

Coal Mining Listed Companies and Their Value: Evidence from Indonesia Stock Exchange

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Abstract: Trend of fluctuating stock price and returns can influence investment decisions, so valuations are needed to minimize investment risk. This research aimed to assess the fair value of stock price at Coal Mining Companies listed in IDX 2018. Using Discounted Cash Flow Methods with Free Cash Flow to the Firm approach and to validate the result using relative valuation methods with PER and PBV approach. The sample of this research are ADRO, BYAN, and PTBA which are the big three coal mining company. The research data were derived from historical data years 2013 – 2017 which considered as the reference for the projection years 2018-2022 involving three scenarios namely pessimistic, moderate and optimistic scenario and the value of the research compared within market price on January 2, 2018. Findings from this research showed that using DCF-FCFF method fair value of ADRO, BYAN, and PTBA has undervalued in all scenario. Furthermore, in relative valuation method within PER and PBV approach showed PER and PBV of all sample this research is within the industry range that means a result of the calculation is proper. The conclusion of this research is to recommend buying ADRO, BYAN and PTBA shares.

1 BACKGROUND

Company value is an investor's perception of the level of success of a company in managing existing resources that are often associated with the company's stock price. One tool to assess a company is valuation. The value of a company or an investment instrument is highly dependent on future cash flow or future cash flows that will be received or obtained from the investment instrument.

In the period January-2013 to June-2018, the composite stock price index (CSPI) showed an increasing trend. However, further, when viewed based on return on the period, there are several high return points and low return points.

Based on Figure 1 shows that during the period January-2013 to June-2018, the composite stock price index (CSPI) showed an increasing trend. However, further, when viewed based on return on that period, there were some high return points of 4.5% on September 19, 2013, and low returns of -5.7% on August 19, 2013. This shows the risks and returns of an investment instrument and this first fact which is the reference for researchers to conduct further research. Retyping. After returned the manuscript must be appropriately modified.

Similar behaviour was shown in the shares of 3 Coal Mining companies to be studied, namely ADRO, BYAN & PTBA. This shows the risks and returns of an investment instrument. Show in Figure 2 above shows that during the period January-2013 to June-2018, the stock price of Bayan Resources Tbk (BYAN) shows an increasing trend. However, further, when viewed based on the return (return) in that period, there is a high return point of 18.23% on 24-Oct-2017 and a low return of -22.23% on 3-Aug-2017. This shows the risks and returns of an investment instrument in a BYAN stock. As well as the existence of these data is the initial fact which became the basis of the researchers to conduct further research on the value of BYAN shares.

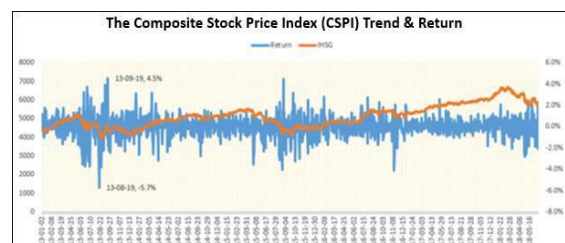


Figure 1: The composite stock price index (CSPI) Trend & return January 2013-June 2018. (Processed).



Figure 2: BYAN stock price & return January 2013 - June 2018. (Processed).



Figure 3: ADRO stock price & return January 2013 - June 2018. (Processed).

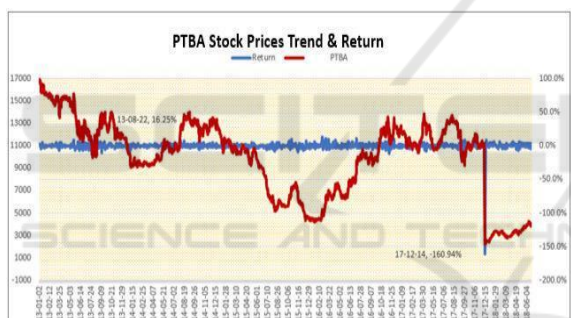


Figure 4: PTBA stock price & return January 2013 - June 2018. (Processed).

Similar to Figure 3, shows that during the period January-2013 to June-2018, Adaro's stock price (ADRO) shows an increasing trend. However, when viewed from the return period, there are some high return points of 69.31% on 1-Aug-2016 and low returns of -57.05% on 3-Oct-2016. With the lowest and highest returns, this is the first fact which is the basis of the researchers to conduct further research on the value of ADRO shares.

The same trend of stock price and return on Figure 4 shows that during the period January-2013 to June-2018, the share price of PT. Bukit Asam (PTBA) shows a fluctuating trend. However, further, when viewed based on return on that period, there were some high return points of 16.25% on 22-Aug-2013 and low returns of -160.94% on 14-Dec-2017. This shows the risk and returns of an investment

instrument in PTBA's shares. With the lowest and highest returns, this is the first fact which is the basis of the researchers to conduct further research on the value of PTBA's shares.

Based on the background description above, that growth of stock prices of coal mining companies in Indonesia from year to year which fluctuate and from the results of previous studies that show stock prices have not reflected real value (intrinsic value), it is necessary to do research with the title "Equity Valuation Using Discounted Cash Flow Method Free Cash Flow to Firm approach and Relative Valuation Method in Coal Mining Companies Listed on the IDX for 2018 projections". The company that will be used as the object of research are PT. Bayan Resources Tbk (BYAN), PT. Adaro Energy Tbk (ADRO) and, PT Bukit Asam Tbk (PTBA).

2 LITERATURE REVIEW

Damodaran (2006) states that in general there are three approaches to valuing an asset, namely: Discounted Cash Flow Valuation, Relative Valuation, Contingent Claim Valuation. The approach chosen in this study is Discounted Cash Flow Evaluation with the approach of Free Cash Flow To Firm (FCFF) and Relative Valuation through the Price to Earning Ratio (PER) and Price Book Value (PBV) approaches. The selection of Discounted Cash Flow with the Free Cash Flow To Firm (FCFF) approach because data sources are easily obtained and exist in published company financial statements (secondary data), the basis is EBIT so that the valuation is all company cash flows and does not pay attention to other income or no, it is suitable for non-banking companies because it also includes an interest factor. While Relative Valuation with the PER Approach and PBV to confirm whether the calculation is done accordingly.

Previous research that has been carried out regarding stock valuation analysis, Reinert, J. (2019) The majority of institutional investors in Germany use the German income approach (GIA) while investors abroad prefer the discounted cash flow (DCF). The debate around the two methods has been mostly theoretical, lacking large-scale empirical evidence. The paper aims to discuss this issue. The analysis consisted of a performance comparison and hedonic regressions based on ordinary least squares. Fitted GIA and DCF values were obtained for all observations in the data set in order to eliminate distortions caused by different property characteristics in the two valuation sub-samples.

Findings of the research hypothesis, stating that the two methods result in statistically identical estimations of value, was rejected. The performance analysis showed that GIA valuations displayed smoother total return performance due to less volatile capital growth in comparison to DCF valuations. Comparing the fitted values obtained from the regressions showed that GIA valuations were on average lower than their DCF counterparts. The difference was small, and both methods resulted in very similar fitted values. The difference between fitted values was not constant over time and decreased toward the end of the analysis period.

Zemba and Hendrawan (2018) discuss valuations in the healthcare sector where opportunities for investment in the health sub-sector business in Indonesia are still wide open, especially in the hospital business. There are not many choices for hospital business investment in Indonesia, and there are only four issuers, MIKA, SAME, SILO, SRAJ. The four will be evaluated using DCF and Relative Evaluation, to find out the fair value. This fair value becomes essential when investors want to execute investment decisions, which indeed they do not want to buy shares if the price is too high, also worrying if buying shares whose prices have dropped. Too low (undervalued) or too expensive (overvalued) the price of a stock, of course, there must be a comparison price called fair value, and this study aims to find the fair price in question. Financial report data is collected from the four issuers during the five years of the 2013-2017 period as building materials for assumptions, calculated by the ratio of income and costs - the cost is prioritized using geometric means, if not possible then use arithmetic. The result is to make the next five years projection for the period 2018-2022. The projection aims to explore the potential of free cash flows that can be generated by the company, that is the basis of the valuation of the DCF method. Unfortunately, three out of four issuers always suffer losses, let alone having the remaining free cash flow, to finance operations in the years that are running even though they rely on debt. If this is the case, the DCF method is no longer relevant because the equity value is negative, the impact of the PER is also negative. This makes it difficult to analyze because the stock price is the slightest if the PER and FCFF are negative, the valuation is overvalued. Only MIKA whose financial performance can be processed according to the rules of valuation theory. In the optimistic scenario, moderate, pessimistic has been designed, MIKA does not have a significant difference in analysis results, all scenarios lead to overvaluation from the

perspective of DCF and undervalued when using Relative Valuation.

Patil, M., Khatik, S.K. (2018), assess the fundamental value or intrinsic value of National Thermal Power Corporation Limited using free cash flow technique (FCFF). The research finding the fundamental value or intrinsic value of the company is Rs 135.59 as on 31st March 2015, and the market price of the company as on 31st March 2015 is Rs147.40. Hence we conclude that the company is priced fairly and have a good prospect in the future. The company is fundamentally strong. The predicted FCFF of the company is positive which indicate the company does not have any cash problem in the future.

Neaxie and Hendrawan (2017) conducted a study with the aim of estimating the fair price valuation of shares of telecommunications companies listed on the Indonesia Stock Exchange (IDX) using the Discounted Cash Flow (DCF) method with the Free Cash Flow to Firm (FCFF) approach and Relative Valuation. The results showed that using the DCF method of the FCFF approach in an optimistic scenario the fair value of TLKM was undervalued, the fair value of ISAT was overvalued, and the fair value of EXCL was undervalued. Then in the moderate scenario the fair value of TLKM under undervalued conditions, the fair value of ISAT is overvalued, and the fair value of EXCL is overvalued. Furthermore, in the pessimistic scenario, the fair value of TLKM is overvalued, the fair value of ISAT is overvalued, and the fair value of EXCL is overvalued. As for using relative valuation with the PER approach, the fair value of TLKM is undervalued, the fair value of ISAT is overvalued, and the fair value of EXCL is undervalued. Then with the PBV approach, the fair value of TLKM is overvalued, the fair value of ISAT is in overvalued conditions, and the fair value of EXCL is in an undervalued condition. Furthermore, with the multiple EBITDA approaches the fair value of TLKM is overvalued, the fair value of ISAT is undervalued, and the fair value of EXCL is undervalued.

Dönbak, E.R., Ukav, I. (2016), Investigated the financial statement data of a tourism business whose shares are dealt in İstanbul Stock Exchange. Using Discounted Cash Flow Methods and accepted method in the calculation of the firm value. While valuation is being made according to Discounted Cash Flow method, firm value is divided into two sections: present value of cash flows in the anticipated period and the present value of cash flows after the anticipated period. In this method, firm value is achieved by reducing cash flows that are expected to

be obtained from the forward activities of firms to present value with a specific discount rate. In consequence of the calculations, Continuing Value of the examined firm is found to be 7,485,402 TL, and firm value is found to be 15,195,366 TL. In conclusion, it is understood that the Continuing Value of the examined firm makes a significant share of 46.89% of firm value. This situation reveals how significant Continuing Value is in the firm evaluation.

Kamran, M.R., Zhao, Z., Ambreen, S. (2017), The research is to determine the significance of free cash flows on the profitability of firms listed at the Karachi Stock Exchange. Descriptive statistics were used to analyze the impact of free cash flow on the profitability of firms listed at the KSE. The population consisted of 580 companies listed in KSE as on March 7th, 2015. Data were obtained from audited annual reports and financial statements of firms sourced from KSE for a period of five years (2010 –2014). The regression model was used to analyze quantitative data. Research indicates that free cash flow is significantly and positively correlated with the profitability of firms by obtained data. This is evidence that free cash flow is a crucial prerequisite for a firm's profitability. The study concludes that free cash flows enhance the firm performance, but excess free cash flows create the agency problem due to this the conflict of interest increased between owner and management and because of such conflict firm performance decreases.

Ivanovska, Ivanovski & Narasanov (2014) examined the accuracy of the Discounted Free Cash Flow Model (DFCF) valuation models on the Macedonian Stock Exchange (MSE). The results of the study show that the value of shares that are calculated using the Discounted Free Cash Flow Model (DFCF) model results close to the fundamental value or average market value. Satyawan (2014) analyzed PT. Multi Bintang Indonesia, Tbk uses Dividend Discounted Model (DDM) and Price Earning Ratio (PER) methods. The results of the comparative analysis of the stock valuation model show the Price Earning Ratio (PER) model is the model that has the lowest deviation, has an RMSE value of 205,196.76. RMSE is an error indicator based on the quadratic total of deviations between the results of the model and the results of observations. The smaller the RMSE value, the better the stock fair price valuation model in estimating the intrinsic value of shares.

Mielcarz, P., Mlinarič, F. (2014), conducted a study with the aim to apply various capital budgeting techniques to minimize serious capital allocation and capital structure problems. A comparative analysis

with a classical Free Cash Flow to Equity (FCFE) and economic value added (EVA) methodology would make a strong case for free cash flow to the firm (FCFF) as the most efficient approach. The research also shed additional light on the main risks associated with the FCFE technique and project-based weighted average cost of capital (WACC) in the capital budgeting process. The research found that simultaneous analyses with three different calculation techniques would be superfluous, as we must obtain the same NPV value. However, this is not true for IRR. Its calculation based on free cash flows for all financing parties represents the average rate of return on the whole capital, whereas the IRR calculation based on FCFE reflects the rate of return for the owners only. To provide a full picture of profitability for different interest groups, one should calculate NPV based on FCFF and IRR based on both FCFF and FCFE techniques. The application of the EVA technique does not allow for calculating the IRR; thus, it does not provide additional information compared with FCFF and FCFE.

Moreover, the EVA algorithms are not commonly known and are probably less acknowledged and recognizable among decision makers and analysts compared with the FCFF technique. These factors impose limits on the possibilities of application of the EVA technique in the process of capital budgeting. Using the FCFF technique causes fewer threats of jeopardizing the owner's interests. The FCFE approach can cause a higher risk of over-investing or under-financing the company (using too high a debt/equity ratio). The application of the FCFF approach may lead to similar problems when using project WACC instead of the marginal cost of capital of the whole company. Therefore, FCFF discounted with company WACC should be pointed out as the appropriate solution from the value-based management perspective.

Schauten, M., Stegink, R., Graaf, G.D. (2010) The research is to determine the required return of intangible assets for eight different business sectors using an empirical study of companies from the US Standard & Poor's 500 index. The resulting required return is subsequently compared with proxies for the required return on intangible assets used in practice, such as the weighted average cost of capital (WACC). To determine the discount rate of the intangible assets by applies the weighted average return on assets method (weighted average return on assets (WARA) method). The paper finds the return on intangible assets (RIA) by setting the WARA equal to the WACC and solves the equation for RIA. Findings from this research that for all the identified sectors,

the RIA is higher than the WACC. It is also shown that this return is higher than the levered or unlevered cost of equity of the company as a whole. In six of the eight sectors, the levered cost of equity appears to be the best proxy for the required return on intangible assets.

3 PROBLEM DEFINITION

Based on the background described earlier, the research questions in this study are as follows:

- 1) What is the fair price of BYAN, ADRO and PTBA shares using the Discounted Cash Flow method with the Free Cash Flow to Firm (FCFF) approach, and comparing with Relative Valuation through the Price to Earning Ratio (PER) and Price Book Value (PBV) approaches to an optimistic scenario in 2018?
- 2) What is the fair price of BYAN, ADRO and PTBA shares using the Discounted Cash Flow method with the Free Cash Flow to Firm (FCFF) approach, and comparing with Relative Valuation through the Price to Earning Ratio (PER) and Price Book Value (PBV) approaches to a moderate scenario in 2018?
- 3) What is the fair price of BYAN, ADRO and PTBA shares using the Discounted Cash Flow method with the Free Cash Flow to Firm (FCFF) approach, and comparing with Relative Valuation through the Price to Earning Ratio (PER) and Price Book Value (PBV) approaches to a pessimistic scenario in 2018?

4 RESEARCH METHODOLOGY

This research takes a quantitative approach and aims to verify or test existing knowledge. The theory that was verified in this study was the discounted cash flow valuation method approach to free cash flow to firm and relative valuation using price earnings ratio and price book value.

The research variable used in this study is the intrinsic value of shares based on the company's fundamental value (firm value). Then the variables will be calculated using the method Discounted Cash Flow (DCF) with the Flow to the Firm Free Cash (FCFF), and Relative Valuation approach with Price to Earnings Ratio (PER), Price To Book Value Ratio (PBV) approaches. The measurement scale used to measure the research variable used is the ratio measurement scale.

The sampling technique used by researchers was purposive sampling technique. The criteria of the purposive sampling technique in this study are as follows:

- 1) Shares on the Indonesia Stock Exchange (IDX) in the coal mining sector.
- 2) Stocks of coal companies with complete financial statements.
- 3) Stocks of coal companies in Indonesia that have the three biggest market capitalization in Indonesia
- 4) Shares that up to 2018 have a volume of active transactions on the Indonesia Stock Exchange (IDX) and are not suspended.

The type of data used in this research is the secondary data types, such as company financial statements, Indonesia Stock Exchange, World Stocks, Google Finance, and Dunia-investasi internet site. Secondary data is supporting data obtained from other sources. The secondary data are originating from the published and audited financial statements historically in the last five years of the sample companies, i.e., from January 2013 to December 2017. The five-year historical data is taken from the site www.dunia-investasi.com.

5 FRAMEWORK OF THINKING

Stock price valuation analysis in this study was carried out by utilizing the Discounted Cash Flow (DCF) method Free Flow to Firm (FCFF) approach, then comparing the results of this approach estimation with the relative valuation method (RV) to validate the estimates using the FCFF method. The validation using RV can minimize bias and assumptions when doing valuations. Relative Valuation (RV) is carried out with the Price Earnings Ratio (PER) and Price Book Value (PBV) approach by utilizing data that is already available in quarterly reports on the Indonesia Stock Exchange.

The basis of estimation utilizes company data samples taken in the last five years, namely from 2013 to 2017. Neaxie and Hendrawan (2017) say that stock valuations using the Discounted Cash Flow (DCF) method require assumptions and projection determinations the condition of the company to produce free cash flow in the future and

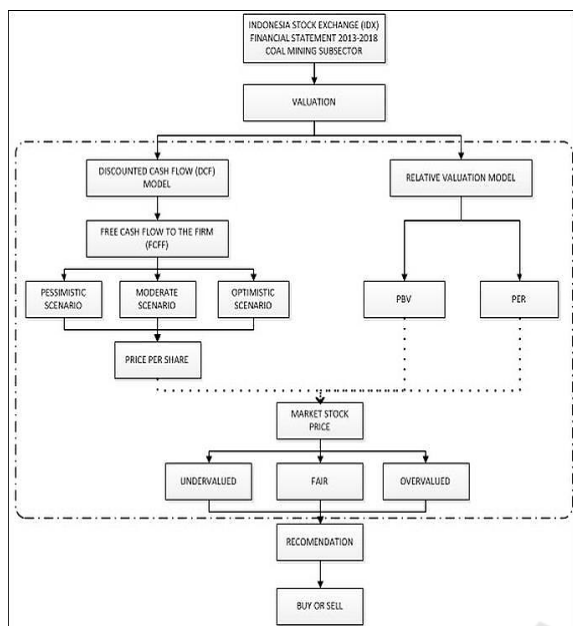


Figure 4: Research framework of thinking.

then calculate the present value determination of assumptions and projections needs to be adjusted to specific scenarios because of uncertainty about the condition of the company in the future. The research uses three scenario conditions, namely optimistic conditions, moderate conditions, and pessimistic conditions.

An optimistic condition is a condition that is considered as the highest growth condition of the company and seen from the difference in industrial growth and the target of company management (above the industry growth average). Moderate conditions are conditions where the most likely to occur is seen from the fundamental states of the company (the most likely conditions) whereas the pessimistic condition is the condition where the condition of the company is the worst.

The optimistic condition will be calculated from the average growth of the industry plus the spread between the average growth of the industry and the average growth of the company coupled with half of the spread of growth while moderate conditions will be calculated from the average growth of the industry coupled with the average growth of the company. Pessimistic conditions will be calculated only based on the average growth industry.

6 RESEARCH AND DISCUSSION

6.1 FCFF Projection

6.1.1 Pessimistic Scenario

This FCFF Projection is taken in the next five years from 2018 to 2022 (TV). For ADRO FCFF Projection with the Pessimistic scenario in 2018 the value is IDR 3,443 (billion), In 2019 ADRO has an FCFF value of IDR 8,771 (billion), in 2020 IDR 8,481 (billion), in 2021 amounting to 8,200 (billion), and Value Terminal (TV) of IDR 54,237 (billion). Whereas BYAN FCFF Projection with the Pessimistic scenario in 2018 has a value of IDR 2,487 (billion), in 2019 IDR 2,691 (billion), in 2020 IDR 2,912 (billion), in 2021 IDR 3,151 (billion) and have a Value Terminal (TV) of IDR 57,477 (billion). For FCFF Projection PTBA with the Pessimistic scenario in 2018 the value is IDR 3,232 (billion), in 2019 IDR 3,445 (billion), in 2020 IDR 3,672 (billion), in 2021 IDR 3,915 (billion), and has a Value Terminal (TV) of IDR 66,390 (billion).

6.1.2 Moderate Scenario

ADRO FCFF Projection with a moderate scenario in 2018 it has a value of IDR 8,780 (billion), In 2019 ADRO has an FCFF value of IDR 8,779 (billion), in 2020 IDR 8,779 (billion), in 2021 amounting to IDR 8,778 (billion), and Value Terminal (TV) of IDR 74,296 (billion). Whereas BYAN FCFF Projection with the Moderate scenario in 2018 has a value of IDR 3,388 (billion), in 2019 IDR 3,648 (billion), in 2020 IDR 3,928 (billion), in 2021 IDR 4,229 (billion) and has a Value Terminal (TV) of IDR 170,349 (billion). For FCFF Projection PTBA with a Moderate scenario in 2018 it has a value of IDR 3,399 (billion), in 2019 IDR 3,812 (billion), in 2020 IDR 3,274 (billion), in 2021 IDR 3,793 (billion), and has a Value Terminal (TV) of IDR 85,796 (billion).

6.1.3 Optimistic Scenario

ADRO FCFF Projection with an Optimistic scenario in 2018 the value is IDR 3,443 (billion), In 2019 ADRO has an FCFF value of IDR 8,771 (billion), in 2020 IDR 8,481 (billion), in 2021 amounting to 8,200 (billion), and Value Terminal (TV) of IDR 112,203 (billion). Whereas BYAN FCFF Projection with an Optimistic scenario in 2018 has a value of IDR 3,354 (billion), in 2019 IDR 3,575 (billion), in 2020 IDR 3,881 (billion), in 2021 IDR 4,063 (billion) and has a Value Terminal (TV) of IDR 215,815 (billion). For FCFF Projection PTBA with an Optimistic scenario

in 2018 it has a value of IDR 3,483 (billion), in 2019 IDR 4,002 (billion), in 2020 IDR 4,599 (billion), in 2021 IDR 5,284 (billion), and has a Value Terminal (TV) of IDR 115,203 (billion).

6.2 WACC (Weighted Average Cost of Capital)

PTBA has a higher WACC compared to ADRO and BYAN. PTBA has a WACC of 12.6%, while ADRO 11.8%, and BYAN 8.5%.

6.3 Value of the Firm (Enterprise Value)

6.3.1 Pessimistic Scenario

With the pessimistic scenario, ADRO has an Enterprise Value (EV) that is far greater than BYAN and PTBA. ADRO has an Enterprise Value (EV) of 56,116 (billion), while BYAN has an Enterprise Value of IDR 50,636 (billion), and PTBA has an Enterprise Value of IDR 51,294 (billion).

6.3.2 Moderate Scenario

With the moderate scenario, BYAN has a much greater Enterprise Value (EV) compared to ADRO and PTBA. BYAN has an Enterprise Value (EV) of 135,351 (billion), while ADRO has an Enterprise Value of IDR 74.136 (billion), and PTBA has an Enterprise Value of IDR 65,402 (billion)

6.3.3 Optimistic Scenario

With the scenario, Optimistic BYAN has a much greater Enterprise Value (EV) compared to ADRO and PTBA. BYAN has an Enterprise Value (EV) of 167,875 (billion), while ADRO has an Enterprise Value of IDR 100,528 (billion), and PTBA has an Enterprise Value of IDR 84,461 (billion).

6.4 EQUITY VALUE

6.4.1 Pessimistic Scenario

ADRO has a much greater Equity Value compared to BYAN and PTBA because ADRO has a market capitalization that is far greater than BYAN and PTBA. With the pessimistic scenario, ADRO has an Equity Value of IDR 65.454 (billion). While BYAN has an Equity Value of IDR 50,580 (billion), and PTBA has an Equity Value of IDR 53,873 (billion).

6.4.2 Moderate Scenario

With the moderate scenario, ADRO has an Equity Value of IDR 83,653 (billion), while BYAN has an Equity Value of IDR 135,295 (billion), and PTBA has an Equity Value of IDR 67,980 (billion).

6.4.3 Optimistic Scenario

With an optimistic scenario, ADRO has an Equity Value of IDR 109,865 (billion). While BYAN has an Equity Value of IDR 167,820 (billion), and PTBA has an Equity Value of IDR 84,612 (billion).

6.5 RELATIVE VALUATION

6.5.1 Pessimistic Scenario

With the pessimistic scenario, ADRO has a PER value of 9.58 times, the ADRO PBV value is 1.2 times, while the Ebitda Multiple is 4.01 times. BYAN has a PER value of 36.4 times, PBV of 0.1 times and Ebitda Multiple of 19.88 times, PTBA has a PER value of 15.9 times, PBV of 3.9 times and Ebitda Multiple of 10.26 times

6.5.2 Moderate Scenario

With the moderate scenario, ADRO has a PER value of 12.6 times. ADRO PBV value is 1.5 times. Whereas Ebitda Multiple is 5.48 times. BYAN has a PER value of 75.4 times, PBV of 0.3 times and Ebitda Multiple of 39.02 times, PTBA has a PER value of 19.1 times, PBV of 4.9 times and Ebitda Multiple of 12.44 times.

6.5.3 Optimistic Scenario

With the Optimistic scenario, ADRO has a PER value of 16.0 times. ADRO PBV value is 2 times, while Ebitda Multiple is 7.20 times. BYAN has a PER value of 94.4 times, PBV of 0.33 times and Ebitda Multiple of 48.88 times. PTBA has a PER value of 23.2 times, PBV of 6.1 times and Multiple Ebitda of 15.67 times.

7 DISCUSSION

7.1 Discounted Cash Flow (DCF)

Using the Discounted Cash Flow (DCF) method with Free Flow to Firm (FCFF) approach. In the pessimistic scenario, the intrinsic value of ADRO's shares is IDR 2,046, On January 2, 2018, ADRO's

share price of IDR 1,880, so that it can be said that ADRO's stock price is undervalued when compared to its intrinsic value. The difference that is not far from the intrinsic value in the pessimistic scenario with the stock price in the market is caused by the company's performance in the next five years projection by market expectations. On July 13, 2018, ADRO's share price was IDR 1,810, so that it can be said that ADRO's stock price is undervalued when compared to its intrinsic value. While BYAN has an intrinsic value of IDR 15,174, where on January 2, 2018, the share price of BYAN was IDR 10.700, so that it can be said that BYAN's stock price is undervalued when compared to its intrinsic value. The difference is quite far between the intrinsic value in the pessimistic scenario and the stock price in the market due to the average estimate of BYAN's growth revenue which in the next five years projection is only 3%. On July 13, 2018, BYAN's share price was IDR 19,650, so that it can be said that the stock price of BYAN is still overvalued when compared to its intrinsic value. Also, PTBA has an intrinsic value of IDR 4,676, where on January 2, 2018, PTBA's share price was IDR 2,500, so it can be said that PTBA's stock price is undervalued when compared to its intrinsic value. A significant difference between the intrinsic value in the pessimistic scenario and the stock price in the market is caused by the average estimation of PTBA's growth revenue which is high in the next five years projection of 6.6%. On July 13, 2018, PTBA's share price was IDR 3.990, so that it can be said that PTBA's stock price is undervalued when compared to its intrinsic value.

In the moderate scenario, the intrinsic value of ADRO shares is IDR 2,615, On January 2, 2018, ADRO's share price of IDR 1,880, so that it can be said that ADRO's stock price is undervalued when compared to its intrinsic value. The difference that is too far between the intrinsic value in the moderate scenario and the stock price on the market is caused by the growth of the company's performance in the next five years projection is too high 7.7%. On July 13, 2018, ADRO's share price was IDR 1,810, so that it can be said that ADRO's stock price is undervalued when compared to its intrinsic value. While BYAN has an intrinsic value of IDR 40,589, where on January 2, 2018, the price of BYAN's shares was IDR 10.700, so that it can be said that BYAN's stock price is undervalued when compared to its intrinsic value. The difference is quite far between the intrinsic value in the moderate scenario and the stock price in the market due to the average estimation of BYAN's

growth revenue which in the next five years projection is too high at 7.8%. On July 13, 2018, BYAN's share price was IDR 19,650, so that it can be said that BYAN's stock price is still undervalued when compared to its intrinsic value.

Moreover, PTBA has an intrinsic value of IDR 5,901, where on January 2, 2018, PTBA's share price was IDR 2,500, so it can be said that PTBA's stock price is undervalued when compared to its intrinsic value. A significant difference between the intrinsic value in the moderate scenario and the stock price in the market is due to the average estimation of PTBA's high revenue growth in the next five years projection, which is 6.6%. On July 13, 2018, PTBA's share price was IDR 3.990, so that it can be said that PTBA's stock price is undervalued when compared to its intrinsic value.

In the Optimistic scenario, the intrinsic value of ADRO shares is IDR 3435, On January 2, 2018, ADRO's share price of IDR 1,880, so that it can be said that ADRO's stock price is undervalued when compared to its intrinsic value. While BYAN has an intrinsic value of IDR 50,346, where on January 2, 2018, the price of BYAN's shares was IDR 10.700, so that it can be said that BYAN's stock price is undervalued when compared to its intrinsic value. Moreover, PTBA has an intrinsic value of IDR 7,344, where on January 2, 2018, PTBA's share price was IDR 2,500, so it can be said that PTBA's stock price is undervalued when compared to its intrinsic value.

7.2 Discounted Cash Flow (DCF)

The results showed that in the pessimistic scenario the ADRO PER value was 9.58 times, PER BYAN value was 38.4 times, and PTBA was 15.9 times. While quarterly IDX data (Q1 2018) shows that the average PER value of coal mining companies is 11.19 times, with the lowest PER value in the company Alfa Energy Investama Tbk. (FIRE) amounting to -2.601 times and the highest PER value in Darma Henwa Tbk. (DEWA) Of 235.41 times. This shows that the results of the research calculations are in the PER range in the market and can be accepted.

Furthermore, the results of the study with the pessimistic scenario show that the ADRO PBV value is 1.2 times, the BYAN PBV value is 0.1 times, and the PTBA PBV is 3.9 times while quarterly IDX data (Q1 2018) shows that the average PBV value of coal mining companies is 3.21 times, with the lowest PBV value in Borneo lumbung energy & Metal Tbk. (BORN) of minus 0.01 times and the highest PBV

value in Borneo company Olah Sarana Sukses Tbk. (BOSS) Of 322.65 times. This shows that the results of research calculations are in the PBV range that is in the market and can be accepted.

In the moderate scenario, ADRO PER value is 12.6 times, PER BYAN value is 75.4 times, and PTBA is 19.1 times while quarterly IDX data (Q1 2018) shows that the average PER value of coal mining companies is 11.19 times, with the lowest PER value in the company Alfa Energy Investama Tbk. (FIRE) amounting to -2.601 times and the highest PER value in Darma Henwa Tbk. (DEWA) Of 235.41 times. This shows that the results of research calculations are in the PER range in the market and can be accepted. Furthermore, for the ADRO PBV value of 1.5 times, the BYAN PBV value is 0.26 times, and the PTBA PBV value is 4.9 times while quarterly IDX data (Q1 2018) shows that the average PBV value of coal mining companies is 3.21 times, with the lowest PBV value in Borneo lumbung energy & Metal Tbk. (BORN) of minus 0.01 times and the highest PBV value in Borneo company Olah Sarana Sukses Tbk. (BOSS) Of 322.65 times. This shows that the results of research calculations are in the PBV range in the market and can be accepted.

Whereas in the Optimistic scenario the ADRO PER value is 16.0 times, PER BYAN value is 94.4 times, and PTBA is 23.2 times while quarterly IDX data (Q1 2018) shows that the average PER value of coal mining companies is 11.19 times, with the lowest PER value in the company Alfa Energy Investama Tbk. (FIRE) amounting to -2.601 times and the highest PER value in Darma Henwa Tbk. (DEWA) Of 235.41 times. This shows that the results of the research calculations are in the PER range in the market and can be accepted. Furthermore, for the ADRO PBV value of 2 times, obtained from Total Equity Evaluation in the pessimistic scenario of IDR 109,865 (billion) divided by Book Value of IDR 55,292 (billion) at the time, in the same way, the value of BYAN PBV was 0.33 times, and PTBA PBV was 6.1 times while quarterly IDX data (Q1 2018) shows that the average PBV value of coal mining companies is 3.21 times, with the lowest PBV value in Borneo lumbung energy & Metal Tbk. (BORN) of minus 0.01 times and the highest PBV value in Borneo company Olah Sarana Sukses Tbk. (BOSS) Of 322.65 times. This shows that the results of research calculations are in the PBV range in the market and can be accepted.

8 CONCLUSION AND RECOMMENDATION

8.1 Conclusion

Based on the formulation of existing problems and the results of the calculation of the valuation of research samples from Coal Mining companies listed on the Indonesia Stock Exchange using the Discounted Cash Flow method Free Cash Flow to Firm (FCFF) and Relative Evaluation with PER and PBV approaches, it can be concluded as the following:

- 1) In the Pessimistic scenario from the calculation of the intrinsic value, the ADRO, BYAN and PTBA stock price is undervalued, and the calculation results for the PER and PBV values are valid in the market range, so the recommendations for the three shares are worth buying.
- 2) In the Moderate scenario from the calculation of its intrinsic value, the ADRO, BYAN and PTBA share price is undervalued, and the calculation results for the PER and PBV values are valid in the market range so that the recommendations for the three shares are worth buying.
- 3) In the Optimistic scenario from the calculation of its intrinsic value, the ADRO, BYAN and PTBA share prices are undervalued, and the calculation results for the PER and PBV values are valid in the market range, so the recommendations for the three shares are worth buying.

8.2 Recommendation

Based on the research conclusions, the researcher suggested for further research, that one of the research gaps that became input for the next study was to expand the historical data even longer for example to 10 years considering the 5-year historical trend in this study still had many shortcomings especially when will make a growth trend. The valuation depends on the assumptions used so that the results of the valuation of one researcher and another researcher will get different results. In addition, this study is only limited to calculating valuations for companies in the coal mining sector by using only two methods. It is expected that in the future valuation studies can be carried out in other sectors and use various stock valuation methods.

For investors, that the stock price in the market does not necessarily reflect the performance of the company, besides paying attention to the target price,

it must also pay attention to the fundamental conditions and company performance as comparative information in making investment decisions. In addition, in making investment decisions, investors can buy shares in conditions under their intrinsic value (undervalued) , sell shares in conditions over their intrinsic value (overvalued), and hold back buying or selling shares in a fair value condition.

For companies, it is important to maintain market confidence by improving company performance, consistently increasing company revenue by increasing production, utilizing new technology that is more productive, implementing new marketing strategies, and reducing company cost & expense to be more efficient, including reducing operational costs & unnecessary cost, implement efficient and environmentally friendly mining technology, etc.

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