

Valuation of Intrinsic Value of Construction Sector Stock Using Residual Income Model (RIM) and Dividend Discount Model (DDM)

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Abstract

This study aims to determine and analyze the intrinsic value valuation, consistency and influence of the intrinsic value of the shares of construction sector companies listed on the Indonesia Stock Exchange (IDX) from 2015 to 2019. The sample selection technique used in this study is full sampling and obtained as many as 12 companies with a total number of research samples is 48 samples. The data analysis technique used in this research is descriptive analysis using Microsoft Excel 2016 software and hypothesis testing was carried out using Panel Data Regression Analysis using E-Views version 9.0 software with a significance level of 5%. The results obtained in this study are (1) Based on the results of the consistency test carried out on the research sample using the Residual Income Model (RIM) and Dividend Discount Model (DDM) methods, the results of the consistency percentage are 47.92% consistent and 52.08 % inconsistent. (2) The intrinsic value of the shares calculated using the RIM method has no effect on the share price. (3) The intrinsic value of shares calculated using the DDM method has a positive and significant effect on stock prices."

Keywords

residual income model (RIM);
dividend discount model
(DDM); price" share



I. Introduction

Index Movement Price of "The Jakarta Composite Index (JCI) caused by the turmoil in the capital market in Indonesia made investors pays more attention to their portfolios. It is not uncommon for investors to experience significant losses due to the decline in the value of the JCI that occurs from time to time. This loss requires investors to be able to improve their strategy in investing in the model market (Florensi, 2018)."

In general, an analysis that can be used by investors to assess whether it is feasible or not "a stock to buy is technical analysis and fundamental analysis. Technical analysis is a technique used to analyze stock movements that can be seen based on a certain pattern and carried out within a certain time span which is used as a basis for making decisions for investors to be able to sell or buy a stock. While fundamental analysis is a stock valuation technique that considers many factors in decision making, such as business competition analysis, macro-micro economic and market analysis, company performance analysis and industry analysis" (Wijayanti et al., 2020).

Financial performance is a measuring instrument to know the process of implementing the company's financial resources. It sees how much management of the company succeeds, and provides benefits to the community. Sharia banking is contained in the Law of the Republic of Indonesia No.21 of 2008 article 5, in which the Financial Services Authority is assigned to supervise and supervise banks. Furthermore, this law has a provision if Sharia banks are required to choose the level of health of banks, which includes the quality of Islamic management, solvency, liquidity, rentability, and capital adequacy as well as other matters related to sharia banking business (Ichsan, R. et al. 2021).

This research discusses the intrinsic valuation of shares in construction sub-sector companies in Indonesia. The reason for choosing the topic of stocks in Indonesia is because the stock market in Indonesia is still very potential. This is evidenced by data from the Press Release of Bank Indonesia Number: 114/BEI.SPR/12-2020 on December 31, 2020 which states that as of December 30, 2020 there are 51 companies in Indonesia conducting Initial Public Offerings (IPOs), bringing the total number of companies There are 713 companies listed on the Indonesia Stock Exchange (IDX), this makes IDX the stock exchange with the highest number of IPOs in ASEAN. In November 2020 there was an increase in trading frequency by 32%, so that the average trading frequency grew to 619,000 transactions per day, which makes IDX the stock exchange with the highest stock trading liquidity in Southeast Asia. Throughout 2015 to 2020, the number of stocks, bond and mutual fund investors in Indonesia increased 4 times, from 894,000 Single Investor Identification (SID) initially to 3.87 million SID in Indonesia. The number of stock investors grew to 1.68 million SID, an increase of 53%.”

Based on" data obtained from www.idxchannel.com written on October 27, 2020,"it was stated that the realization of investment in Indonesia increased by 8.9%, where the construction sector was the sector with the largest number of investors. “Based on data obtained from the Investment Coordinating Board (BKPM), investment realization" in the 3rd Quarter of 2020 increased by 8 ,9% Quarter on Quarter (QoQ) and 1.6% Year on Year (YoY) or more or less increased by 209 trillion Rupiah, so that the total investment realization increased to 611.6 trillion Rupiah, which is divided into 2, namely: Investors Domestic Investment (PMDN) of 309.9 trillion Rupiah and Foreign Investment (PMA) of 301.7 trillion Rupiah. 5 (five) sectors that dominate investment realization in Indonesia, namely: (1) Construction Sector; (2) Transportation, Building and Telecommunication; (3) Housing, Industrial Estate & Offices; (4) Electric, Gas and Water and (5) Chemical & Pharmaceutical Industry.

The Object of this research is a construction sub-industry company, and the research cycle is 5 (five) years, namely 2015-2019. The reason for choosing a company in the construction sub-industry as the object of research is because the Indonesian construction sub-industry company still has potential. This is because Indonesia is a developing country, so with the development of the government and the private sector, the demand for construction services will continue to increase (Rohmatun, 2017). In" This research uses the Residual Income Model (RIM) and Dividend Discount Model (DDM) methods to calculate intrinsic value, and is expected to provide information about which stocks consistently produce intrinsic value when analyzed using these two methods, which will then be searched for the effect of intrinsic value on the stock price under study. It is hoped that the intrinsic value generated by these two methods will provide input for investors before making investment decisions.”

II. Review of Literatures

2.1. Signal Theory

Signal theory is a theory developed by Ross (1977), which states that company executives with better company information will be encouraged to communicate that information to potential investors, thus causing the company's stock price to increase.

2.2. Asymmetry Theory (Asymmetric Information Theory)

Research on asymmetry starts with research Ross (1973) who concludes that the capital structure is to reduce the inefficiency of the firm's investment decision-making caused by information asymmetry. In this theory, company managers or insiders are assumed to have private information about the characteristics of the company's deeper returns and investment opportunities (Harris & Raviv, 1991).

2.3. Share

Share can be interpreted as a sign that a person or entity participates in or owns a company or limited liability company. According to Tandililin (2010), shares are proof of ownership of the assets of the company that issued the shares. By owning company shares, investors will have rights to the company's income and wealth after deducting the payment of all company obligations. Stocks are securities that are very popular in the capital market.

2.4. The value of the company

The Company's value is defined as market value, because if the company's share price rises, the company's value can bring the greatest prosperity to shareholders. Management takes various policies and strives to increase the value of the company by increasing the prosperity of shareholders and shareholders, which is reflected in the share price (Brigham & Houston, 2006).

2.5. Stock Valuation / Valuation

According to Eliza (2013) the normative goals achieved by the company through efforts to maximize the value of the company are reflected in the increase in stock market prices on the stock exchange. Maximizing the value of the company by increasing the prosperity of shareholders, meaning that the higher the share price, the greater the value of shareholder wealth.

2.6. Dividend

According to Hadi (2016), dividends refer to the profits distributed to shareholders from the net income generated by the operations of the issuer's company. Dividends that are not distributed to shareholders in the form of dividends are called retained earnings because they are a form of internal financing. Since dividends are taken from the company's profits, only companies that record profits can distribute dividends. Dividends can be in the form of cash or shares.

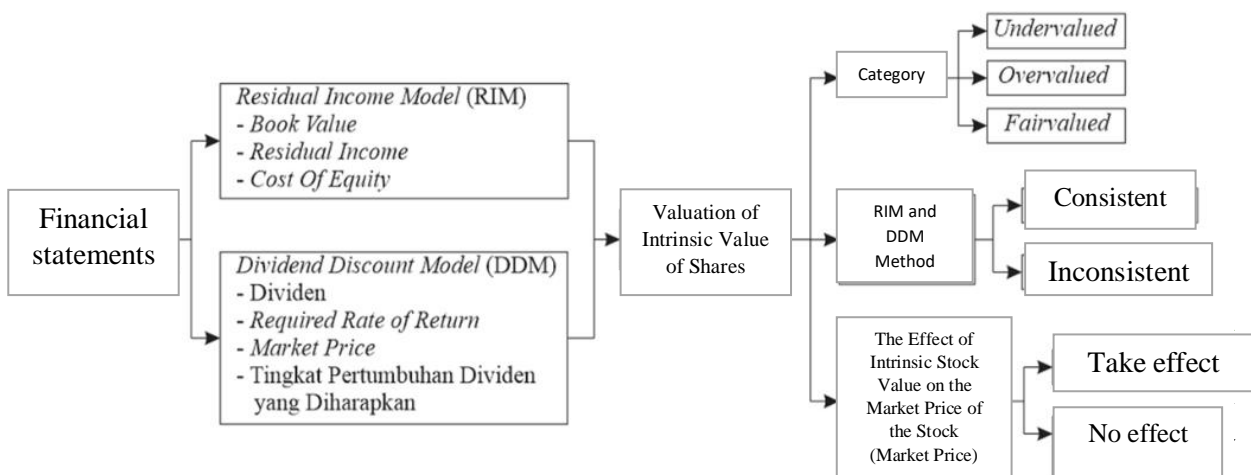


Figure 1. Research Thinking Framework

The above framework is developed based on research questions and literature reviews to be solved and arranged in a logical interdependence relationship. In Figure 1 it is explained that the data for further analysis using the Residual Income Model (RIM) method and the Dividend Discount Model (DDM) method is based on the financial statement data of the construction industry issuers during the 2015-2019 period, then used to determine the company's intrinsic value. After knowing the intrinsic value of the stock, the valuation is divided into three categories, namely: undervalued, overvalued, and fair value.

Based on "the explanation above, the researcher draws the following hypothesis:"

H1: Intrinsic value generated using the RIM and DDM methods > 50% of the total sample.

H2 : The intrinsic value generated using the RIM method has an effect on stock prices.

H3 : The intrinsic value generated using the DDM method has an effect on stock prices.

III. Research Method

3.1. Variable Operational Definition

- a. Dependent Variable: Dependent variable in this study is the stock price.
- b. Independent Variable: Research "This method uses 2 main independent variables, namely: The intrinsic value of the stock which is calculated using the method Residual Income Model (RIM) and Dividend Discount Model (DDM). In addition to the two independent variables, the researcher also includes 2 supporting independent variables, namely profitability and leverage. These two variables were chosen as supporting variables because several previous researchers had conducted research on these two variables, and found that profitability and leverage had an influence on stock prices.

a. Residual Income Model (RIM)

Residual Income Model (RIM)" is a method used to calculate intrinsic value by looking at two elements, namely book value and present value of residual income (Subramanyam, 2014)."

$$RIM_t = BV_t + \sum_{\tau=1}^{\infty} \frac{RI_{\tau}}{(1 + k_e)^{\tau}}$$

or

$$RIM_t = BV_t + \sum_{\tau=1}^{\infty} \frac{NI_{t+\tau} - k_e \cdot BV_{t+\tau-1}}{(1 + k_e)^{\tau}}$$

Information:

RIM_t = Intrinsic Value using RIM in period t

BV_t = Book Value in period t

NI_t = Profit company in period t

RI_t = Residual Income in period t

K_e = Cost of Equity

b. Dividend Discount Model (DDM)

Damodaran (2011) explained that the dividend discount model is a stock valuation method where the value of the company is the present value of the expected future dividends given by the company. Ibrahim et al., (2018) explained that the steps that can be used to find the intrinsic value of shares using the Dividend Discount Model (DDM) method are as follows

$$ROE = \frac{\text{Net Profit after Interest and Tax}}{\text{Total own capital}}$$

and

$$\text{Retained Earnings Rate} = 1 - \text{DPR}$$

$$\text{DPR} = \frac{\text{Dividend Per Share (DPS)}}{\text{Earning Per Share (EPS)}}$$

1. Calculating the estimated expected dividend

$$D_1 = D_0 (1 + g)$$

2. Determine the *return* expected by investors (k)

$$k = \frac{D_1}{P_0} + g$$

3. Determining the intrinsic value of shares using the Dividend Discount Model (DDM) approach with consistent dividend growth

$$P_0 = \frac{D_1}{k - g}$$

Information:

- k = Required *Rare of Return*
- D₁ = Estimated Dividend
- D₀ = Dividend of the previous year
- P₀ = Price stock market today
- g = Expected dividend growth rate

c. Profitability Ratio

Ratio profitability is the company's ability to generate profits or a measure of the effectiveness of the company's management (Wiagustini, 2010). Profitability in this study is represented by return on assets (ROA). The higher the ROA, the more efficiently the company uses assets to create after-tax net income, and the higher the ROA, the better the profitability of the company, which will result in greater returns.

$$ROA = \frac{\text{Net Profit}}{\text{Total Assets}} \times 100\%$$

d. Leverage

Leverage is the ability of a company to meet its financial obligations in the short and long term, or a measure of the extent to which the company finances through debt (Wiagustini, 2010). Leverage in this study is predicted by the debt-to-equity ratio (DER). DER is used to evaluate the debt-to-equity ratio and can provide general guidelines for a company's feasibility and financial risk. Investors tend to avoid stocks with a high DER, because a high DER value reflects the company's relatively high risk (Kasmir, 2012).

$$DER = \frac{\text{Total of Debt}}{\text{Total of Equity}} \times 100\%$$

The population in this study are companies that are included in the construction sector and listed on the Indonesia Stock Exchange (IDX) for the 2015-2019 period which have been selected with certain criteria, as many as 12 companies.

Table 1. List Company Names Used as Research Samples

No	Company Code	Company name	Listing Year	Ownership status
1	SSIA	PT Surya Semesta Internusa Tbk	27 March 1997	Private
2	ADHI	PT Adhi Karya (Persero) Tbk	March 18, 2004	State-Owned
3	TOTL	PT Total Bangun Persada	July 25, 2006	Private
4	DGIK	PT Nusa Kontruksi Enjiniring Tbk	December 19, 2007	Private
5	WIKA	PT Wijaya Karya (Persero) Tbk	October 29, 2007	State-Owned
6	PTPP	PT Pembangunan Perumahan (Persero) Tbk	09 February 2010	State-Owned

7	WSKT	PT Waskita Karya (Persero) Tbk	December 19, 2012	State-Owned
8	ACST	PT Acset Indonusa Tbk	24 June 2013	Private
9	NRCA	PT Nusa Raya Cipta Tbk	27 June 2013	Private
10	IDPR	PT Indonesia Pondasi Raya Tbk	10 Dec 2015	Private
11	WEGE	PT Wijaya Karya Bangunan Gedung Tbk	November 30, 2017	State-Owned
12	SKRN	PT Superkrane Mitra Utama Tbk	11 Oct 2018	Private

3.2. Variable Operational Definition

Technique Data analysis used in this study is secondary data in the form of quantitative data, then all data collected in this study will be analyzed and hypothesized. The analysis is used to see the effect of the intrinsic value of the stock calculated using the Residual Income Model (RIM) and Dividend Discount Model (DDM) on stock prices using the panel data regression analysis method. The classical assumption test used in this study is the normality test, multicollinearity test and heteroscedasticity test. After testing the classical assumptions on the regression model, the next step is to analyze the results of the regression or hypothesis testing. The hypothesis test carried out in this test is the partial test (t-test) and the coefficient of determination test (R^2).

The model in this study is as follows:"

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + e_{it}$$

Information:

Y = Price Share

α = Constant

β_1 = Coefficient"Regression of Each Independent Variable"

X1 = Stock Valuation Using Residual Income Model Method

X2 = Stock Valuation Using the Dividend Discount Model Method

X3 = Profitability Ratio (ROA)

X4 = Leverage (DER)

IV. Discussion

From descriptive statistical analysis, it can be seen the average value (mean), the highest value, the lowest value and the standard deviation of each variable. Based on the results of data processing using Eviews 9.0 software, the calculation results are obtained as contained in the following descriptive statistical table:

Table 2. Descriptive Statistics Table

Date:

06/07/2021

Time: 18.11

Sample: 2015-2019

	Stock price	RIM	DDM	ROA	DER
mean	1260.13	-6487.68	1374.69	3.84	263.51
median	1085.00	1365.71	1154.66	3.70	200.12
Maximum	3810.00	161033.10	4861.97	13.31	3546.56
Minimum	85.00	-511618.60	-9.96	-10.88	17.06
Std. Dev.	887.12	78206.13	1160.66	3.57	496.25
Skewness	0.93	-5.58	1.12	-0.92	6.21
Kurtosis	3.48	38.28	3.62	7.93	41.64
Jarque-Bera	7.44	2738.11	10.79	55.54	3294.02
Probability	0.02	0.00	0.00	0.00	0.00
Sum	60486.00	-311408.60	65985.09	184.41	12648.51
Sum Sq. Dev.	36987785.00	287000000000.00	63315330.00	600.59	11574292.00
Observations	48	48	48	48	48

Source: Output Eviews

Based on "Table 3 Descriptive Statistics resulting from the output of Eviews 9.0 above can be seen descriptive data regarding the dependent variables, namely stock prices, as well as the independent variables, namely the intrinsic value of construction stocks using the RIM and DDM methods as well as Return on Assets (ROA) and Debt to Equity Ratio (DER)."

Table 3. Intrinsic Value Consistency Test Using RIM and DDM

N o	Compan y Code	Stock price	Year	Intrinsic Value		Results		Consistenc y
				RIM	DDM	RIM	DDM	
1	SSIA	716	2015	449	400	<i>Overvalued</i>	<i>Overvalued</i>	Consistent
2	ADHI	2140	2015	2704	533	<i>Undervalue d</i>	<i>Overvalued</i>	Inconsisten t
3	TOTL	616	2015	4139	479	<i>Undervalue d</i>	<i>Overvalued</i>	Inconsisten t
4	DGIK	85	2015	50	115	<i>Overvalued</i>	<i>Undervalue d</i>	Inconsisten t
5	WIKA	2445	2015	3130	2252	<i>Undervalue d</i>	<i>Overvalued</i>	Inconsisten t
6	PTPP	3685	2015	4649	2723	<i>Undervalue d</i>	<i>Overvalued</i>	Inconsisten t
7	WKST	1670	2015	2578	1371	<i>Undervalue d</i>	<i>Overvalued</i>	Inconsisten t
8	ACST	1548	2015	- 511619	1596	<i>Overvalued</i>	<i>Undervalue d</i>	Inconsisten t
9	NRCA	626	2015	471	607	<i>Overvalued</i>	<i>Overvalued</i>	Consistent
10	SSIA	434	2016	60	233	<i>Overvalued</i>	<i>Overvalued</i>	Consistent
11	ADHI	2080	2016	1954	2878	<i>Overvalued</i>	<i>Undervalue d</i>	Inconsisten t
12	TOTL	766	2016	2312	935	<i>Undervalue d</i>	<i>Undervalue d</i>	Consistent

13	WIKA	2360	2016	1967	3652	<i>Overvalued</i>	<i>Undervalued</i>	Inconsistent
14	PTPP	3810	2016	2768	4862	<i>Overvalued</i>	<i>Undervalued</i>	Inconsistent
15	WKST	2550	2016	2444	3482	<i>Overvalued</i>	<i>Undervalued</i>	Inconsistent
16	ACST	1516	2016	161033	1166	<i>Undervalued</i>	<i>Overvalued</i>	Inconsistent
17	NRCA	330	2016	176	171	<i>Overvalued</i>	<i>Overvalued</i>	Consistent
18	IDPR	1120	2016	3118	1266	<i>Undervalued</i>	<i>Undervalued</i>	Consistent
19	SSIA	516	2017	453	421	<i>Overvalued</i>	<i>Overvalued</i>	Consistent
20	ADHI	1885	2017	1499	1772	<i>Overvalued</i>	<i>Overvalued</i>	Consistent
21	TOTL	660	2017	1291	681	<i>Undervalued</i>	<i>Undervalued</i>	Consistent
22	WIKA	1550	2017	1415	1143	<i>Overvalued</i>	<i>Overvalued</i>	Consistent
23	PTPP	2640	2017	1851	3903	<i>Overvalued</i>	<i>Undervalued</i>	Inconsistent
24	WKST	2210	2017	1964	1464	<i>Overvalued</i>	<i>Overvalued</i>	Consistent
25	ACST	1504	2017	-37058	1233	<i>Overvalued</i>	<i>Overvalued</i>	Consistent
26	NRCA	380	2017	279	652	<i>Overvalued</i>	<i>Undervalued</i>	Inconsistent
27	IDPR	1050	2017	1746	1936	<i>Undervalued</i>	<i>Undervalued</i>	Consistent
28	SSIA	500	2018	364	922	<i>Overvalued</i>	<i>Undervalued</i>	Inconsistent
29	ADHI	1585	2018	1252	1997	<i>Overvalued</i>	<i>Undervalued</i>	Inconsistent
30	TOTL	560	2018	747	600	<i>Undervalued</i>	<i>Undervalued</i>	Consistent
31	WIKA	1655	2018	1751	2173	<i>Undervalued</i>	<i>Undervalued</i>	Consistent
32	PTPP	1805	2018	1387	1558	<i>Overvalued</i>	<i>Overvalued</i>	Consistent
33	WKST	1680	2018	1872	3735	<i>Undervalued</i>	<i>Undervalued</i>	Consistent
34	ACST	836	2018	16438	2530	<i>Undervalued</i>	<i>Undervalued</i>	Consistent
35	NRCA	386	2018	324	506	<i>Overvalued</i>	<i>Undervalued</i>	Inconsistent
36	IDPR	890	2018	957	1335	<i>Undervalued</i>	<i>Undervalued</i>	Consistent
37	WEGE	240	2018	334	493	<i>Undervalued</i>	<i>Undervalued</i>	Consistent
38	SSIA	656	2019	688	226	<i>Undervalued</i>	<i>Overvalued</i>	Inconsistent
39	ADHI	1175	2019	1344	581	<i>Undervalued</i>	<i>Overvalued</i>	Inconsistent

40	TOTL	436	2019	459	337	<i>Undervalued</i>	<i>Overvalued</i>	Inconsistent
41	WIKA	1990	2019	2223	2368	<i>Undervalued</i>	<i>Undervalued</i>	Consistent
42	PTPP	1585	2019	1719	1569	<i>Undervalued</i>	<i>Overvalued</i>	Inconsistent
43	WKST	1485	2019	2054	1072	<i>Undervalued</i>	<i>Overvalued</i>	Inconsistent
44	ACST	522	2019	-3086	-10	<i>Overvalued</i>	<i>Overvalued</i>	Consistent
45	NRCA	384	2019	399	282	<i>Undervalued</i>	<i>Overvalued</i>	Inconsistent
46	IDPR	368	2019	568	253	<i>Undervalued</i>	<i>Overvalued</i>	Inconsistent
47	WEGE	306	2019	337	228	<i>Undervalued</i>	<i>Overvalued</i>	Inconsistent
48	SKRN	550	2019	637	1304	<i>Undervalued</i>	<i>Undervalued</i>	Consistent

Source: Processed Data

Based on "Table 4 Intrinsic Value Consistency Test Using RIM and DDM above, from a total of 48 samples analyzed, it is known that the number of consistent samples is 23 samples, while the sample that shows inconsistent results is 25 samples, so the proportion of consistent samples is 47.92% and the inconsistent sample is 52.08%. Based on these results, H0 is rejected and H1 is accepted, which indicates the intrinsic value analysis using the RIM and DDM methods gets a consistency value of <50%."

4.1. Intrinsic Value Consistent Using RIM and DDM Methods

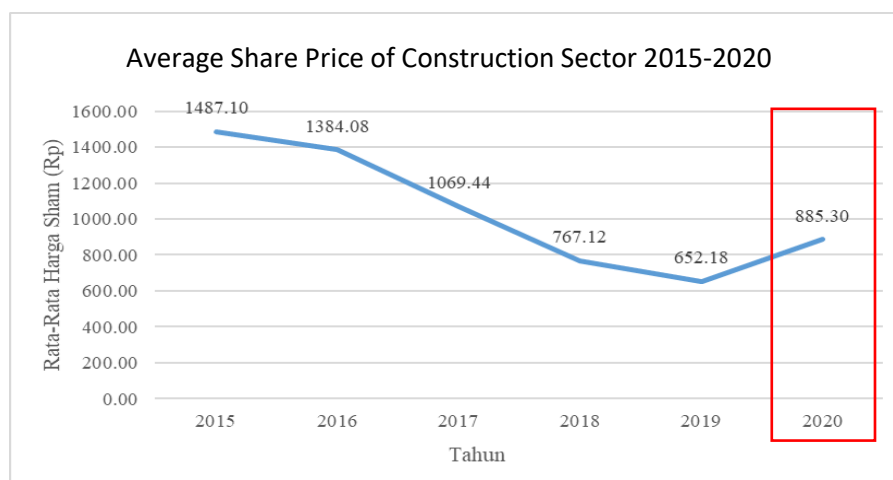
Based on the results of the analysis of the intrinsic value of shares using the RIM and DDM methods on 12 construction sector companies in Indonesia with a total of 48 samples, the results show that when calculated using the RIM method it is known that there are 26 samples classified as undervalued and 22 samples classified as overvalued. DDM got 23 samples classified as undervalued and 25 samples in the overvalued category. Based on the consistency test of the two methods, it was found that there were 23 samples classified as consistent and 25 samples inconsistent. So that the percentage of consistency of the results obtained between the RIM and DDM methods is **47.92% consistent** and the remaining **52.08% is inconsistent**

4.2. The Effect of Intrinsic Stock Values Calculated Using the RIM Method on Stock Prices

Calculation The intrinsic value of shares calculated using the RIM method on 48 samples of construction sector stocks analyzed from 2015 to 2019 obtained an average intrinsic value of Rp.-6,487.68.-, where the highest intrinsic value was Rp. 161,033.06, - generated by ACST in 2016 and the lowest intrinsic value is Rp.-511,618.64, - generated by ACST in 2015. Determination of the appropriate regression model to be used in this study is using the Chow Test and Housman Test. Based on the results of the Chow test, it is known that the probability value of the Chi-Square cross-section is 0.0000 (less than 0.05), so H0 is rejected and H1 is accepted. Therefore, based on the results of the Chow test (limited F test), the most appropriate model to use is the Fixed Effect Model (FEM). Based on the results of the Housman test, it is known that the probability value of the random cross section is 0.0000

(less than 0.05), so H_0 is rejected and H_1 is accepted. Therefore, the most appropriate model to use based on this test is the Fixed Effect Model (FEM). Based on the Chow Test and Housman Test above, the most appropriate model to use is the Fixed Effect Model (FEM).

Next based on the results of hypothesis testing conducted using the Partial Test (T test) for the X_1 variable (RIM), the t-statistic value is $-0.332524 <$ the t-table value of 1.68023 and the probability value generated is $0.74117 >$ the value of (0.05). Based on these figures, the result is that the intrinsic value of the shares calculated using the RIM method **has no effect** on the stock price. So it can be seen that the increase or decrease in the value of RIM will not affect the value of the resulting share price. The difference between the stock price and the total intrinsic value generated using the RIM method is 317,897. However, this is not in accordance with the movement of the average price of the construction sectors in 2019 which can be seen in the graph below:



Source:www.tradingview.com (processed)

Figure 2. Average Construction Share Price for 2015-2020

Based on the graph above, the potential decline in overvalued stocks after being calculated using the RIM method is not proven, because it can be seen that the average closing price of construction sector companies has increased from Rp.652.18,- at the end of December 2019, increased to Rp. 885,30,- at the end of December 2020. Based on this, it is clear that the intrinsic value of the construction sector shares has no influence on the movement of stock prices. This is what might make investors tend not to use the RIM method in analyzing stock price valuations, because the intrinsic value generated cannot be used as a reference for predicting stock price movements in the future.

4.3. The Effect of Intrinsic Stock Values Calculated Using the DDM Method on Stock Prices.

Calculation The intrinsic value of shares calculated using the DDM method for 48 samples of construction sector stocks analyzed from 2015 to 2019 obtained an average intrinsic value of Rp. -1,374.69,-, where the highest intrinsic value was Rp. 4,861.97, - which was generated by PTPP in 2016 and the lowest intrinsic value was Rp. -9.96,- which was generated by ACST in 2019. The determination of the appropriate regression model to be used in this study was using the Chow Test and Housman Test. Based on the results of the Chow test, it is known that the probability value of the Chi-Square cross-section is 0.0000 (less than 0.05), so H_0 is rejected and H_1 is accepted.

Based on the results of the hypothesis test conducted using the Partial Test (T test) for the X_2 variable (DDM), the t-statistic value was $3.411549 >$ the t-table value was 1.68023 and

the probability value was $0.0018 < \text{value } (0.05)$. Based on these numbers, the results show that the intrinsic value of the stock calculated using the DDM method **has a positive and significant effect** on stock prices. So, it can be seen that the increase or decrease in the value of DDM will only greatly affect the value of the resulting stock price. The difference in stock price with the intrinsic value generated using the RIM method is 317,897, while the difference in value generated using the DDM method is -5,499, this indicates that the DDM method produces an intrinsic value that is closer to the stock market price, than the resulting intrinsic value. by the RIM method. When viewed from the total difference between the stock market price and the intrinsic value calculated using the DDM method, the overall result is negative.

Based on Figure 2. The potential increase in shares classified as undervalued can be proven from the average closing price of construction sector companies which increased from Rp.652.18,- at the end of December 2019, increasing to Rp. 885.30,- at the end of December 2020. The increase that occurred was 35.75%, this indicates that if an investor invests his funds in all existing construction sectors at the end of December 2019. Then he will get a return of 35, 75% at the end of December 2020.

Furthermore, another hypothesis test was carried out using the Coefficient of Determination Test (Adjusted R²), it was found that the Adjusted R-Square value was 0.808971, which means that 80.8971 % of the Y variable (stock price) is influenced by the variables X₁ (RIM), X₂ (DDM), X₃ (ROA), X₄ (DER). Meanwhile, 19.1029% were influenced by other factors not included in this study.

4.4. Additional Test

This additional Test aims to strengthen the results obtained from the regression test and hypothesis testing, as well as to ensure that the results obtained from the two tests can be used to generalize to all construction sector companies in Indonesia. One of the weaknesses of this research is that out of a total of 18 companies in the construction sector, there is 1 company with the company code TAMA which cannot be included in the research sample, because listing on the IDX is in 2020, while this study takes the time period from 2015 to 2019 In addition, the number of samples used in this study were 48 samples. That is, only 75% of the samples studied from the maximum total sample are 64 samples. This is because there are several companies that do not distribute dividends regularly or even never distribute dividends at all during the observation period from 2015 to 2019, such as DGIK, MTRA, PBSA, CSIS, PSSI and TOPS. This additional test is carried out by testing for all samples that can be tested (64 samples), assuming that the DDM value generated by companies that do not distribute dividends is 0 (zero). The 64 samples in this additional test are as follows:

Table 4. List of Company Names Used as Research Samples

No	Company Code	Date Listing	Data Availability During Observation Period					Sample Amount
			2015	2016	2017	2018	2019	
1	SSIA	27/03/1997	√	√	√	√	√	5
2	ADHI	18/03/2004	√	√	√	√	√	5
3	TOTL	25/07/2006	√	√	√	√	√	5
4	DGIK	19/12/2007	√	√	√	√	√	5
5	WIKA	29/10/2007	√	√	√	√	√	5
6	PTPP	09/02/2010	√	√	√	√	√	5
7	WKST	12/19/2012	√	√	√	√	√	5

8	ACST	24/06/2013	√	√	√	√	√	5
9	NRCA	27/06/2013	√	√	√	√	√	5
10	IDPR	10/12/2015	-	√	√	√	√	4
11	MTRA	10/02/2016	-	-	√	√	√	3
12	PBSA	28/09/2016	-	-	√	√	√	3
13	CSIS	05/10/2017	-	-	-	√	√	2
14	PSSI	05/12/2017	-	-	-	√	√	2
15	TOPS	16/06/2017	-	-	-	√	√	2
16	WEGE	30/11/2017	-	-	-	√	√	2
17	SKRN	11/10/2018	-	-	-	-	√	1
18	TAMA	10/02/2020	-	-	-	-	-	0
Total Number of Samples								64

Source: www.idx.co.id which has been processed

Determination of the appropriate regression model to be used in this additional test is to use the Chow test and the Housman test. Based on the results of the Chow test, it is known that the probability value of the Chi-Square cross-section is 0.0000 (less than 0.05), so H0 is rejected and H1 is accepted. Therefore, based on the results of the Chow test (limited F test), the most appropriate model to use is the Fixed Effect Model (FEM). Based on the results of the Housman test, it is known that the probability value of the random cross section is 0.0002 (less than 0.05), so H0 is rejected and H1 is accepted. Therefore, the most appropriate model to use based on this test is the Fixed Effect Model (FEM). Based on the Chow Test and Housman Test above, the most appropriate model to use is the Fixed Effect Model (FEM).

Based on the results of additional hypothesis testing, especially the T-test conducted on 64 samples of companies, where the samples of companies that do not distribute dividends, it is assumed that the DDM results obtained = 0 (zero), the results are the same as the results of the T-test conducted on the Hypothesis Test previously carried out in this study. This similarity is in the form of variable X₁ (RIM) which has no effect on variable Y (Stock Price), variable X₂ (DDM) is equally influential and significant on variable Y (Stock Price), variable X₃ (ROA) is equally influential and not significant on variable Y (Stock Price) and variable X₄ (DER) both have no effect on variable Y (Stock Price).

V. Conclusion

Based on "the results of panel data regression analysis and hypothesis testing discussed in the analysis results, it can be concluded that the consistency test carried out based on the intrinsic value of construction sector stocks using the Residual Income Model (RIM) and Dividend Discount Model (DDM) methods obtains a consistency value of 47.92% (< 50%). The intrinsic value of construction sector stocks analyzed using the Residual Income Model (RIM) method has no effect on stock prices. The intrinsic value of construction sector stocks analyzed using the Dividend Discount Model (DDM) method has a positive and significant effect on stock prices."

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