Fundamental Stock Assessment Using the *Dividend Discount Model* and *Price Earning Ratio Method* for Investment Decisions in the Banking Sector Listed on the Indonesian Stock Exchange

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Abstract. *This study was conducted to determine the fair value of shares of banking sector companies for the period 2022. We evaluated the stocks of five companies listed on the Indonesia Stock Exchange based on two approaches: the dividend discount model and the price-to-earnings ratio . The survey results of five companies show that two companies are undervalued and three companies are overvalued. If an investor is undervalued, he can decide to buy the stock, while an overvalued investor can sell the stock.*

Keywords: *Stock Valuation, Dividend Discount Model, Price Earning Ratio*

INTRODUCTION

Background

Making investment decisions is important for investors. Investment decisions greatly influence investors when investing. This is done by investors in order to reduce risks when investing and maximize the profits obtained. The investment decision process is a relationship between risk and desired expectations. The relationship in investment is linear and unidirectional, which means that the higher the return, the higher the level of risk and must be considered. In investing, an investor not only looks at the profits, but also must look at the risks involved. When experiencing a loss, there are various unforeseen factors, among others, an investor makes mistakes in calculations and analysis due to less mature strategy preparation. The specialty of stocks that are risky but offer large profit potential makes stocks with high fluctuations provide great opportunities. This is due to the possibility of significant differences in selling and buying prices. There are two investor approaches to stock valuation, including fundamental analysis and technical analysis. Fundamental analysis is an analysis used by investors with long-term investment objectives by measuring the condition of the industry and related sectors, measuring financial performance, the company's economic condition, as well as carrying out analysis of micro and macro economics. Meanwhile, technical analysis is analysis that measures the performance of a stock and the direction of future stock prices based on historical data such as using certain graphs or indicators, such as bar charts, candlestick

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charts and line charts. . This analysis is usually used by traders because stock transactions are brief or short term.

Moreover, in Indonesia itself, the banking industry is one of the industries whose shares are in great demand by people who want to invest in the capital market, because they are considered shares that have very high return potential (Afandy 2019).

A person's interest in investing has an impact on company capitalization in the banking sector. Figure I illustrates that the financial sector listed on the Indonesia Stock Exchange (BEI) has a capitalization of 66.40%. High capitalization in the financial sector, especially contributed by banking companies, attracts investors to save funds in this sector.
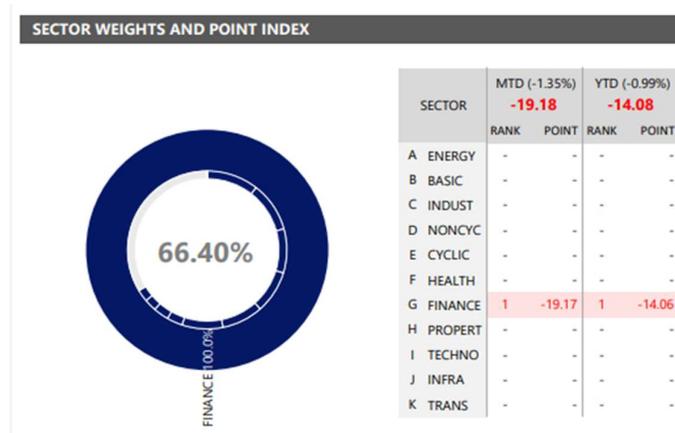
SECTOR WEIGHTS AND POINT INDEX					
		MTD (-1.35%) -19.18		YTD (-0.99%) -14.08	
	SECTOR	RANK	POINT	RANK	POINT
A	ENERGY	-	-	-	-
B	BASIC	-	-	-	-
C	INDUST	-	-	-	-
D	NONCYC	-	-	-	-
E	CYCLIC	-	-	-	-
F	HEALTH	-	-	-	-
G	FINANCE	1	-19.17	1	-14.06
H	PROPERT	-	-	-	-
I	TECHNO	-	-	-	-
J	INFRA	-	-	-	-
K	TRANS	-	-	-	-

66.40%

FINANCE 100.0%

Figure I. Market Capitalization in 2022 *Source* : BEI

Furthermore, fundamental analysis assumes that stock market prices never represent their true value (Lutfiana et al. 2019). Fundamental analysis is a process to determine whether stock prices at any time are below or above their normal value. Therefore, it is important to wisely evaluate the value of shares to ensure accurate investment decisions . Basic stock valuation can be done using various methods, including price to earnings ratio (PER) and dividend discount model (DDM). The high share capital in the banking sector can increase investors' investment interest. However, research on the banking sector is still limited, so information regarding shares that should be purchased in this sector is less available to investors.

Research question

How can the use of the Dividend Discount Model (DDM) and Price Earning Ratio (PER) methods in fundamentally assessing shares help in making investment decisions in the banking sector listed on the Indonesia Stock Exchange?

Research Objectives and Benefits

To analyze how the use of the Dividend Discount Model (DDM) and Price Earning Ratio (PER) can help shareholders make better investment decisions in banking sector shares.

FRAMEWORK OF THINKING

THEORETICAL BASIS

Stock Valuation

The first thing that potential investors who want to buy shares look at is how share prices move in the market. Share evaluation is an action that needs to be taken by prospective shareholders to reduce risks and avoid potential losses . According to Sunariyah (2006) in Wulandari *et.al.* (2016:76), "to determine the value of a share, investors must first carry out stock analysis in the capital market to identify shares or create a portfolio that has the potential to generate optimal profits." According to Bodie (2014) in Brilliand *et.al.* (2016:208) stock valuation is "the process of using information about a company's current and future earnings to determine and predict the fair value of a share".

Fundamental Analysis

According to Darmadji and Fakhrudin (2006) in Asia (2020:81), fundamental analysis is an approach that uses various actual data to assess or predict the macroeconomic value and internal factors of the company or predict the value of a share. Suresh (2013) states that stock valuation using fundamental analysis involves estimating the intrinsic value of shares through evaluating various factors that influence them, such as macroeconomic factors and internal aspects of the company.

According to Tandelilin (2010) in Asia (2020: 81), fundamental analysis is an approach to stock analysis that estimates the value of a stock based on basic information disclosed by the company, such as changes in financial statements, dividends , and related variables as a basis for making purchasing decisions and share sales.

Dividend Discount Model

According to Hairul and Moin (2022), the dividend discount model (DDM) is a method of determining the value of a share which includes a dividend component (present value method). Tandelilin (2017) in Hairul and Moin (2022) states that the dividend discount model (DDM) is a model that estimates share prices by discounting all future dividend flows. The dividend discount model (DDM) approach assumes that stock prices can be influenced by three

main factors: annual dividend, dividend growth rate, and required rate of return. Investor decisions are mainly determined by future profits. Future income should be given as compensation or called a discount value (Hasanah, 2017).

Price Earning Ratio

Tandeilin (2017:387) explains that *the Price Earning Ratio* (PER) is a measure that describes the extent to which investors are willing to pay for shares based on profit per share. In other words, PER reflects the value given by investors to each unit of profit earned.

The definition of Price Earning Ratio (PER) by Irham Fahmi (2014:83) states that PER is the comparison between the market price per share and profit per share. Thus, PER is used by investors as a tool to evaluate the performance of company shares. The opinion of Nugraha and Sulasmiyati (2017) states that shares with a low price-to-earnings ratio (PER) tend to have more affordable prices, making them a more profitable investment option.

Banking

Trisadini (2016) in his book explains that "Banking is a financial institution that has strategic value in a country's economy which aims to be an intermediary between parties who have excess capital and parties who lack capital."

RESEARCH METHODS

The research carried out used qualitative research. According to Malleon, qualitative methods are science that aims to understand phenomena in natural social contact by prioritizing the process of in-depth communicative interaction between researchers and the phenomena being discussed. The descriptive approach is to explore a problem in the form of current facts from a population with the aim of answering hypotheses related to the topic being studied. The aim of this research is to see the stability of stock prices before making a decision to invest in the banking subsector listed on the IDX for the 2022 period. This research uses secondary data with data obtained from stakeholders, namely data released in 2022. Data in the form of annual financial reports and other data relevant to the research question. Financial reports of banking subsector companies listed on the IDX are used as data sources. Therefore, data takes the form of documents and archives.

The population of this research consists of several banking companies listed on the IDX in 2022. The sample was determined using a *purposive sampling method* where the researcher

used his own judgment, research knowledge, or certain criteria to select a sample that he believed was appropriate and relevant to the research objectives. This sampling technique is applied based on certain aspects or criteria. The sampling criteria include:

a. Banking sector companies listed on the IDX for the 2022 period
b. Banking sector companies that publish complete financial reports in the research year, namely the 2022 period
c. Banking companies that were not delisted in that period.

Based on the assessment example above, there are five banking companies that have the right to have their shares valued, namely:

Table 1. List of Companies

No	Kode Emiten	Nama Perusahaan
1	BBCA	PT Bank Central Asia Tbk
2	BBNI	PT Bank Negara Indonesia Tbk
3	BMRI	PT Bank Mandiri Tbk
4	BBTN	PT Bank Tabungan Negara (Persero) Tbk
5	BJTM	PT Bank Pembangunan Daerah Jawa Timur Tbk

Source : processed data, 2023

The focus of the research used:

1. Ratios in fundamental analysis
2. Calculation of share price value using the Dividend Discount Model
3. Calculation of share price value using the Price Earning Ratio method

Calculations and assessments are explained to provide information and determine stock valuation based on a comparison of the fair price of a company's shares with the closing price of shares at the end of the research period.

Steps to calculate share value based on dividend discount model, price/earnings ratio method, etc.:

● Calculate growth rate

$$g = ROE \times Retention\ Ratio$$
$$Retention\ Ratio = 1 - DPR(Dividen\ Payout\ Ratio)$$
$$DPR = Dividen\ Per\ Share\ (DPS) \div Earning\ Per\ Share\ (EPS)$$

Information :

g : The rate of stable dividend growth

ROE : Net profit from capital
DPS : Earnings from dividends per share

- Determine the estimated expected dividends obtained

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

Information :

D_t : Estimate or estimate for the t-th year
D_0 : Dividends received in the last year
g : Constant dividend growth rate

- Calculates intrinsic value with steady growth

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

The steps in calculating the Price Earing Ratio include:

- Determine the estimated expected cash earnings

$EPSt = EPS_0(1 + g)$

- Calculating the expected level of expected return

$$k = \frac{D_1}{P_{t-1}} + g$$

- Calculating the Price Earning Ratio (PER) Value

$$PER = \frac{DPR}{k - g}$$

- Determine the fair value of shares

$$Nilai\ Wajar\ Saham = Earning\ Per\ Share\ (EPS)\ \times\ Price\ Earning\ Ratio\ (PER)$$

RESULTS AND DISCUSSION

A total of 5 companies listed meet the requirements as samples in the banking sector, including providing dividend distribution in 2022. The following companies meet the requirements, including:

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No	Kode Emiten	Nama Perusahaan
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5	BJTM	PT Bank Pembangunan Daerah Jawa Timur Tbk

Source : processed data, 2023 (www.idx.co.id)

Assessing shares according to fundamental performance involves a number of financial performance variables using ratios as the basis for assessment, especially in terms of the level of ROE as a profitability ratio, the amount of dividends paid to profits, and the profits generated per share.

Return on equity is a measure used to calculate profits obtained from capital utilization. Septadi et. al (2013) stated that ROE is a significant measure that is often used as a benchmark by shareholders before deciding to invest in a company.

Table 3 shows that the average ROE in 2022 is 14.59%, BBCA has the highest ROE value at 18.43%, followed by BMRI at 17.98%. By maintaining good levels of liquidity and risk management, companies can optimize the use of their capital .

The amount of profit obtained is very dependent on the efficiency of capital allocation and maintenance of credit quality carried out by the company. Apart from that, by optimizing innovation by making digital banking services can be implemented effectively to provide added value. The average EPS value was IDR 209.18, with the highest value recorded at BBCA at IDR 330.60. This indicates that the company has the potential to increase its earnings per share above the industry average, providing investors with important information regarding earnings per share results.

The amount of EPS will also indirectly influence the amount of dividend payments, according to the estimated profits expected by investors. This can be clearly seen from the distribution of dividends per share determined by BBCA management, which reached the highest value of IDR 155.00, exceeding the industry average of IDR 65.52. Dharma (2022) states that the positive impact of a high DPS can improve a company's reputation, thereby generating investor interest in investing in that entity.

Table 3. Banking ROE, EPS, DPS and DPR values in 2022

No	Kode	ROE (%)	EPS (Rp)	DPS (Rp)	DPR (%)
1	BBCA	18.43%	3,306,070	1,550,001	46,88%
2	BBTN	11.75%	2,875,423	224,484	7,80%
3	BJTM	14.35%	1,434,508	640,898	44,65%
4	BBNI	10.45%	1,045,408	194,343	18,59%
5	BMRI	17.98%	1,797,718	666,689	37,09%
	Rata-rata	**14.59%**	**2,091,822**	**655,263**	**31,00%**
	Max	**18.43%**	**3,306,070**	**1,550,001**	**46,88%**
	Min	**10.45%**	**1,045,393**	**194,343**	**7,80%**

Source : processed data, 2023

In terms of dividend payments, the average Dividend Payment Ratio (DPR) reached 31%, with the highest DPR being BBCA at 46.88%, while BBTN had the lowest DPR at 7.80%. The size of the DPR at BBCA is influenced by two factors, namely management policy regarding DPS (Dividends per share) or the large proportion of dividends paid on results and is also influenced by the level of stability of the company regarding the continuity of its business. For this reason, you don't need too much capital for growth purposes.

Table 4. Intrinsic Value *of Dividend Discount Model*

No	Kode	g	Dt	Expected Return (k)	Nilai Intrinsik	Harga Pasar
1	BBCA	9.79%	131.74	11.17%	9,551.50	8,700
2	BBTN	10.84%	24.87	12.70%	1,335.57	1,205
3	BJTM	7.94%	4.14	16.32%	49.41	610
4	BBNI	8.51%	12.54	11.53%	415.58	4,850
5	BMRI	11.31%	40.9	11.53%	646.47	5,700
	Rata-rata	**9.68%**	**42.838**	**12.65%**		

Source : processed data, 2023

In Table 4, several other fundamental components needed to identify the intrinsic value of shares are presented. This table also includes calculations of factors such as *dividend growth* (g), estimates of expected dividends, as well as estimates and required levels of return or what is better known as expected return (k).

Table 5. Intrinsic Value of *Price Earning Ratio*

No	Kode	g	EPSt	Expected Return (k)	PER	Nilai Intrinsik	Harga Pasar
1	BBCA	9.79%	3,629,648	11.17%	33.99	12,337.36	8,700
2	BBTN	10.84%	3,186,994	12.70%	4.19	1,335.48	1,205
3	BJTM	7.94%	1,549,444	16.32%	5.33	825.68	610
4	BBNI	8.51%	1,134,461	11.53%	6.16	699.1	4,850
5	BMRI	11.31%	2,001,040	17.64%	5.86	1,172.90	5,700
	Rata-rata	**9.68%**	**2,300,298**	**13.87%**			

In Table 5, stock value assessment is carried out using the Dividend Discount Model and Price Earning Ratio, producing various intrinsic values for several stock examples . Although the difference in intrinsic value in rupiah currency using the DDM and PER methods is not significant, it is important for investors to pay attention that any such difference will be applied to the number of shares outstanding. Therefore, although the difference in value may be small, if held in a large number of shares, the difference can be significant. Therefore, it is recommended for investors to pay attention to the number of shares they own apart from the difference between the market price and the intrinsic value of the shares.

Table 6. Intrinsic Value, Market Price, and Investment Decisions

No	Kode	Nilai Intrinsik		Harga Pasar (Closing Price)	Kondisi Saham		Keputusan Investasi	
		DDM	PER		DDM	PER	DDM	PER
1	BBCA	9,551.50	12,337.36	8700	*Undervalued*	*Undervalued*	Membeli	Membeli
2	BBTN	1,335.57	1,335.48	1205	*Undervalued*	*Undervalued*	Membeli	Membeli
3	BJTM	49.41	825.68	610	*Overvalued*	*Undervalued*	Menjual	Membeli
4	BBNI	415.58	699.10	4850	*Overvalued*	*Overvalued*	Menjual	Menjual
5	BMRI	646.47	1,172.90	5700	*Overvalued*	*Overvalued*	Menjual	Menjual

In Table 6, the assessment of share value using the dividend discount model and price to earnings ratio shows 5 companies, including BBCA, BBNI, BMRI, BBTN, and BJTM. In the Dividend Discount Model, BMRI and BBTN are assessed as overvalued because their intrinsic value is lower than the market price. When shares are classified as undervalued, investors can consider buying or increasing their holdings, hoping that the share price will rise. However, if a stock is overvalued, investors should not buy it or, if they already own it, it is better to sell it. This research shows the importance of factors such as company profits, dividends paid, and company development in assessing shares using the Dividend Discount Model (DDM) and Price Earnings Ratio (PER). Investors need to carry out fundamental analysis with this financial data to find out the value of the company's shares. Before investing, a stock assessment is necessary to better manage risks. A stock is considered undervalued if its intrinsic value is higher than its market value, fair if it is equal to the market price, and overvalued if its intrinsic value is lower than the market price, in which case selling may be the best option.

CONCLUSION

After conducting an assessment using the DDM and PER approaches in the 2022 period, it can be concluded that overall, the share prices of the five banking sub-sectors in 2022 that are overvalued *include* BJTM, BBNI, BMRI. However, in the Dividend Discount Model calculation, BJTM is overvalued while the Price Earning Ratio calculation is *undervalued* .

correct investment decision involves purchasing shares from companies that are considered undervalued, such as PT Bank Central Asia Tbk, PT Bank Tabungan Negara (Persero) Tbk, and PT Bank Pembangunan Daerah Jawa Timur Tbk. Investment in these shares is suitable for regular investors who pay attention to fundamental company factors , including investment profits from dividends and financial performance which have the potential to influence the value of their shares in the future.

SUGGESTION

1. When making investment decisions, investors need to pay attention not only to the actual value of shares, but also to the growth of businesses within the banking subsector.
2. Fundamental analysis approaches, using dividend discount models and price-to-earnings ratio methods, can complement each other.
3. When making investment decisions, investors must also consider the company's external conditions.
4. In the future, it is hoped that this research will be able to evaluate share prices in other industrial sectors so that it can provide guidance to investors in choosing shares.

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