

# Stock Price Valuation Using The Dividend Discount Model on IDX Mining Period 2011-2020

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## Abstract

Investors can take stock valuations to minimize investment risk. The study aims i) to know the intrinsic value of IDX Mining stock from 2011-2020, ii) identify whether the stock is considered undervalued, correctly valued, or overvalued. and iii) make the right investment decisions based on their conditions. The research method uses the dividend discount model. Purposive sampling was used in sampling, so the sample was of 3 companies, namely ADRO, ITMG, and PTBA. Stock valuations provide intrinsic value, which will be used to determine whether the stock is undervalued or correctly valued, or overvalued. Undervalued is a condition when the intrinsic value is higher than the stock price then correctly valued is a condition when the intrinsic value is the same as with the stock price, while overvalued is condition when the intrinsic value is lower than the stock price.

**Keywords:** *Dividend Discount Model, Stock Price Valuation.*

## 1. INTRODUCTION

Capital markets can be attached where the meeting of parties who need funds with parties who need the means to invest. Parties who need funds will first register with the authority that oversees the capital market, after going beyond a series of initial public offering (IPO) stages then the party can offer its securities.

Capital markets as one of the means to invest are currently very popular. Financial products available include mutual funds, bonds, stocks and ETFs. Stocks are more often chosen compared to other products, as they provide great returns. But with the return is also accompanied by appropriate risks as well.

One of the things that investors should consider when making investment decisions is fluctuating stock prices, stock prices are very vulnerable to being affected by several things, for example, positive or negative news on an issuer, state economic conditions, and government policies. One example of the vulnerability of stock price changes is since the corona virus in Indonesia in early 2020.

In 2020 the capital market in Indonesia experienced a market crash, almost all stocks experienced a significant price decline, however the capital market in Indonesia

was able to survive and get through this period. Based on data obtained from the website [1], one of the drivers of the increase in the composite stock price index was due to the increase in the mining sector, which shot up more than twice as much as other sectoral indices. Therefore, it indirectly shows that there is high investor interest in the industry.

With this significant increase, it is feared that investors will choose stocks to just follow the upward trend without considering and conducting an analysis first. One form of analysis that can be used is stock valuation, where stock valuation will provide intrinsic value. Intrinsic value is the expected value, and is used as a guide to assess fair prices [2]. Intrinsic value helps investors identify whether a stock is undervalued, or correctly valued or overvalued, so they can make investment decisions based on that.

*Dividend discount model* used as a stock price valuation method. The dividend discount model is an analysis that relates all the expected cash flows from paying dividends to the company's shares [3].

Knowing the condition of a mining company's stock and making the right decision based on its condition is the aim of the study. This study uses financial data from

the last 10 years of mining companies, with the aim that the results obtained are more relevant and accurate.

**2. LITERATURE STUDY**

**2.1 Stock**

Stock are are certificates of ownership that the owner can use to acquire a portion of the company's assets[10]. Shares can be interpreted as securities in the company's ownership mode. Capital gains and dividends are the profits that will be earned by investors in investing in stocks. Capital gains are the profit from the sale of shares at a higher price than the purchase price, while dividends are corporate profits distributed to investors.

**2.2 Stock Price Appraisal**

Stock valuation is one of the investor's efforts to avoid things that are not liked. Intrinsic value, book value and market value are values that will be found in stock valuations quoted from Tandelilin in [4]. Stock valuation in this study uses intrinsic value and stock prices to be compared to determine the condition of the stock. The following is a guideline to find out the condition of the stock

**Table 1** Stock Price Valuation

Comparison	Condition
Intrinsic Value > Market Price	Low stock price (undervalued)
Intrinsic Value < Market Price	Stock price is expensive (overvalued)
Intrinsic Value = Market Price	Fair or normal share price (correctly value)

Source: [5]

Based on Table 1, It is known that there are three conditions in the valuation of a stock, the first condition is undervalue or cheap, namely when the intrinsic value is greater than the market price, then overvalued or expensive which is a condition where the intrinsic value is smaller than the market price, the last correctly value or fair price is a condition where the intrinsic value is equal to the market price, after knowing these conditions, the investment decision on the design of its shares is:

1. if undervalued investment decision is shares buying shares
2. if overvalued the investment decision is to sell the shares
3. if correctly the value of the investment decision is to hold the stock

**2.3 Dividend Discount Model . Method**

The discounted dividend approach model is one that is included in the company's basic analysis implemented

by linking expected cash flow with dividends. Dividend discount model is a model that in determining the estimated stock price will discount the entire flow of dividends that will be received in the future [3].

Rate of return expected, annual dividends and dividend growth are factors that affect stock prices[6]. The Dividend Discount Model uses dividends as the basis for its estimation, because dividends are one of the reasons investors make decisions [7]. Dividends are profits distributed by the company, with the amount of the distribution depending on each company's policy [8].

**3. RESEARCH METHOD**

This study uses a quantitative descriptive method, where the population is Mining Sector IDX index as many as 47 companies. Purposive sampling is used in research, with the following provisions:

1. Companies listed in the IDX Mining Sector during the period 2011-2020.
2. Companies that regularly issue financial statements and pay dividends from 2011 to 2020, where dividends are the reason for investors to invest.

Based on these provisions, a sample of 3 companies was obtained, namely ADRO, ITMG and PTBA.

**Table 2** Research Sample

No	Code	Company name
1	ADRO	PT Adaro Energy Tbk
2	ITMG	PT Indo Tambang Raya Megah Tbk
3	PTBA	PT Bukit Asam Tbk

**3.1 Data Analysis Techniques**

The steps to analyze the dividend discount model method are:

1. Calculating financial ratios
  - a. Return on equity
  - b. Earnings per share
  - c. Dividend per share
  - d. Dividend payout ratio
2. Calculating dividend growth rate (g)

$$g = \text{ROE} \times \text{Retention Rate}$$

Where retention rate = 1-DPR

3. Counting levels expected return (k)

$$k = \frac{D_0}{P_0} + g$$

4. Calculating the estimated expected dividend

$$D_t = D_0 (1 + g)$$

5. Calculation of the intrinsic value of the dividend discount model

$$P = \frac{D_t}{k - g}$$

6. Making investment decisions.

#### 4. RESULTS AND DISCUSSION

The dividend discount model method will produce intrinsic value. Furthermore, to determine stock conditions and investment decisions, is to compare the intrinsic value with the company's stock price, the company's stock price is obtained through the website [9]. In performing the necessary calculations of the company's financial statements, the following is the financial ratio information taken from the company's financial statements:

**Table 3** Financial Statements

Tahun	Kode Saham	ROE	EPS	DPS	DPR
2011	ADRO	23%	Rp 157	Rp 75	48%
	ITMG	51%	Rp 4.383	Rp 3.674	84%
	PTBA	38%	Rp 1.340	Rp 804	60%
2012	ADRO	13%	Rp 116	Rp 35	30%
	ITMG	43%	Rp 3.697	Rp 3.130	85%
	PTBA	34%	Rp 1.263	Rp 692	55%
2013	ADRO	7%	Rp 88	Rp 28	32%
	ITMG	23%	Rp 2.211	Rp 1.989	90%
	PTBA	25%	Rp 805	Rp 436	54%
2014	ADRO	6%	Rp 71	Rp 30	42%
	ITMG	23%	Rp 2.213	Rp 1.745	79%
	PTBA	22%	Rp 809	Rp 306	38%
2015	ADRO	5%	Rp 65	Rp 32	49%
	ITMG	8%	Rp 770	Rp 813	105%
	PTBA	22%	Rp 884	Rp 265	30%
2016	ADRO	9%	Rp 143	Rp 42	30%
	ITMG	14%	Rp 1.554	Rp 1.531	98%
	PTBA	19%	Rp 879	Rp 261	30%
2017	ADRO	13%	Rp 227	Rp 108	47%
	ITMG	26%	Rp 3.029	Rp 3.102	102%
	PTBA	33%	Rp 395	Rp 291	74%

2018	ADRO	11%	Rp 216	Rp 90	42%
	ITMG	27%	Rp 3.316	Rp 3.363	101%
	PTBA	31%	Rp 445	Rp 327	74%
2019	ADRO	11%	Rp 189	Rp 122	64%
	ITMG	14%	Rp 1.556	Rp 1.237	80%
	PTBA	22%	Rp 351	Rp 317	90%
2020	ADRO	4%	Rp 70	Rp 66	95%
	ITMG	4%	Rp 472	Rp 459	97%
	PTBA	14%	Rp 209	Rp 73	35%

Once the company's financial ratio is known, the next is the calculation of the expected dividend growth rate (g), the expected rate of return (K), the expected dividend estimate (Dt) and intrinsic value (P). As for the results as follows:

**Table 4** Calculation Results g, K, Dt and Intrinsic Values (P)

Tahun	Kode Saham	G	K	Dt	P
2011	ADRO	0,118	0,1	Rp 34	Rp 1.978
	ITMG	0,082	0,1	Rp 1.300	Rp 41.809
	PTBA	0,151	0,3	Rp 602	Rp 3.996
2012	ADRO	0,089	0,1	Rp 82	Rp 1.732
	ITMG	0,066	0,2	Rp 3.917	Rp 44.298
	PTBA	0,155	0,4	Rp 928	Rp 3.487
2013	ADRO	0,050	0,1	Rp 37	Rp 1.144
	ITMG	0,023	0,1	Rp 3.202	Rp 29.153
	PTBA	0,112	0,5	Rp 770	Rp 2.269
2014	ADRO	0,032	0,1	Rp 29	Rp 1.074
	ITMG	0,048	0,2	Rp 2.084	Rp 16.113
	PTBA	0,136	0,3	Rp 495	Rp 2.840
2015	ADRO	0,023	0,1	Rp 31	Rp 527
	ITMG	-0,004	0,3	Rp 1.738	Rp 5.701
	PTBA	0,154	0,5	Rp 353	Rp 1.044
2016	ADRO	0,063	0,1	Rp 34	Rp 1.802
	ITMG	0,002	0,1	Rp 814	Rp 16.912
	PTBA	0,135	0,2	Rp 301	Rp 2.837
2017	ADRO	0,069	0,1	Rp 45	Rp 1.988
	ITMG	-0,006	0,1	Rp 1.521	Rp 20.569
	PTBA	0,086	0,1	Rp 57	Rp 2.672
2018	ADRO	0,065	0,2	Rp 115	Rp 1.294
	ITMG	-0,004	0,1	Rp 3.090	Rp 20.174
	PTBA	0,083	0,2	Rp 316	Rp 4.658

2019	ADRO	0,039	0,1	Rp 94	Rp 1.616
	ITMG	0,029	0,3	Rp 3.461	Rp 11.811
	PTBA	0,021	0,1	Rp 334	Rp 2.716
2020	ADRO	0,002	0,1	Rp 122	Rp 1.433
	ITMG	0,001	0,1	Rp 1.239	Rp 13.867
	PTBA	0,093	0,2	Rp 346	Rp 3.071

After knowing the intrinsic value (P) of each company during the period 2011-2020, it further compares the core value with the stock market price, while the results of the comparison are:

**Table 5 ADRO 2011-2020**

<b>PT Adaro Energy Tbk</b>			
Year	Market price	Intrinsic Value	Condition
2011	Rp 1,770	IDR 1,978	<i>Undervalued</i>
2012	Rp 1,590	Rp 1,732	<i>Undervalued</i>
2013	Rp 1,090	Rp 1.144	<i>Undervalued</i>
2014	Rp 1,040	Rp 1,074	<i>Undervalued</i>
2015	IDR 515	IDR 527	<i>Undervalued</i>
2016	Rp 1,695	Rp 1,802	<i>Undervalued</i>
2017	Rp 1,860	Rp 1,988	<i>Undervalued</i>
2018	Rp 1,215	Rp 1,294	<i>Undervalued</i>
2019	Rp 1,555	Rp 1,616	<i>Undervalued</i>
2020	Rp 1,430	Rp 1,433	<i>Undervalued</i>

The comparison between the intrinsic value through the DDM method and the market price based on Table 3, it is known that the comparison between the intrinsic value through the DDM method and the market price shows the result that during 2011-2020 ADRO shares are in an undervalued condition or a condition where the intrinsic value is greater than the stock price.

**Table 6 ITMG 2011-2020**

<b>PT Indo Tambangraya Megah Tbk</b>			
Year	Market price	Intrinsic Value	Condition
2011	IDR 38,650	Rp 41.809	<i>Undervalued</i>
2012	Rp 41,550	Rp 44,298	<i>Undervalued</i>
2013	IDR 28,500	IDR 29,153	<i>Undervalued</i>
2014	Rp 15,375	Rp 16,113	<i>Undervalued</i>
2015	IDR 5,725	Rp 5,701	<i>Overvalued</i>
2016	Rp 16,875	Rp 16,912	<i>Undervalued</i>
2017	IDR 20,700	Rp 20,569	<i>Overvalued</i>
2018	Rp 20,250	Rp 20,174	<i>Overvalued</i>
2019	Rp 11,475	Rp 11,811	<i>Undervalued</i>
2020	Rp 13,850	Rp 13,867	<i>Undervalued</i>

The comparison between the intrinsic value through the DDM method and the market price based on Table 5, it is known that the comparison between the intrinsic value through the DDM method and the market price shows that during 2011-2020 ITMG shares were overall undervalued, although in 2015, 2017 and 2018 are overvalued.

**Table 7 PTBA 2011-2020**

<b>PT Bukit Asam Tbk</b>			
Year	Market price	Intrinsic Value	Condition
2011	Rp 3,470	Rp 3,996	<i>Undervalued</i>
2012	IDR 3,020	Rp 3,487	<i>Undervalued</i>
2013	Rp 2,040	Rp 2,269	<i>Undervalued</i>
2014	IDR 2,500	Rp 2,840	<i>Undervalued</i>
2015	Rp 905	Rp 1,044	<i>Undervalued</i>
2016	IDR 2,500	Rp 2,837	<i>Undervalued</i>
2017	Rp 2,460	Rp 2,672	<i>Undervalued</i>
2018	IDR 4,300	Rp 4,658	<i>Undervalued</i>
2019	Rp 2,660	IDR 2,716	<i>Undervalued</i>
2020	Rp 2,810	IDR 3,071	<i>Undervalued</i>

The comparison between the intrinsic value through the DDM method and the market price based on Table 6, it is known that the comparison between the intrinsic value through the DDM method and the market price shows that during 2011-2020 PTBA shares showed that during 2011-2020 PTBA shares were undervalued.

#### 4.1. Investment Decision Making

**Table 8 Assessment of Stock Conditions**

<b>Comparison</b>	<b>Condition</b>
Intrinsic Value > Market Price	Low stock price (undervalued)
Intrinsic Value < Market Price	Stock price is expensive (overvalued)
Intrinsic Value = Market Price	Fair or normal share price (correctly value)

Based on the dividend discount model method, the results show that ADRO, ITMG, and PTBA shares as a whole are undervalued, therefore the investment decision is to buy or hold shares, because ADRO, ITMG and PTBA shares are undervalued or cheap. The results of the calculation of intrinsic value according to the DDM method show that the intrinsic value is often close to the market price, in line with this in research [6] which states that the intrinsic value with the DDM method will tend to approach the market price.

## 5. CONCLUSION

Stock valuation using the dividend discount model method. In this study, the results show that ADRO, ITMG and PTBA are undervalued so that they are feasible to buy or hold the stock in the hope that it will provide capital gains on their investment. generate intrinsic value that will tend to follow market prices.

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## REFERENCES

- [1] <http://www.cnbc.indonesia.com>
- [2] Happy, Bambang. 2017. *Fundamental Financial Management*. Yogyakarta : CV Budi Utama.
- [3] Financial Services Authority. 2016. *Higher Education Level Financial Literacy*. Jakarta.
- [4] Natalia, Dea et al. 2019. *Stock Valuation Analysis Using the Dividend Discount Model, Price Earning Ratio and Price to Book Value for Investment Decisions*. *Scientific Journal of Management*. Volumes: 17.
- [5] Nuzula, Nila Firdausi and FerinaNurlaily. (2020). *Fundamentals of Investment Management*. UB Press.
- [6] Hasanah, Resti Siti and Ellen Rusliati. 2017. *Share Prices Using the Dividend Discount Model Method and Price To Book Value*. *Journal of Business and Management Research*. Volume : 10
- [7] Wijaya, Avitta Putri et al. 2015. *Fundamental Analysis Using the Dividend Discount Model (DDM) Approach to Assess the Fairness of Stock Prices (Study on Cement Sub-Sector Companies Listed on the Indonesia Stock Exchange 2011-2013 Period)*. *Journal of Business Administration* Volume: 26
- [8] Sunaryo, Deni. (2019). *Investment and Portfolio Management Textbook*. Serang: CV. Qiara Media Publisher
- [9] <http://www.duniainvestasi.com/bei>
- [10] Nugraha, Egananda septian and Sri Sulasmiyati. 2017. *Analysis of the intrinsic value of shares with . relative valuation techniques (Study on Cigarette Sub-Sector Companies Listed on the Indonesia Stock Exchange 2013-2016)*. *Journal of Business Administration*. Volumes: 52.