Analysis Of Present Value Approach With Dividend Discount Model Method To Assess The Fairness Of Share Prices

Zufrizal [1] & Iskandar Muda [2]

1,2 Faculty of Economics and Business, Universitas Sumatera Utara

Abstract.

This studies is devoted to locate the fairness of property and real estate firm stock's price that analyzed using the present value approach on Dividend Discount Model, furthermore recommend choice for investors. It uses secondary data that include financial reports and closing price. The sample's are property and real estate companies. Based on the result, undervalued stocks and a good companies financial performance are PT Ciputra Development Tbk, PT Ciputra Property Tbk, PT Gowa Makassar Turism Development Tbk, PT Perdana Gapura Prima Tbk, PT Lippo Karawaci Tbk, PT Metropolitan Kentjana Tbk, PT Plaza Indonesia Realty Tbk, PT Sumarecon Agung Tbk that those stock are affordable. PT Alam Sutera Realty Tbk and PT Jaya Real Property Tbk have good financial performances, but the price are overvalued so it's better if to be hold. PT Ciputra Surya Tbk and PT Pudjiadi Prestige Tbk are in bad financial condition's and the stock are overvalued, so it will be best decision for investors if sell it or not to be bought.

Keywords: Present Value Approach, Dividend Discount Model, Stock Price Valuation

JEL Code: G11.

1. Intoduction

Investors as parties who invest funds in a company certainly hope to benefit from these activities. Investors must have investment knowledge. Investment knowledge can be in the form of knowledge about the external conditions of the company (economic, political, social, cultural, legal), the company's financial condition, and the fairness of the company's stock price.

The fairness of share prices can be assessed by technical analysis and fundamental analysis. Two approaches in fundamental analysis are used to assess the fairness of stock prices, namely the PER (Price Earning Ratio) approach and the present value approach. According to Sunaryah (2004) "The PER approach is based on the expected results of the company's future earnings forecasts. , so that we can know how much investment in shares will return. " The present value approach analyzes the share price based on the current share price which is the same as the present value of cash flows expected to be received by shareholders (Sharpe, 2006).

Dividend Discount Model is a method of the present value approach. Assumptions from Dividend Discount Model is a share price calculation model done by valuing all cash cash flow that will be received in the future. Cash flow that will be received by investors is in the form of dividends, because of that Dividend Discount Model use dividends as the basis for estimation.

Dividend Discount Model is a valuation method that is often used in calculating the intrinsic value of shares.

The intrinsic value of shares defined by Halim (2005: 20) is "the value of the shares that should occur." Estimation of the intrinsic value is not only useful for knowing that the stock has a valuation. overvalued or undervalued, but also helps investors in making decisions about a stock.

Sector property and real estate are the choice of researchers as research objects. The reason the researchers chose this sector was because the property and real estate sector was because of the performance of its shares which experienced very rapid growth, as disclosed by Indonesia Daily, "the performance of property and construction stocks in January-May 2019 was very bright, grew 73.11% or the highest on the Indonesian stock exchange (BEI)).

2. Literature Review

2.1. Share Price Appraisal

According to Husnan (2006) "stock valuation is a mechanism to change a series of economic variables or company variables that are predicted (or observed) into an estimate of the stock price. Economic variables such as company profits, dividends distributed, earnings variability, and so on. " Based on this statement, stock valuation is the process of determining whether the market price of

shares is fair when compared to the intrinsic value of the shares.

The stock valuation guidelines are stated by Sunaryah (2006), as follows:

1. If the intrinsic value is greater than the current market price, the asset or share is declared undervalued and should be bought or held once owned.

2. If the intrinsic value is less than the market price, the asset or share is declared overvalued and should be avoided buying or vice versa immediately sold or held but in the shortest possible time.

3. If the intrinsic value is the same as the current market price, the asset or share is valued properly or fairly.

2.2. Share Price Valuation Techniques

In assessing stock prices, there are two kinds of valuation techniques, namely technical analysis and fundamental analysis.

a. Technical Analysis

Technical analysis is based on patterns of stock price movements from time to time. According to Tandelilin (2010) technical analysis is a technique for predicting the direction of stock price movements and other stock market indicators based on historical market data such as stock price information,

b. Fundamental Analysis

Fundamental analysis on the company's internal conditions focuses on the company's financial statements (Haykal et al., 2020). Fundamental analysis begins with a statement that the intrinsic value of a financial asset equals its present value or value*present value of all cash flows that are expected to be received by the owner of the asset (Sharpe, 2006).*

Two approaches that can be used to carry out fundamental analysis include:

1) PER approach

The PER approach is based on the expected results on the company's future earnings estimates, so that it can be seen how long it will take for the stock investment to return (Sunariyah, 2004). According to Arifin (2005) PER is a reflection of the rupiah that is daring to be paid to investors for every rupiah of profit.

2) Present Value Approach

The present value approach analyzes the share price based on the current share price which is the same as the present value of cash flows expected to be received by shareholders (Sharpe, 2006). The assumption is that only dividends are received

directly from the company, so the calculation method that uses dividends is called Dividend Discount Model (DDM).

Atmaja (2001) states that Dividend Discount Model (DDM) can be divided into three types, namely:

a) Dividend Discount Model (DDM) with non-growing dividends (zero growth)

Dividend Discount Model (DDM) is used for companies that are expected to produce a steady rate of growth over an indefinite period in the future. The assumption that can be made about future dividends is that the dollar value of the dividends does not change.

b) Dividend Discount Model (DDM) Constant Growth (Constant Growth)

Dividend Discount Model (DDM) constant growth or the Gordon model assumes that future dividends have normal growth. Dividend forecast has constant growth into the future (Marcus, 2007). Halim (2005) From year to year, the company always strives so that profits and dividends will grow as planned. Brimingham (2010) describes the steps for calculating the intrinsic value of stocks using the Dividend Discount Model (DDM) with constant expected dividend growth, as follows:

1) Calculate the expected stock growth rate, using the formula:

$$g = ROE \times (1 - DPR)$$

2) Calculating the expected rate of return (r):

$$r = + g\frac{D1}{P_0}$$

Information:
D1: Current dividends
Po: Current stock market price

3) Calculate the estimated dividend expected:

$$D2 = D1 (1 + g)$$

Information:
D2 = dividends expected for the following year
D1 = the last dividend distributed
g = expected dividend growth

4) Calculating the intrinsic value using the Dividend Discount Model constant growth method;

$$P0 = \frac{D1}{r-g}$$

Information:
Po = Intrinsic value of the stock

D1 = Dividend expected in one more year
r = expected rate of return
g = expected dividend growth

c) Dividend Discount Model grow not constant (non constant growth)

The assumption of non-constant growth dividends is that in general a company's common stock dividends are not constant but change according to the company's life cycle. Husnan (2006: 290) in arguing "the use of the gradual growth model is based on the premise that the company's profit growth will not continue to be high. If the industry in which a company operates has changed from the growth stage to the maturity stage, then profit growth will also decline. "

3. Methods

3.1. Types of Research

This type of research is a descriptive study with quantitative methods. Sugiono (2008: 5) states that descriptive research is "research that tries to describe or describe the data that has been collected as it is". In this study, the researcher describes the condition of the company's performance as measured by the financial ratios and the fairness (value) of the stock price which is analyzed using the DDM method with the constant growth model.

3.2. Population and Sample

The population in this research is property and real estate companies. Samples were taken based on the criteria set by researchers, companies that have met the criteria, namely:

Table 1. Companies that meet the sample criteria

No.	Sample company	Code
1.	PT Alam Sutera Realty Tbk	ASRI
2.	PT Ciputra Development Tbk	CTRA
3.	PT Ciputra Property Tbk	CTRP
4.	PT Ciputra Surya Tbk	CTRS
5.	PT Gowa Makassar Turism Development Tbk	GMTD
6.	PT Perdana Gapura Prima Tbk	GPRA
7.	PT Jaya Real Property Tbk	JRPT
8.	PT Lippo Karawaci Tbk	LPKR
9.	PT Metropolitan Kentjana Tbk	MKPI
10.	PT Plaza Indonesia Realty Tbk	PLIN
11.	PT Pudjiadi Prestige Tbk	PUDP
12.	PT Sumarecon Agung Tbk	SMRA

Source: Processed data

3.3. Data Analysis

The data analysis technique in this research is descriptive analysis. The following are the steps in data analysis in this study:

1. Analysis of the company's financial performance is measured by financial ratios. The financial ratios used are as follows:

   a. Return On Equity (ROE)

   $$ROE = \frac{EAT}{Total\ equity} \times 100\%$$

   b. Earning Per Share (EPS)

   $$EPS = \frac{EAT}{Saham\ yang\ beredar}$$

   c. DPS

   $$DPS = \frac{jumlah\ dividen\ dibagikan}{Total\ lembar\ saham}$$

   d. Dividend Yield

   $$Dividend\ Yield = \frac{DPS}{Ps}$$

   e. Dividend Paid Out Ratio (DPR)

$$DPR = \frac{DPS}{EPS}$$

2. Analysis of stock prices
   Following are the steps in conducting an analysis using the DDM method with the constant growth dividend growth model:
   a. Calculate the expected stock growth rate, using the formula

   $$g = ROE \times (1 - DPR)$$

   b. Calculating the expected rate of return (r)

   $$r = + g \frac{D1}{P_0}$$

   c. Calculate the estimated dividend expected (expected dividend in 2019)

   $$D2 = D1 (1 + g)$$

   d. Calculating the intrinsic value using the DDM method with constant dividend growth

   $$P0 = \frac{D_{2019}}{r - g}$$

   e. The intrinsic value is compared to the 2018 stock market price to assess the fairness of the stock price. Here is a guideline for comparing:
      1) The stock price is said to be undervalued. If the intrinsic value is greater than the current market price, the shares should be bought or held when they are owned.
      2) The stock price is said to be overvalued when the intrinsic value is less than the current market price, the stock is stated to be avoided buying or vice versa immediately sold or held but in the shortest possible time.
      3) If the intrinsic value equals the current market price, the shares are valued at fair.

4   Results and Discussion

Table 2. EPS Development of Property and Real Estate Sector Companies

No.	Securities Code	ROE (in %)		
		2016	2017	2018
1.	ASRI	13.12	21.62	25.69
2.	CTRA	5.36	6.45	10.54
3.	CTRP	4.74	4.67	8.00
4.	CTRS	5.70	10.22	12.36
5.	GMTD	21.50	28.30	27.15
6.	GPRA	5.39	6.88	8.00
7.	JRPT	16.23	18.24	19.26
8.	LPKR	6.91	6.16	21.64
9.	MKPI	20.46	21.69	21.23
10.	PLIN	22.62	3.61	10.51
11.	PUPD	45.69	8.73	8.30
12.	SMRA	10.86	15.69	7.28
	amount	178.58	152.26	179.96
	The highest score	45.69	28.3	27.15
	Lowest score	4.74	3.61	7.28

Source: Processed data

Companies that have increased ROE each year are PT Alam Sutera Realty Tbk (ASRI), PT Ciputra Development Tbk (CTRA), PT Perdana Gapuraprima Tbk (GPRA), PT Jaya Real Property Tbk (JRPT), PT Summarecon Agung Tbk (SMRA). ROE of real estate and property

companies that tend to be unstable are PT Ciputra Property Tbk (CTRP), PT Ciputra Surya Tbk (CTRS), PT Gowa Makassar Tourism Development Tbk (GMTD), PT Lippo Karawaci Tbk (LPKR), PT Metropolitan Kentjana Tbk (MKPI), and PT Plaza Indonesia Realty Tbk (PLIN). The value of ROE which has increased every year shows that the increase in capital is proportional to the net income generated by the company, so it can be said that the added equity is

so that the company can increase profits to run effectively.

Based on the development of ROE in the 2016-2018 observation period above, the ROE value of PT Pudjiadi Prestige Tbk (PUPD) has decreased from 2016-2018. The ROE value which has decreased every year shows that the additional capital is not proportional to the net income generated by the company.

Table 3. EPS Development in Property and Real Estate Sector Companies

No.	Securities Code	EPS (in Rp)		
		2016	2017	2018
1.	ASRI	16.26	33.68	61.19
2.	CTRA	17.01	32.57	35.36
3.	CTRP	12.07	25.26	27.40
4.	CTRS	44	83	139
5.	GMTD	271.55	483.41	633.98
6.	GPRA	10.96	11.40	14.43
7.	JRPT	100.33	131.14	161.82
8.	LPKR	30.30	31.56	46.48
9.	MKPI	277.21	340.65	382.89
10.	PLIN	146.59	25.60	68.71
11.	PUPD	36.18	75.07	60.54
12.	SMRA	34.76	57.04	114.89
Amount		997.22	1330.3	1746.6
The highest score		277.21	483.41	633.98
Lowest score		10.96	11.40	14.43

Source: Processed data

Based on the EPS value in Table 3, 11 of the 12 companies that were observed experienced an increase in EPS from 2016-2018, 11 of these companies were PT Alam Sutera Realty Tbk (ASRI), PT Ciputra Development Tbk (CTRA), PT Ciputra Property Tbk (CTRP) , PT Ciputra Surya Tbk (CTRS), PT Gowa Makassar Tourism Development Tbk (GMTD), PT Perdana Gapuraprima Tbk (GPRA), PT Jaya Real Property Tbk (JRPT), PT Lippo Karawaci Tbk (LPKR), PT Metropolitan Kentjana Tbk (MKPI), PT Plaza Indonesia Realty Tbk (PLIN), PT Summarecon Agung Tbk (SMRA). The increase in EPS shows that the company is able to increase earnings per

share every year / period. EPS, which always increases every year, has a positive impact on the company's image for investors, because EPS is the company's net income per share.

The EPS value of PT Pudjiadi Prestige Tbk (PUPD) experienced an unstable development, because in 2016-2017 it had increased but in 2018 it experienced a decline. The instability of the EPS development shows that the company is sometimes able to increase its profits, but in other periods it can generate lower profits than in the previous period. This has an impact on the company's image towards investors, so that investors tend to be speculative.

Table 4. Development of DPS in Property and Real Estate Sector Companies

No.	Securities Code	DPS		
		2016	2017	2018
1.	ASRI	4	6	14.60
2.	CTRA	6	7	12
3.	CTRP	7	8	16
4.	CTRS	13	25	42
5.	GMTD	38	38	50
6.	GPRA	1	1.5	2

7.	JRPT	33	43	53
8.	LPKR	4.33	7.79	11.85
9.	MKPI	25	150	165
10.	PLIN	2.5	84.50	42.50
11.	PUPD	5	20	12
12.	SMRA	10	23	43
Amount		148.8	413.7	463.95
The highest score		38	150	165
Lowest score		1	1.5	2

Source: Processed data

DPS is the amount of dividends per share received by investors. The constituent elements of DPS are cash dividends paid by the company and the number of shares outstanding. Judging from the development of DPS above, the value of DPS of PT Alam Sutera Realty Tbk (ASRI), PT Ciputra Development Tbk (CTRA), PT Ciputra Property Tbk (CTRP), PT Ciputra Surya Tbk (CTRS), PT Gowa Makassar Tourism Development Tbk (GMTD) , PT Perdana Gapuraprima Tbk (GPRA), PT Jaya Real Property Tbk (JRPT), PT Lippo Karawaci Tbk (LPKR), PT Metropolitan Kentjana Tbk (MKPI), PT. Summarecon Agung Tbk (SMRA) has increased from 2016-2018, which means that the amount of dividends per share to be distributed to shareholders has always increased every year. This provides a positive image for the company towards investors, so that investors are more interested in investing their funds in companies that can generate increased DPS each year. The value of DPS of PT Plaza Indonesia Realty Tbk (PLIN), PT Pudjiadi Prestige Tbk (PUPD) tends to be unstable during the 2016-2018 period. This situation gives the company a bad image to investors, because investors are hesitant to invest their funds in these companies.

Table 5. Development of Property and Real Estate Companies Dividend Yield

No.	Securities Code	*Dividend Yield*(in%)		
		2016	2017	2018
1.	ASRI	13.55	13.04	24.33
2.	CTRA	1.71	1.29	1.5
3.	CTRP	1.59	1.63	2.66
4.	CTRS	1.88	2.87	1.86
5.	GMTD	23.03	5.75	7.57
6.	GPRA	0.90	1.28	2.00
7.	JRPT	2.53	1.95	1.70
8.	LPKR	0.60	1.18	1.18
9.	MKPI	4.46	5.17	4.34
10.	PLIN	0.12	5.45	2.62
11.	PUPD	1.51	4.30	2.40
12.	SMRA	0.9	1.85	2.26
Amount		52.78	45.76	54.42
The highest score		23.03	13.04	24.33
Lowest score		0.12	1.18	1.18

Source: Processed Data

Judging from the development of the dividend yield above, the dividend yield value of PT Ciputra Property Tbk (CTRP), PT Perdana Gapuraprima Tbk (GPRA), PT Summarecon Agung Tbk (SMRA) has increased from 2016-2018. The increasing dividend yield shows that the company is able to distributing dividends which increase every year despite the increase in stock prices. The increase in dividend yield is a good condition, thus providing a positive image for the company.

The dividend yield value of PT Alam Sutera Realty Tbk (ASRI), PT Ciputra Development Tbk (CTRA), PT Ciputra Property Tbk (CTRP), PT Ciputra Surya Tbk (CTRS), PT Gowa Makassar Tourism Development Tbk (GMTD), PT Metropolitan Kentjana Tbk (MKPI), PT Plaza Indonesia Realty Tbk (PLIN), PT Pudjiadi Prestige Tbk (PUPD) tended to be unstable during the 2016-

2018 period. PT Lippo Karawaci Tbk (LPKR) has a dividend yield where in 2016-2017 it increased, while in 2017-2018 it was the same. The development of dividend yield tends to be unstable and has a negative impact on the company's image towards investors

.

Table 6. Development of the DPR in the Property and Real Estate Sector Companies

No.	Securities Code	DPR (in%)		
		2016	2017	2018
1.	ASRI	24.60	17.81	23.86
2.	CTRA	35.27	21.49	33.93
3.	CTRP	58.37	31.67	57.99
4.	CTRS	30.21	30.12	29.54
5.	GMTD	7.88	7.86	13.99
6.	GPRA	13.86	13.15	9,12
7.	JRPT	50.75	34.10	34.25
8.	LPKR	25.49	24.68	14.29
9.	MKPI	43.09	44.03	45.09
10.	PLIN	1.70	330	61.85
11.	PUPD	19.82	26.64	13.81
12.	SMRA	37.42	40.32	28.76
	Amount	348.46	621.8	366.48
	The highest score	58.37	330	61.85
	Lowest score	1.7	7.86	9,12

Source: Processed data

Based on the table regarding the development of the DPR, companies whose DPR values have increased from 2016-2018 PT Metropolitan Kentjana Tbk (MKPI), which means that the proportion of net profit that will be received by shareholders has increased. DPR Value of PT Alam Sutera Realty Tbk (ASRI), PT Ciputra Development Tbk (CTRA), PT Ciputra Property Tbk (CTRP), PT Gowa Makassar Tourism Development Tbk (GMTD), PT Jaya Real Property Tbk (JRPT), PT Plaza Indonesia Realty Tbk (PLIN), PT Pudjiadi Prestige Tbk (PUPD), PT Summarecon Agung Tbk (SMRA) tended to be unstable during the 2016-2018 observation period. The DPR experienced a decline during the 2016-2018 period experienced by PT Ciputra Surya Tbk (CTRS), PT Perdana Gapuraprima Tbk (GPRA), and PT Lippo Karawaci Tbk (LPKR).

Table 7. Assessment of Share Prices and Decisions for Investors

No.	Securities Code	Stock Price		Assessment	Decision
		NI	Market Price		
1.	ASRI	555.33	600	*Overvalued*	Sold / avoided to buy
2.	CTRA	933	800	*Undervalued*	Purchased / detained if already owned
3.	CTRP	623.22	600	*Undervalued*	Purchased / detained if already owned
4.	CTRS	524.66	2,250	*Overvalued*	Sold / avoided to buy
5.	GMTD	787.5	660	*Undervalued*	Purchased / detained if already owned
6.	GPRA	106.9	100	*Undervalued*	Purchased / detained if already owned
7.	JRPT	2110	3100	*Overvalued*	Sold / avoided to buy
8.	LPKR	1,385	1,000	*Undervalued*	Purchased / detained if already owned
9.	MKPI	4,178	3,800	*Undervalued*	Purchased / detained if already owned
10.	PLIN	2,210	1,620	*Undervalued*	Purchased / detained if already owned

| 11. | PUPD | 424 | 500 | *Overvalued* | Sold / avoided to buy |
| 12. | SMRA | 2,236 | 1,900 | *Undervalued* | Purchased / detained if already owned |

Source: Processed data

An assessment of the fairness of the share price can also be used to determine what decisions investors should make regarding stocks that are considered undervalued or overvalued. The decision for shares that are considered undervalued is to buy or hold if they are already owned. For stocks that are considered overvalued, the decision for investors is to avoid buying, if they are already owned, they should be sold or held, but in a short time.

Based on table 7 regarding share price valuation, it can be seen that stocks that have stock valuation that have undervalued valuation are PT Ciputra Development Tbk (CTRA), PT Ciputra Property Tbk (CTRP), PT Gowa Makassar Tourism Development Tbk (GMTD), PT Perdana Gapuraprima Tbk (GPRA), PT Lippo Karawaci Tbk (LPKR), PT Metropolitan Kentjana Tbk (MKPI), PT Plaza Indonesia Realty Tbk (PLIN), PT Summarecon Agung Tbk (SMRA). The overvalued assessment was given to the shares of PT Alam Sutera Realty Tbk (ASRI), PT Jaya Real Property Tbk (JRPT), PT Ciputra Surya Tbk (CTRS) and PT Pudjiadi Prestige Tbk (PUPD).

5. Conclusion

Based on the results of research on the analysis of the present value approach using the DDM method to assess the fairness of stock prices, it can be concluded that stocks that have an undervalued assessment and the company's financial performance are in good condition CTRA, CTRP, GMTD, GPRA, LPKR, MKPI, PLIN, SMRA. The decision for investors regarding these shares is that they should be bought or retained if they are already owned. ASRI and JRPT have good financial performance conditions, but their share prices are considered overvalued, so the right decision for investors who already own these shares is not to sell them first because their financial performance conditions are good. For investors who are oriented towards getting capital gains, you should sell them or avoid buying.

References

Arifin, Z. (2004). *Financial Institutions and Capital Markets*. Econosia.

Bodie, K., & Marcus (2006). *Investment*. Four Salemba.

Brigham, E., F. (2010). *Financial Management*. Erlangga.

Halim, A. (2005). *Investment Analysis*. Four Salemba.

Haykal, M., Erlina, Maksum, A., (2020). Profitability and Discretionary Accrual through Supply Chain Management: Evidence of Manufacturing Firms using GMM Estimates in Indonesia. *Int. J Sup. Chain. Mgt Vol*, *9*(1), 638. http://ojs.excelingtech.co.uk/index.php/IJSCM/article/view/4350/2215

Husnan, S. (2005). *Basics of Portfolio Theory and Securities Analysis*, UPP AMP YKPN.

Leyman, P., & Vanhoucke, M. (2017). Capital and Resource Constrained Project Scheduling with Net Present Value Optimization, *European Journal of Operational Research*, 256 (3), 757-776. https://doi.org/10.1016/j.ejor.2016.07.019

Peymankar, M., Davari, M., Ranjbar, M. (2021). Maximizing the Expected Net Present Value in a Project with Uncertain Cash Flows. *European Journal of Operational Research*. https://doi.org/10.1016/j.ejor.2021.01.039

Piatti, I., & Trojani, F. (2017). Predictable Risks and Predictive Regression in Present-Value Models. *Saïd Business School WP 2017-11*. http://dx.doi.org/10.2139/ssrn.1786897

Sharpe, W., F. et al. (2006). *Investment*. Index.

Sugiyono (2008). *Business Research Methods: Quantitative, Qualitative and R&D approaches*. Alfabeta.

Sunariyah (2003). *Introduction to Capital Market Knowledge*. UPP AMP YKPN.

Tandelilin, E. (2010). *Investment Analysis and Portfolio Management*. BPFE.

Wieloch, H., G. (2019). Project Net Present Value Estimation Under Uncertainty. *Cent Eur J Oper Res,* 27, 179–197. https://doi.org/10.1007/s10100-017-0500-0