type: none"> cash current liabilities 	$\frac{\text{Cash}}{\text{Current Liabilities}}$	Ratio
	x ₂ Solvency Ratio: the ratio used to measure the extent to which the company's assets are financed with debt.	Debt to Total Asset	<ul style="list-style-type: none"> Total Debt Total Assets 	$\frac{\text{Total Liabilities}}{\text{Total Assets}}$	Ratio
		Debt to Equity Ratio	<ul style="list-style-type: none"> Total Debt Total Equity 	$\frac{\text{Total Debt}}{\text{Total Equity}}$	Ratio
		Long Term Debt to Equity Ratio	<ul style="list-style-type: none"> Long term debt Total Equity 	$\frac{\text{Total long term debt}}{\text{Total Equity}}$	Ratio
	x ₃ Activity Ratio: this ratio is used to measure the level of efficiency (effectiveness) of the use of company resources	Fixed Assets Turn Over	<ul style="list-style-type: none"> Sales Total Fix Assets 	$\frac{\text{Sales}}{\text{Total Fix Assets}}$	Ratio
		Total Assets Turn Over	<ul style="list-style-type: none"> Sales Total Assets 	$\frac{\text{Sales}}{\text{Total Assets}}$	Ratio
		Inventory Turn Over	<ul style="list-style-type: none"> Sales Inventory 	$\frac{\text{Sales}}{\text{Inventory}}$	Ratio
	x ₄ Profitability Ratio: a ratio to assess the company's ability to seek profit	ROA	<ul style="list-style-type: none"> Profit after interest and taxes Total assets 	$\frac{\text{Profit after interest and taxes}}{\text{Total Assets}}$	Ratio
		ROE	<ul style="list-style-type: none"> Profit after interest and taxes Total equity 	$\frac{\text{Profit after interest and taxes}}{\text{Total Equity}}$	Ratio
		NPM	<ul style="list-style-type: none"> Profit after interest and taxes Sales 	$\frac{\text{Profit after interest and taxes}}{\text{Sales}}$	Ratio

After calculating each financial ratio for each company, then an analysis is carried out using the Variance Test (Anova) method. Analysis of variance or ANOVA is a multivariate analysis technique that serves to distinguish the mean of more than two data groups by comparing the variances (Ghozali, 2009).

4. Hypotheses And Thinking Framework

The hypothesis is a temporary answer to the formulation of the research problem. Because this research is a comparative study, the proposed hypothesis is also a comparative hypothesis. Based on the description above, the hypotheses of this research are:

$$H_0: \mu_{\text{ANTAM}} = \mu_{\text{TIMAH}} = \mu_{\text{LATINUSA}} = \mu_{\text{PT VALE}}$$

H₁: there is at least one company that gives a significantly different average.

- H_0 : There is no significant difference in financial performance between PT Antam Tbk, PT Timah Tbk, PT Vale Indonesia Tbk, and PT Pelat Timah Nusantara Tbk for the 2015-2019 period seen from the ratio of Liquidity, Solvency, Activity and Profitability.
- H_1 : At least there is one company that provides a significantly different average between PT Antam Tbk, PT Timah Tbk, PT Vale Indonesia Tbk, and PT Pelat Timah Nusantara Tbk for the 2015-2019 period seen from the ratio of Liquidity, Solvency, Activity and Profitability.

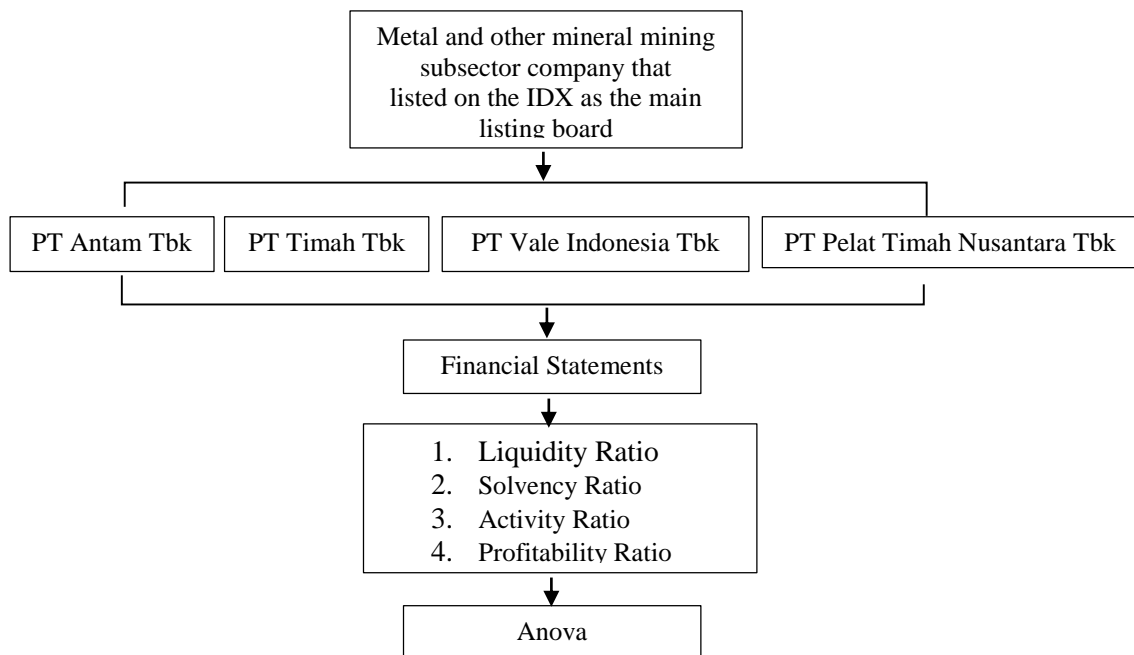


Fig 1: Framework.

5. Result And Discussion

Anova test was conducted to test the average difference between companies. This is done because it can see in

detail the differences in all observation variables between each company.

Liquidity

Table 3: Anova Test Results, Liquidity Ratio.

Variabel	Perusahaan	Mean	Std. Deviation	F	Sig.	Subset
Current Ratio	Antam	1.9294	0.5433	59.120	0.000**	b
	Timah	1.5942	0.4034			ab
	Latinusa	1.1369	0.0401			a
	Vale	4.2140	0.4182			c
Quick Ratio	Antam	1.5980	0.5211	58.499	0.000**	b
	Timah	0.8563	0.3086			a
	Latinusa	0.7656	0.0760			a
	Vale	3.3281	0.3310			c
CashRatio	Antam	1.2164	0.5529	27.252	0.000**	b
	Timah	0.2002	0.1141			a
	Latinusa	0.1931	0.0824			a
	Vale	1.5946	0.2224			b

Description: **) significant alpha 5%

The Anova test results for the current ratio with a prob value (0.000) less than 5% alpha, reject H_0 , meaning that there are at least a pair of companies that produce significantly different averages. Duncan's further test results show that PT Vale Indonesia Tbk has the highest average (4,2140) and is significantly different from other companies. The average of PT Aneka Tambang, Tbk (1.9294) was significantly different from PT Pelat Timah Nusantara (1.1369). The greater the value of the current ratio, the higher the company's ability to cover its short-term obligations. Each company has the ability to pay its short-term obligations well, but PT Vale Indonesia Tbk in

this case is the best in its ability to pay obligations that are due as soon as they are billed in full. This is in line with research by Prabowo and Korsakul (2020) which state that the higher the liquidity ratio, the higher the level of company security and vice versa.

The results of the Anova test for the quick ratio with a prob value (0.000) less than 5% alpha, reject H_0 , meaning that there are at least a pair of companies that produce significantly different averages. Duncan's further test results show that PT Vale Indonesia Tbk has the highest average (3,3281) and is significantly different from other companies. The average of PT Aneka Tambang Tbk is the

second highest average (1.5980) and is significantly different from the others. Meanwhile, the average of PT Timah Tbk (0.8563) and PT Pelat Timah Nusantara (0.7656) was not significantly different. Each company has the ability of the most liquid current assets in paying its short-term obligations properly, however PT Vale Indonesia Tbk in this case has better financial performance with the highest quick ratio value. In line with the research of Barus et al. (2017) which states that the highest quick ratio value means that the company's performance is superior in terms of the ability to pay off its short-term obligations using the company's current assets which have been reduced by the company's total inventory.

The Anova test results for the cash ratio with a prob value (0.000) less than 5% alpha, reject H₀, meaning that there are at least a pair of companies that produce significantly different averages. Duncan's further test results show that PT Vale Indonesia Tbk (1.5946) and PT Aneka Tambang Tbk (1.2164) have the highest average and are not significantly different. While the lowest average is owned by PT Timah Tbk (0.2002) and PT Pelat Timah Nusantara (0.1931). This means that PT Vale Indonesia Tbk has the availability of cash to pay its debts better.

Solvency

Table 4: Anova Test Results, Solvency Ratio.

Variable	Companies	Mean	Std. Deviation	F	Sig.	Subset
Debt to Total Asset	Antam	0.3947	0.0097	60.021	0.000**	a
	Timah	0.5628	0.1252			b
	Latinusa	0.6828	0.0197			c
	Vale	0.1626	0.0280			d
Debt to Equity Ratio	Antam	0.6523	0.0266	5.275	0.010**	a
	Timah	1.3992	0.8707			ab
	Latinusa	2.1621	0.2015			B
	Vale	1.8048	0.8903			B
LTDr	Antam	0.3834	0.0381	11.548	0.000**	A
	Timah	0.3418	0.1866			A
	Latinusa	0.0912	0.0348			B
	Vale	0.1177	0.0411			B

Description: **) significant alpha 5%

The results of the Anova test for debt to total assets with a prob value (0.000) less than 5% alpha, reject H₀, meaning that there are at least a pair of companies that produce significantly different averages. Duncan's further test results showed that PT Pelat Timah Nusantara (0.6828) and PT Timah Tbk (0.5628) had the highest average and significantly different from PT Aneka Tambang Tbk (0.3947) and PT Vale Indonesia Tbk (0.1626). This shows that PT Pelat Timah Nusantara has the highest corporate financial risk. This is in line with the research of Prabowo and Korsakul (2020) which state that a high solvency ratio is not good for the company because the loan will get bigger, so the risk will also be greater.

The Anova test results for the debt-to-equity ratio with a prob value (0.010) less than 5% alpha, reject H₀, meaning that there are at least a pair of companies that produce significantly different averages. Duncan's further test results show that PT Pelat Timah Nusantara (2.1621) has the highest average and is significantly different from other companies. While the lowest average is owned by PT Aneka Tambang Tbk (0.6523). This shows that the capital

structure of PT Pelat Timah Nusantara mostly comes from loans to creditors compared to the company's own capital. In line with the research of Barus et al. (2017) that for reasons of security and a relatively small level of risk, the company that has the lowest debt to equity ratio value in this case is PT Aneka Tambang Tbk has a better performance when viewed from the solvency ratio.

The results of the Anova test for the long-term debt to equity ratio with a prob value (0.000) less than 5% alpha, reject H₀, meaning that there are at least a pair of companies that produce significantly different averages. Duncan's further test results show that PT Aneka Tambang Tbk (0.3834) and PT Timah Tbk (0.3418) have the highest average and are significantly different from other companies. While the lowest average is owned by PT Vale Indonesia Tbk (0.1177) and PT Pelat Timah Nusantara (0.0912). This shows that PT Vale Indonesia Tbk has the lowest risk in terms of losses borne by the company.

Activity

Table 5: Anova Test Results, Activity Ratio.

Variable	Companies	Mean	Std. Deviation	F	Sig.	Subset
Fixed Assets Turn Over	Antam	0.8188	0.4125	147.167	0.000**	a
	Timah	1.8940	0.2975			b
	Latinusa	4.4574	0.4289			c
	Vale	0.4389	0.0582			a
Total Assets Turn Over	Antam	0.5827	0.3320	19.073	0.000**	a
	Timah	0.7837	0.0941			a
	Latinusa	1.1381	0.0627			b
	Vale	0.3200	0.0419			c
Inventory Turn Over	Antam	10.6581	4.9769	8.215	0.002**	a
	Timah	2.9114	0.5318			b
	Latinusa	4.7536	0.5332			b
	Vale	5.7232	1.1554			b

Description: **) significant alpha 5%

The results of the Anova test for fixed assets turnover with a value of prob (0.000) less than 5% alpha, reject H₀, meaning that there are at least a pair of companies that produce significantly different averages. Duncan's further test results show that PT Pelat Timah Nusantara Tbk (4.4574) has the highest average and is significantly different from other companies, while the lowest average is owned by PT Vale Indonesia Tbk (0.4125) and PT Aneka Tambang Tbk (0.8188). This means that PT Pelat Timah Nusantara is the most efficient in using fixed assets. This is in line with research by Prabowo and Korsakul (2020) which state that the higher the activity ratio, the higher the efficiency of the company and vice versa.

Anova test results for total assets turnover with a value of prob (0.000) less than 5% alpha, reject H₀, meaning that there are at least a pair of companies that produce significantly different averages. Duncan's further test results show that PT Pelat Timah Nusantara Tbk (1.1381)

has the highest average and is significantly different from other companies, while the lowest average is owned by PT Timah Tbk (0.7837) and PT Aneka Tambang, Tbk (0.5827). This means that PT Pelat Timah Nusantara Tbk is the most efficient in using all its assets.

The results of the Anova test for inventory turnover with a prob value (0.002) less than 5% alpha, reject H₀, meaning that there are at least a pair of companies that produce significantly different averages. Duncan's further test results show that PT Aneka Tambang Tbk (10.6581) has the highest average and is significantly different from other companies. While the lowest average is owned by PT Timah Tbk (2.9114), PT Pelat Timah Nusantara Tbk (4.7536) and PT Vale Indonesia Tbk (5.7232). This means that PT Aneka Tambang, Tbk is the most efficient in managing inventory.

Profitability

Table 6: ANOVA Test Results Solvency Ratio.

variabel	Companies	Mean	Std. Deviation	F	Sig.	Subset
ROA	ANTAM	-0.0016	0.0274	0.567	0.645	a
	TIMAH	0.0117	0.0269			a
	LATINUSA	-0.0028	0.0306			a
	VALE	0.0138	0.0158			a
ROE	ANTAM	-0.0026	0.0455	0.154	0.926	a
	TIMAH	0.0103	0.0753			a
	LATINUSA	-0.0084	0.0937			a
	VALE	0.0164	0.0187			a
NPM	ANTAM	-0.0157	0.0687	1.303	0.308	a
	TIMAH	0.0172	0.0323			a
	LATINUSA	-0.0017	0.0260			a
	VALE	0.0388	0.0464			a

Description: **) significant alpha 5%

The results of the ANOVA test for Return on Assets with a prob value of (0.645) greater than 5% alpha then accept H₀ which means that there is no significant average difference between companies.

The results of the ANOVA test for Return on Equity with a prob value of (0.926) greater than 5% alpha, then accept H₀ which means that there is no significant difference in average between companies.

The results of the ANOVA test for Net Profit Margin with a value of prob (0.308) greater than 5% alpha then accept H₀ which means that there is no significant difference in average between companies.

6. Summary And Concluding Remarks

1. There is a significant difference in financial performance between companies in the Mineral and Other Metal Mining Sector for the 2015-2019 period seen from the Liquidity ratio. In the current ratio and quick ratio, PT Vale Indonesia Tbk has the highest average and is significantly different from other companies. Judging from the cash ratio, PT Vale Indonesia Tbk and PT Aneka Tambang Tbk have the highest average and not significantly different. While the lowest average is owned by PT Timah Tbk and PT Pelat Timah Nusantara.
2. There is a significant difference in financial performance between companies in the Mineral and Other Metal Mining Sector for the 2015-2019 period seen from the Solvency ratio. In debt to total assets, PT Vale Indonesia Tbk has the highest average and is

significantly different from other companies. While the lowest average is owned by PT Aneka Tambang Tbk. Debt to equity ratio, PT Pelat Timah Nusantara has the highest average and is significantly different from other companies. While the lowest average is owned by PT Aneka Tambang Tbk. Long term debt to equity ratio, PT Aneka Tambang Tbk and PT Timah Tbk have the highest average and are significantly different from other companies. While the lowest average is owned by PT Vale Indonesia Tbk and PT Pelat Timah Nusantara.

3. There is a significant difference in financial performance between companies in the Mineral and Other Metal Mining Sector for the 2015-2019 period seen from the activity ratio. In Fixed Assets Turn Over and Total Assets Turn Over, PT Pelat Timah Nusantara Tbk has the highest average and is significantly different from other companies. While the lowest average is owned by PT Vale Indonesia Tbk and PT Aneka Tambang Tbk. Inventory Turn Over of PT Aneka Tambang Tbk has the highest average and is significantly different from other companies. While the lowest average is owned by PT Timah Tbk, PT Pelat Timah Nusantara and PT Vale Indonesia Tbk.
4. There is no significant difference in financial performance between the mineral and other metal sub-sector companies for the 2014-2018 period seen from the Profitability ratio which includes ROA, ROE and NPM.

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