

# Share Valuation of Indonesian Regional Development Bank using Free Cash Flow to Equity and Relative Valuation Methods

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**Keywords:** Valuation, Bank, DCF-FCFE, Relative Valuation, Indonesia Stock Exchange.

**Abstract:** The Indonesian Regional Development Banks established to help economic equality for all regions in Indonesia, and most of them face limited capital. The purpose of this research is to determine the fair value of Listed Regional Development Banks in IDX in 2018, using Discounted Cash Flow with FCFE approach and validate the result using relative valuation methods with PER and PBV approach. The sample of this research are BJBR, BJTM, and BEKS. Financial historical data from the last five years, since 2013 to 2017 as a basic reference for the projection from 2018 to 2022, involving pessimistic, moderate and optimistic scenario and the value is compared with market price on January 2, 2018. Results of this research indicate that using FCFE valuation, BJBR and BJTM has overvalued in all scenarios, while for BEKS has undervalued in all scenarios. In relative valuation method within PER and PBV approach showed PER and PBV of all sample this research is within the industry range means the result of the calculation is proper, except PBV for BEKS in the moderate and optimistic scenario but not significant. The conclusion of this research is to recommend selling shares BJBR and BJTM, and buying BEKS shares.

## 1 INTRODUCTION

The Regional Development Banks or *Bank Pembangunan Daerah* (BPD) were established with the aim of helping equitable development in all regions in Indonesia. BPDs have a significant function and role in the context of regional economic development because BPDs are expected to be able to provide services in areas where it is economically impossible for private banks to provide funds for the implementation of regional development.

Based on the Regulation of Financial Services Authority (OJK) No. 6/POJK.03/2016, banks can be grouped into 4 (four) BOOK categories, namely: BOOK 1 (main capital up to less than IDR 1 trillion), BOOK 2 (main capital IDR 1 trillion to less than IDR 5 trillion), BOOK 3 (main capital of IDR 5 trillion to less than IDR 30 trillion), and BOOK 4 (main capital of at least IDR 30 trillion).

Most BPDs in Indonesia face limited capital. Only 3 out of 27 BPDs are categorized as BOOK 3, the rest are only in BUKU 1 or BUKU 2 categories.

Capital is an unavoidable need because banking expansion is highly influenced by its main capital. The capital market is an absolutely strategic place

for industries, including banks, to obtain funding/long-term capital. This funding also welcomes the BPDs. However, it was found in September 2018 that only 3 of the 27 BPDs in Indonesia had listed their shares on the IDX, namely: PT Bank Pembangunan Daerah Jawa Barat dan Banten Tbk (BJBR), PT Bank Pembangunan Daerah Jawa Timur Tbk (BJTM) and PT Bank Pembangunan Daerah Banten Tbk (BEKS).

A company will be able to attract and/or retain investors by continuously creating and realizing the value of the company. Investors expect the investment value to increase or at least it will have the same value as the risk compensation by considering the time value of the invested money.

According to Damodaran (2012), valuation is a relatively simple process to discount the company's free cash flow projections with the rate of return expected by the investors. Valuation of public companies whose shares are listed on the stock exchange is much easier than closed companies. The value of a company listed on the stock exchange can be reflected in its stock price movements. Therefore, the object of this research is three BPDs listed on the Indonesia Stock Exchange (IDX), namely: BJBR, BJTM, and BEKS.

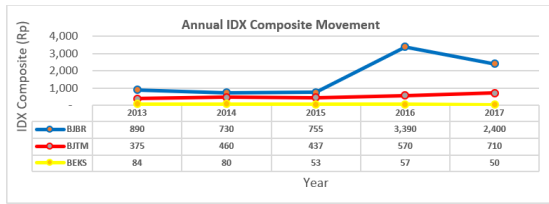


Figure 1: Annual IDX Composite Movement, period 2013 – 2017.

According to Damodaran (2012), the value of a company or an investment instrument depends on future cash flows that will be received or obtained from the investment instrument. Based on data from the IDX Composite Stock Price Index (IHSG) on December 31, the data of three BPDs for the last five years (2013 - 2017) are presented in Figure 1.

Based on Figure 1, throughout 2013 - 2017, the IDX Composite for BJBR shares showed an increasing trend with the highest point value of 3,390.00 IDR on December 31, 2016. However, on December 31, 2017, it had a significant decline from the previous year of 990.00 IDR (2,400 IDR-3,390.00 IDR). Meanwhile, IDX Composite from BJTM had an insignificant increasing trend until December 31, 2017, which only amounted to 335.00 IDR (710.00 IDR-375.00 IDR) since the end of 2013. On the other hand, BEKS IDX Composite tended to have a downward trend from year to year, with the lowest point taking place on December 31, 2017, with a value of 50.00 IDR.

Figure 2 shows the movement of BJBR shares throughout January 2013 to June 2018, in which the highest price of 3,390.00 IDR occurred on December 30, 2016, and the lowest price of 585.00 IDR occurred on August 25, 2015. The highest return 20.63% occurred on December 16, 2016, and the lowest return of -10.64% occurred on January 5, 2017.

Figure 3 shows the movement of BJTM shares from January 2013 to June 2018, in which the highest price is 790.00 IDR which occurred on

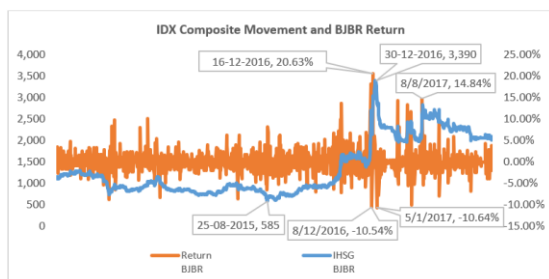


Figure 2: IDX Composite Movement and BJBR Return of BJBR, the period of January 2013 to June 2018.

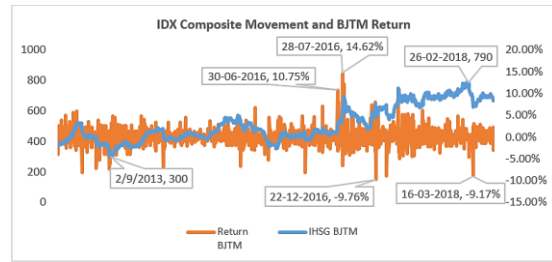


Figure 3: Composite Index Movement and BJTM Return, the period of January 2013 to June 2018.

February 26, 2018, and the lowest price is 300.00 IDR which occurred on September 2, 2013. Meanwhile, the highest return of 14.62% occurred on July 28, 2016, and the lowest return of -9.76% occurred on December 22, 2016.

Figure 4 shows the movement of BEKS shares from January 2013 to June 2018, in which the highest price was 127.00 IDR on April 16, 2013, and the lowest price was 50.00 IDR on December 15, 2015, and September 23, 2016. Meanwhile, the highest return of 30.01% occurred on November 24, 2015, and the lowest return of -47.74% occurred on August 8, 2016.

Financial ratio data in the form of Return on Assets (ROA) and Return on Equity (ROE) listed in the audited financial statements of the PT West Java and Banten Regional Development Bank Tbk

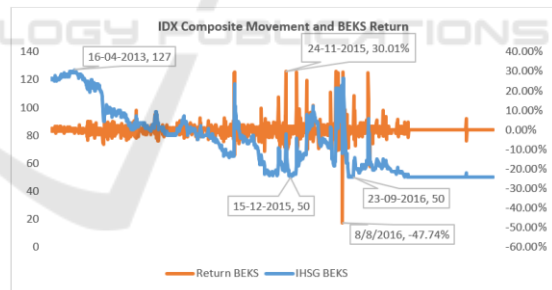


Figure 4: Composite Index Movement and BEKS Return, the period of January 2013 to June 2018.

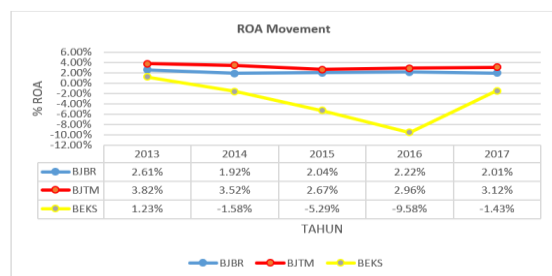


Figure 5: Return on Assets (ROA) Movement from 2013 to 2017.

(BJBR), PT East Java Regional Development Bank Tbk (BJTM), and PT Banten Regional Development Bank Tbk (BEKS) for the last 5 years (2013 to 2017) is presented in Figure 5 and Figure 6.

Based on Figure 5 and Figure 6, it can be seen that from 2013 to 2017, BJBR's ROA and ROE tended to decrease, namely: 2.61% (ROA) in 2013 to 2.01% in 2017 and 26.76% (ROE) in 2013 to 20.05% in 2017. A similar trend also occurred with BJTM's ROA and ROE, namely: 3.82% (ROA) in 2013 to 3.12% in 2017, and 19.04% (ROE) in 2013 to 17.43% in 2017. Meanwhile, BEKS's ROA and ROE showed a dramatic decline from 1.23% (ROA) in 2013 to -9.58% in 2016, and -14.44% (ROE) in 2013 to -83.76% in 2016. In 2017, the BEKS's ROA and ROE had a significant increase to -1.43% (ROA) and -15.43% (ROE). However, the value of BEKS's ROA and ROE is still negative. A negative value on ROA indicates that BEKS is in a loss condition. While the negative value on ROE describes that BEKS is not able to manage capital efficiently to generate and increase revenue.

Another financial ratio used as the research background is the variable Earning Per Share (EPS). EPS is part of the company's profits allocated to each outstanding share. Earnings per share or EPS are the most widely used indicators to assess the profitability of a company. Based on EPS data listed in the audited financial statements of the BJBR, BJTM and BEKS for the last 5 (five) years (2013 to 2017) are presented in Figure 7.

Based on Figure 7, it can be seen that throughout the period 2013 to 2017, the movement of EPS values for BJBR fluctuated and decreased in 2017 to 125.00 IDR/share when compared to 2013, which was 141.59 IDR/share. Likewise, the value of BEKS's EPS decreased in 2017 to -1.19 IDR/share, from 8.95 IDR/share in 2013. Meanwhile, in 2017, the value of BJTM's EPS tended to increase by 22.25 IDR/share (77.51 IDR - 55.26 IDR) when compared to 2013 which was only 55.26 IDR/share.

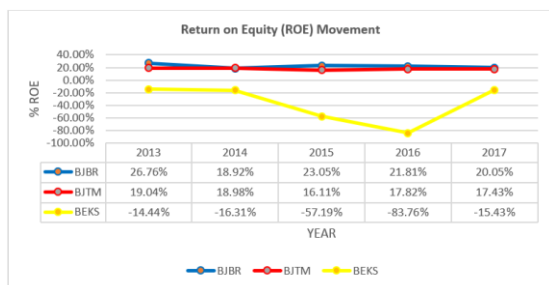


Figure 6: Return on Equity (ROE) Movement in the period from 2013 to 2017.

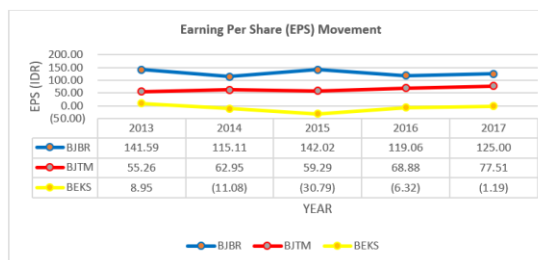


Figure 7: Earning Per Share (EPS) Movement from 2013 to 2017.

Research on the valuation of intrinsic stock value was carried out by several previous researchers. The results of previous studies indicated that intrinsic shares in the market using several valuation methods could provide different conditions that are overvalued or undervalued. The research also showed that stock prices in the market do not necessarily reflect their fair value (intrinsic), as stated by:

Gupta (2019) researched assessment companies in three sectors: car, banking, and steel, use simple linear regression, taking into account economic, fiscal and financial policies. This research was carried out by applying regularization machine learning techniques. Ridge regression, ASSO, and clean elastic techniques are used to underline these similarities multiples of assessment. This regulator was tested on Indian data listed companies that cover twelve years from TA 07 to TA 2018 and four multiples identified for research are 1) prices for income (P/E), 2) prices for sales (P/S), 3) before the interest tax depreciation before the firm's value of profit and amortization price (EV/EBIDTA) and 4) to book value (P/BV). The findings are based on square root errors and learning curves, which strengthens the least predictive error at P/S for the automotive sector, EV/EBIDTA for the steel sector and P/BV for the banking sector. The conclusion is that specific sets of variables can be used to assess effectively company valuation (multiple assessments). This research contributes to market literature that emerges by evaluating key multiples that drive the sector to apply non-traditional regression techniques.

Zemba and Hendrawan (2018) discuss valuations in the healthcare sector where opportunities for investment in the health sub-sector business in Indonesia are still wide open, especially in the hospital business. There are not many choices for hospital business investment in Indonesia, and there are only four issuers, MIKA, SAME, SILO, SRAJ. The four will be evaluated using DCF and Relative

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

Ayudin (2017), researched with the aim of examining various valuation methods that can be used as considerations in conducting mergers and acquisitions, focusing on weaknesses and strengths. The main focus of this study is that the DCF method uses several scenarios, namely: pessimistic, moderate and optimistic, to reduce estimation errors. The researcher suggested that in carrying out mergers and acquisitions must use many valuation methods and give weight to each method taking into account the conditions of the company, state, and market.

Neaxie and Hendrawan (2017), research with the aim of estimating the fair price valuation of telecommunications companies listed on the Stock Exchange using the Discounted Cash Flow (DCF) method with the approach of Free Cash Flow to Firm (FCFF) and Relative Value. The results of the study indicated that by using the DCF method of the

FCFF approach on an optimistic scenario, the fair value of TLKM was undervalued, the fair value of ISAT was in overvalued conditions, and the EXCL fair value was in an undervalued condition. In the moderate scenario, TLKM's fair value was undervalued, ISAT's fair value was overvalued, and EXCL's fair value was overvalued. In the pessimistic scenario, TLKM's fair value was overvalued, ISAT's fair value was overvalued, and EXCL's fair value was overvalued. Meanwhile, using relative valuation with the PER approach, TLKM's fair value was undervalued, ISAT's fair value was overvalued, and EXCL's fair value was undervalued. Then, with the PBV approach, TLKM's fair value was in an overvalued condition, ISAT's fair value was in an overvalued condition, and EXCL's fair value was in an undervalued condition. Furthermore, with multiple EBITDA approaches, TLKM's fair value was in an overvalued condition, ISAT's fair value was in an undervalued condition, and EXCL's fair value was undervalued.

Vuuren (2016) conducted a study to assess property companies using the DCF profit method. This study highlights the advantages and disadvantages of the DCF profit method as a review of the 1-year capitalization technique and the cost approach. In both cases, the DCF profit method is considered superior. Three particular improvements for DCF's profit method is: The first is that business revenue must be estimated based on a weighted probability approach which will reduce Alpha requirements in the WACC calculation. The second is to potentially adopt a combined aggregate and valuation approach in Indonesia determining hypothetical rent solutions which are always debatable points in practice. By converting leasing the market from similar properties, increasing subject, factories, and machinery business income to a measurement unit per square meter, it is possible to anchor and combine hypothetical rent separation percentage. The third is an increase in the determination in the capitalization formula approach. When determined, it must be done by multiplying hypothetical rent separation from income the level of business growth or other income growth rates depends on the financial model business.

Kramna (2014), conducted a study to determine the main factors in discounted cash flow assessment, using sensitivity analysis. This is important in business valuation, not only because of mergers and trends acquisition but also related to the identification of sources of economic value creation. The results show that growth rates remain and the

weighted average cost of capital is a very important input in company rating. While the aspect of the exchange rate only has a small impact on the value of the company. Noteworthy is the estimation of lasting growth the level must be in a reasonable range, taking into account the nominal GDP growth rate country.

Gottwald (2012), researched with the aim of evaluating stocks in investment decisions using the P/E ratio method. This ratio is used in the framework of the fundamental analysis profit model. In realization empirical analysis, tests selected and index determinations used for statistical assessment of the relationship between the P/E ratio and stock price. Based on the results indicate that the P/E ratio method is suitable for many investors in conducting financial analysis, assessing the fair / intrinsic price of shares, and investing.

Kahneman (1990), conducted a study with a Contingency Assessment Method (CVM) to examine the proposition that CVM results are susceptible to embedding effects that can make most of them arbitrary and consequently useless for practical purposes and to advance interpretations of what insiders do answer CVM questions. The main result of the first study is that willingness to pay is almost the same for narrowly defined goods (equipment and rescue personnel) and for categories that are far more inclusive (all disaster preparedness, or even all environmental services). Correspondingly, the values specified for more specific items vary in the order of magnitude depending on the depth of insertion in the category that the PAPs were initially assessed. This result seems to cancel the basic assumption of CVM: that standard value theory applies to the steps obtained by this method. Because the choice of inclusion structure is arbitrary, the estimated value obtained from the CVM survey will change.

The equation of several previous studies and this research is that they both conduct a calculation analysis on the intrinsic value of stock prices. Whereas, the difference is in the object of research and the method/approach used.

According to Damodaran (2012), in general, there are three approaches to valuing an asset, namely: Discounted Cash Flow (DCF) Valuation, Relative Valuation, and Contingent Claim Valuation. Each of the three approaches has a variety of different valuation approaches.

Based on the phenomenon where there is a fluctuating stock price of banking sector companies in Indonesia from year to year, and there is a

significant return value at a certain period and from the results of previous studies which show that stock prices do not reflect the actual value (intrinsic value), the researcher intends to conduct research on the valuation of fair prices (intrinsic value) from the shares of BJBR, BJTM and BEKS using the Discounted Cash Flow (DCF) method with the Flow to Equity (FCFE) approach and methods Relative Valuation with Price to Earning Ratio (PER) approach and Price Book Value (PBV) in an optimistic, moderate and pessimistic scenario.

## 2 LITERATURE REVIEW

### 2.1 Valuation

According to Damodaran (2012), valuations play a crucial role in many financial fields, both in corporate finance, in mergers and acquisitions, and portfolio management. The value of a company is influenced by business conditions, both macro conditions and micro conditions of the company. Macro conditions, among others: the political, economic, and social conditions of the country where the company conducts business activities. While micro conditions are the industrial conditions of the company. In general, there are 3 (three) approaches to valuing an asset, namely: Discounted Cash Flow (DCF) Valuation, Relative Valuation, and Contingent Claim Valuation.

### 2.2 Value of The Firm

Company value is an investor's perception of the level of success of a company in managing its current resources, linked to the company's stock price. Demand and offers from investors influence the formation of stock prices. High stock prices make the value of the company high, and it can increase market confidence not only in the company's current performance but also in the company's prospects in the future. Nevertheless, the stock price in the market does not necessarily reflect the real price of the company.

### 2.3 Method of Discounted Cash Flow Evaluation

Discounted Cash Flow (DCF) method is a stock valuation method using the time value of money concept (Damodaran, 2012). The theory used as the basis of this method is the fair value of shares

(present value) which is all money flowing in the company in the future (future value) when discounted

The DCF valuation method has 3 (three) variations in the calculation approach that can be used to analyze stock prices according to the needs of each analysis. The three variations are (1) Dividend Discounted Model; (2) Free Cash Flow to Equity; and (3) Free Cash Flow to Firm (Neaxie and Hendrawan, 2011).

Free Cash Flow to Equity (FCFE) is an operational net cash flow available after the company fulfills all debt obligations, capital expenditures, and working capital, which is distributed to equity holders. According to Damodaran (2012), estimating a company's cash to be returned to shareholders can be done through several stages. The first stage, each investment expenditure issued must be reduced first with the company's net income so that it can represent cash outflows, and then depreciation is added again because accounting both of these are not spending cash but non-cash cash. The second stage, the increase in working capital will reduce the cash flow available to shareholders so that only non-cash working capital is considered. The last stage is where the company has new debtor has been paid in the company's cash flow. So the payment of the principal debt represents cash out while the issuance of new debt will represent the incoming money. FCFE can be calculated by using the following formula:

$$\text{FCFE} = \text{Net Profit} - (\text{Capital-Depreciation Expenditures}) - (\text{Change in Non-Cash Working Cap.}) \quad (1)$$

Determining the discount rate requires an in-depth analysis of the company's financing structure and current market conditions. Neaxie and Hendrawan (2017) suggest that the discount rate is the expected return by investors and creditors on funds invested in the company. The discount rate used in FCFE is called the Weighted Average Cost of Capital (WACC). Company value (value of the firm) can be calculated using the WACC formula to discount FCFE values, with the following formula (Damodaran, 1996: 242):

$$\text{Value of Firm} = \sum_{t=1}^{t=\infty} \frac{\text{FCFE}_t}{(1 + \text{WACC})^t} \quad (2)$$

After determining the present value of cash flows obtained from the period and specific scenarios (FCFE) and also from the terminal value discounted for the present value, then the two present values are

added together to give the firm value or equity value (Steiger, 2008). The formula for calculating company value is to use FCFE whose growth has been stable at certain years, and after that, it grows constant at the perpetual growth rate of  $g$ , which is as follows (Damodaran, 1996: 242):

$$\text{Value of Firm} = \sum_{t=1}^{t=\infty} \frac{\text{FCFE}_t}{(1 + \text{WACC})^t} + \frac{\text{TV}}{(1 + \text{WACC})^n} \quad (3)$$

$$\text{TV} = \text{FCFE}_{n+1} / (\text{WACC} - g_n) \quad (4)$$

Weighted Average Cost of Capital (WACC) is the overall capital cost of a company that reflects a combination of costs or weighting costs of all funding sources used by the company. Minor changes to the WACC will result in major changes in company value. The WACC is calculated by weighting the source of capital according to the company's financial structure and then multiplying it by cost. The WACC formula is as follows:

$$\text{WACC} = (\text{Comp. of Equity} * \text{rate of equity}) + ((\text{Comp. of Debt} * \text{rate of debt}) * (1 - \text{tax})) \quad (5)$$

The factors contained in the WACC are explained as follows:

### 2.3.1 Cost of Equity

Cost of Equity is the rate of return expected by the shareholders (equity) of their investment in the company. Equity costs are calculated by using the approach from the Capital Asset Pricing Model (CAPM). According to this method, the return expected by investors is determined by an analysis of the risk-free rate, risk premium, and beta for assets. Beta measures changes in stock prices concerning the overall stock market. This reflects market risk.

### 2.3.2 Cost of Debt

Cost of Debt is the interest rate that must be paid by the company for its debt or external capital. The most influencing factor for Cod is the company's credit rating. The difference between the risk-free interest rate and the interest rate that companies pay to borrow money is called credit spread. Credit spread does not only depend on the creditworthiness of the company (rating) but also depends on market conditions.

## 2.4 Relative Valuation Method

Relative valuation, or often called the market

valuation method, is often used as a reference to assess capital market players because the calculation method is quite simple with not many input variables. The Relative Valuation method also in real terms reflects the view of the market.

According to Damodaran (2012), the advantages of the Relative Valuation model are also its weaknesses. First, ease in Relative Valuation can be put together, attracting several similar groups of companies, can also produce estimates of inconsistent values where key variables such as risk, growth, or potential cash flows are ignored. Second, the fact that multiples reflect the market atmosphere, which also illustrates that using the Relative Valuation method to assess an asset can produce a too high value when the market overestimates similar companies, or vice versa when the market underestimates similar companies. Third, there is room for bias in all valuation methods, the lack of transparency regarding the underlying assumptions in the Relative Valuation method makes it vulnerable to manipulation. The Relative Valuation method used in this study is the Price Earning Ratio (PER) approach, and Price Book Value (PBV).

#### 2.4.1 Price Earning Ratio (PER) Approach

Another alternative in conducting valuations to calculate the intrinsic value of a stock or fundamental value is to use the profit value of the company (earnings) (Jogiyanto, 2010). Estimates of the intrinsic value of shares in a company's analysis can be determined using 2 (two) components of relevant information from the company, namely: Earning Per Share (EPS) and earnings multiplier. Thus, the expected function of EPS and the amount of PER of the company's shares are the intrinsic value of a stock. The formula for determining the intrinsic value of shares through PER is as follows:

$$P_o = \text{EPS estimation} \times \text{PER} \quad (6)$$

If the intrinsic value of the stock has been obtained by the formula above, the next step is to compare the intrinsic value of the stock with the market price.

#### 2.4.2 Price to Book Value (PBV) Approach

One alternative approach to determine the value of a stock with the Relative Valuation method is to use the relationship between stock market prices and book value per share (Damodaran, 2012). Theoretically, the market value of stock must

describe the value of the book. The formula for Price Book Value (PBV) is as follows:

$$\text{PBV} = \frac{P_o}{\text{BV}} \quad (7)$$

### 3 METHODOLOGY

The research conducted is verification research because it aims to test a theory or the results of previous research. Based on the purpose, this is descriptive research. Descriptive research is used to ascertain and explain the characteristics of variables in a situation. Descriptive methods offer researchers a profile that aims to describe aspects related to interesting phenomena, such as individuals, organizations, industry-oriented, or other perspectives (Sekaran and Bougie, 2013). Based on the involvement of researchers, this is a study in which the researcher does not manipulate or intervene. This is because researchers only take secondary data that already exists without making changes to it. Based on the unit of analysis, this research is included in group research because it only examines 1 (one) group, namely shares in the category of Regional Development Bank (BPD) companies listed on the Indonesia Stock Exchange in 2018. Whereas, based on the time of implementation, this is a cross-sectional study, in which the data is collected only once, perhaps over a period of months or years, to answer research questions (Sekaran and Bougie, 2013).

This research uses samples with the purposive sampling method. Purposive Sampling is a method of selecting samples with specific focus, criteria, and objectives so that samples can be used to solve problems well (Sekaran and Bougie, 2013). The sampling criteria in this study are Regional Development Banks (BPD) listed on the Indonesia Stock Exchange and BPD with audited financial statements for at least the last 5 (five) years.

The type of data used by the data provider is obtained from the official sample company website or the Indonesian Stock Exchange website, data regarding the company's stock price that published.

The data analysis method that the author uses in this study is quantitative analysis, with raw data in the form of audited financial statements for the past 5 (five) years, the 2013 period. 2017. The financial statements used include Financial Position Report/ Balance Sheet, Profit, and Loss Statement, and Cash Flow Statement.

The initial steps taken on financial report data, with the help of Microsoft Excel software, are to conduct a historical analysis of company performance which includes: revenue growth, Earning After Tax (EAT) margin, working capital margin, and depreciation and amortization margin, then revenue projection and The EAT projection is calculated. The next step is to calculate the cash flow using the DCF method (FCFE), calculate the capital/WACC cost, calculate the Terminal Value and discount the FCFE value and Terminal Value as the basis for calculating Enterprise Value, Equity Value and intrinsic value / fair price of the company's shares.

The fair price or intrinsic value obtained from the calculation using the FCFE method is then compared with the results of calculations using the Relative Valuation (PER and PBV) method in the scenario/condition: optimistic, moderate and pessimistic. The fair value of shares is used as a basis for decision making by investors.

#### 4 ANALYSIS AND DISCUSSION

Based on calculations and analyzes that have been done using the Discounted Cash Flow method Free Cash Flow to Equity (FCFE) and Relative Valuation methods with the Price to Earning Ratio (PER) and Price Book Value (PBV) approach with 3 (three) scenarios, namely: Pessimistic scenarios, moderate scenarios, and optimistic scenarios, the intrinsic value of each company is obtained. The calculation results from Relative Valuation with the PER and PBV approaches will validate the results of the calculation of intrinsic values with the FCFE approach. It is valid if the results of the Relative Valuation calculation are in the range of PER and industrial PBV.

Based on Table 1, it can be seen that in the pessimistic scenario, the intrinsic value of BJBR and BJTM shares using the DCF method using the FCFE approach is overvalued because the stock price on January 2, 2018, is higher than the calculation of its intrinsic value. Meanwhile, the intrinsic value of BEKS shares has been undervalued because the stock price on January 2, 2018, is lower.

The result of the calculation of the intrinsic value of BJBR in the pessimistic scenario is 1,215.52 IDR while the price on January 2, 2018, is 2,360.00 IDR, a difference that is quite far between the intrinsic value of BJBR and the stock price in the market is probably due to the estimated lower BJBR revenue growth in the next 5 (five) years projection of

7.14%. Whereas, BJTM has an intrinsic value of 126.80 IDR, which on January 2, 2018, BJTM share price is 720.00 IDR, the difference between the intrinsic value in the pessimistic scenario and the stock price in the market is probably caused by the estimated revenue growth average BJTM is low in the next 5 (five) years projection, which is 9.96%. Also, BEKS has an intrinsic value of 55.67 IDR, which on January 2, 2018, the share price of BEKS is 50.00 IDR. BEKS's intrinsic value is slightly above the share price.

Table 1: Results of the Calculation of Intrinsic Values.

Company	Scenario	Intrinsic Value	Stock Price 2 <sup>nd</sup> Jan 2018	Result
BJBR	Pessimistic	1,215.52	2,360	Overvalued
	Moderate	1,387.73		Overvalued
	Optimistic	1,967.67		Overvalued
BJTM	Pessimistic	126.08	720	Overvalued
	Moderate	126.32		Overvalued
	Optimistic	126.44		Overvalued
BEKS	Pessimistic	55.67	50	Undervalued
	Moderate	68.03		Undervalued
	Optimistic	73.25		Undervalued

Table 2: Results of Calculation of Relative Valuation.

Company	Scenario	PER	PER IDX	PBV	PBV IDX
BJBR	Pessimistic	7.40	-322.14	1.17	0.32
	Moderate	8.37	24.59	1.33	1.71
	Optimistic	11.67	141.62	1.89	4.8
BJTM	Pessimistic	1.58	-322.14	0.24	0.32
	Moderate	1.58	24.59	0.24	1.71
	Optimistic	1.57	141.62	0.24	4.8
BEKS	Pessimistic	22.11	-322.14	4.64	0.32
	Moderate	26.35	24.59	5.67	1.71
	Optimistic	27.80	141.62	6.10	4.8

Based on the results of the calculation of the intrinsic value in the pessimistic scenario, the BJBR and BJTM stock prices are overvalued. Thus, investors are recommended to make a sale or not make a purchase of these shares. In contrast to BEKS shares which are in undervalued conditions, investors are recommended to buy BEKS shares.

The results of the PER calculation in the BJBR pessimistic scenario are 7.40 times, BJTM is 1.58 times, and BEKS is 22.11 times. While quarterly IDX data (Q1 2018) shows that the average PER value of banking companies is 24.59 times, with the lowest PER value for BJTM of 1.58 times and the highest PER value for BEKS of 22.11 times. This shows that the results of the research calculations are in the range of the existing PER in the market.

Furthermore, the PBV calculation results with a pessimistic scenario show that the PBV value for



BJBR is 1.17 times, the PBV value for BJTM is 0.24 times, and the PBV value for BEKS is 4.64 times. Meanwhile, quarterly IDX data (Q1 2018) shows that the average PBV value of banking companies is 1.71 times, with the lowest PBV value for BJBR of 1.17 times and the highest PBV value for BEKS of 4.64 times. This shows that the results of research calculations are in the PBV range in the market.

Based on the results of valuation calculations in the pessimistic scenario using the Relative Valuation PER approach, the BJTM PER value is the lowest when compared to BJBR and BEKS, with a PER value of 1.58 times, which means that if we invest BJTM shares then the return time on capital or the Break Event Point (BEP) is around 1 year 6 months, faster than BJBR and BEKS. So, investors are advised to choose BJTM shares rather than BJBR and BEKS shares. Meanwhile, companies recommended increasing their earnings per share if they want a low PER value.

Meanwhile, through the PBV approach, it was found that the BJTM stock price was lower than BJBR and BEKS, which was equal to 0.24 times. This means that the BJTM stock price is valued at 0.24 times compared to its intrinsic value. Meanwhile, BJBR share price is valued at 1.17 times compared to its intrinsic value, and BEKS share price is valued at 4.64 times compared to its intrinsic value.

In the moderate scenario, the intrinsic value of BJBR shares is IDR 1,387.73, while on January 2, 2018, the price of BJBR shares is IDR 2,360, so that it can be said that BJBR stock price is overvalued compared to its intrinsic value. The considerable difference between the intrinsic value and the stock price in the market in the moderate scenario is probably due to the low average estimate of BJBR revenue development in the next 5 (five) years projection of 8.08%. The intrinsic value of BJTM is 126.32 IDR, whereas on January 2, 2018, the share price of BJTM is 720.00 IDR, so the BJTM stock price is overvalued when compared to its intrinsic value. The intrinsic value of BEKS is 68.03 IDR, while on January 2, 2018, the price of BEKS shares is 50.00 IDR, so it can be said that BEKS stock price is undervalued when compared to its intrinsic value.

Based on the results of the intrinsic value calculation in the moderate scenario, the result is that the BJBR and BJTM stock prices are overvalued, so investors can sell or not buy BJBR and BJTM shares. Meanwhile, BEKS is undervalued, which means investors are recommended to buy BEKS shares.

In the moderate scenario, the results of the PER PER BJBR are 8.37 times, the PER value of BJTM is 1.58 times, and the BEKS is 26.35 times. Meanwhile, quarterly IDX data (Q1 2018) shows that the average PER value of banking companies is 24.59 times, with the lowest PER value for BJTM of 1.58 times and the highest PER value of BEKS is 26.35 times. This shows that the results of the calculation of the study are in accordance with the range PER in the market.

Furthermore, the results of the study with a moderate scenario show that the BJBR PBV value is 1.33 times, the BJBR PBV value is 0.24 times and the BEKS PBV value is 5.67 times. Meanwhile, quarterly IDX data (Q1 2018) shows that the average PBV value of banking companies is 1.71 times, with the lowest PBV value for BJTM of 0.24 times and the highest PBV value of BEKS of 5.67 times. This shows that the results of research calculations are partly in PBV market range and some are outside the market range, in this case, the value of the BEKS PBV is a little (not significant) above the maximum range.

Based on the results of the valuation calculation in the moderate scenario using the Relative Valuation PER approach, it was found that the BJTM stock price was lower than BJBR and BEKS, with a PER value of 1.58 times. This means that if we invest BJTM shares, the return time on capital (BEP) required is 1 year and 6 months, faster than BJBR and BEKS. So, investors should choose BJTM shares rather than BJBR and BEKS shares. While the advice for companies if they want a low PER value is to increase their earnings per share from their shares.

With the PBV approach, the BJTM stock price is also lower compared to BJBR and BEKS, namely BJTM PBV of 0.24 times, this means that the BJTM stock price is valued at 0.24 times compared to its intrinsic value. Meanwhile, BJBR stock price is valued at 1.33 times compared to its intrinsic value, and BEKS share price is valued at 5.67 times compared to its intrinsic value, so investors should choose BJTM shares instead of BJBR and BEKS shares. As for companies, it is recommended that they should increase the book value of the company by increasing the amount of equity so that the value of the PBV drops.

In the optimistic scenario, the intrinsic value of BJBR shares is 1,215.52 IDR, while on January 2, 2018, the BJBR stock price is 2,360.00 IDR, so it can be said that BJBR stock price is overvalued compared to its intrinsic value. The significant difference between intrinsic value and stock price in

the optimistic scenario in the market is due to the low estimate of the average BJBR revenue growth in the next 5 (five) year projections of only 9.96%. The intrinsic value of BJTM is 126.44 IDR, while the stock price on January 2, 2018, is 720.00 IDR, so it can be said that BJTM stock price is undervalued when compared to its intrinsic value. The difference between the intrinsic value in the optimistic scenario and the stock price in the market is because the average estimate of revenue growth is positive at 5.15% in the next 5 (five) year projections. The intrinsic value of BEKS is 73.25 IDR, whereas on January 2, 2018, the price of BEKS shares was 50.00 IDR, so it can be said that BEKS 'share price was undervalued when compared to its intrinsic value. The difference between intrinsic value and stock price in an optimistic scenario on the market is due to the good performance of the company with Revenue Projection of 9.96%.

In this optimistic scenario, it is recommended that investors sell shares or not buy BJBR and BJTM shares because the stock price in the market is overvalued while BEKS shares are recommended that investors buy shares or retain existing shares because the stock price in the market is consistently undervalued. Furthermore, companies are advised to maintain stock prices in the market so that they are not too far from their intrinsic value, so companies need to improve their performance by increasing revenue and growing revenue and by making efficiency on all types of company expenses and costs both OPEX and CAPEX.

In the optimistic scenario, the results of the study show that BJBR PER value is 11.67 times, BJTM PER value is 1.57 times, and BEKS is 27.80 times. While quarterly IDX data (Q1 2018) shows that the average PER value of banking companies is 24.59 times, with the lowest PER value for BJTM of 1.57 times and the highest PER value of belongs to BEKS of 27.8 times. This shows that the results of the research calculations are in the PER range of the market.

Overall, BEKS has a PER value that is quite large or above average for several scenarios, namely in the pessimistic scenario of 22.11 times, in the moderate scenario 26.35 times and in the optimistic scenario 27.8. Meanwhile, the industry average PER is 24.59 which is still within the industry range.

Furthermore, the results of an optimistic scenario show that the BJBR PBV value is 1.89 times, the BJTM PBV value is 0.24 times, and the BEKS PBV value is 6.10 times. Meanwhile, quarterly IDX data (Q1 2018) shows that the average PBV value of banking companies is 1.71 times, with the lowest

PBV value for BJTM companies by 0.24 times and the highest PBV value for BEKS companies at 6.10 times. This shows that the results of the calculation in the scenario are optimistic, some PBV is in the market range (BJBR and BJTM), and some are outside the market range (BEKS).

Based on the results of the valuation calculation in the optimistic scenario using the Relative Valuation PER approach, it was found that the BJTM stock price was lower than BJBR and BEKS, where the PER value of BJTM which was smaller than BJBR and BEKS had a PER value of 1.58 times. This means that if we invest in BJTM shares, the return time needed (BEP) is one year six months, faster than BJBR and BEKS. So, investors should choose BJTM shares rather than BJBR and BEKS shares. While the advice for companies if they want a low PER value is to increase their earnings per share from their shares.

Meanwhile, if using the PBV approach, the BJTM stock price obtained is also lower compared to BJBR and BEKS, where the value of BJTM PBV which is smaller than BJBR and BEKS is 0.24 times. This means that the BJTM stock price is valued at 0.24 times compared to its intrinsic value. Meanwhile, BJBR share price is valued at 1.89 times compared to its intrinsic value, and BEKS share price is valued at 6.10 times compared to its intrinsic value. So it is recommended for investors to choose BJTM shares instead of BJBR and BEKS shares. Meanwhile, companies are advised to increase their book value by increasing the amount of equity, so that the value of their PBV falls.

## 5 CONCLUSIONS

### 5.1 Optimistic Scenario

Using the FCFE method, the intrinsic value / fair price of BJBR and BJTM shares is overvalued when compared to the market price. While the intrinsic value / fair price of BEKS shares is in an undervalued position. The calculation results are validated by the Relative Valuation method approach with the PER (Price Earning Ratio) and Price Book to Value (PBV) approaches. The results are generally included in the industry range in accordance with data in IDX Q1 2018. Although the value of PBV of BEKS shares is slightly above the industry range, it is not significant. Thus, investors should sell or not buy BJBR and BJTM shares and are advised to buy BEKS shares.

## 5.2 Moderate Scenario

Using the FCFE method, the intrinsic values / fair prices of BJBR and BJTM shares are overvalued when compared to the market price. Meanwhile, the intrinsic value / fair price of BEKS shares is in an undervalued position. The results of the calculation are validated by the Relative Valuation method approach with the PER (Price Earning Ratio) and Price Book to Value (PBV) approaches. The results are still in the industry range according to the data in IDX Q1 2018. Although the value of the BEKS stock PBV is slightly above the industry range, it is not significant. The result is a suggestion for investors to sell or not buy BJBR and BJTM shares, and better buy BEKS shares.

## 5.3 Pessimistic Scenario

Using the FCFE method, the intrinsic value / fair price of BJBR and BJTM shares are overvalued when compared to the market price. While the intrinsic value / fair price of BEKS shares is in an undervalued position. The calculation results are validated by the Relative Valuation method approach with the PER (Price Earning Ratio) and Price Book to Value (PBV) approaches. The results are still in the industry range according to the data in IDX Q1 2018. With these results, investors should sell or not buy BJBR and BJTM shares, and better buy BEKS shares.

The result of this research shows that the relative valuation method can be used as a way to validate the intrinsic value of stock.

# 6 RECOMMENDATIONS

## 6.1 For Further Research

1. To carry out further research using historical data for 10 (ten) years, so that the growth projections used are more representative.
2. To carry out intrinsic analysis of the stock prices of the three companies (BJBR, BJTM, and BEKS) in 2019 and then to validate some of the estimates/ assumptions that have been made in this study.
3. To conduct research by adding primary data in the form of direct information (interviews) with company management, related to company plans and strategies going forward in increasing company growth, in order to maximize the assumptions of researchers in conducting forecasting.

4. To calculate the intrinsic value or fair price of the company with different valuation methods, such as the Dividend Discount Model, so that the results can be used as a comparison and additional information for investors.

## 6.2 For Investors

The results of this study can be a reference and investment consideration for investors. Based on the results of this study, the authors suggest that investors BJBR, BJTM, and BEKS, at the time this research was conducted, are the right conditions to sell their shares because based on the comparison of the intrinsic value of the stock with market prices is in an overvalued position. Likewise, the results of validation with the PER and PBV values, the majority support the decision to sell shares.

## 6.3 For the Companies

This research is carried out by the author objectively for academic and practical purposes. The results of this study are expected to provide constructive input for sample companies and especially Regional Development Banks (BPD) in Indonesia to improve company performance by building stronger fundamentals, for example increasing revenue through escalating the number of productive credit distribution that has gone through sufficient risk assessment to avoid increasing Non Performing Loans (NPL). In addition, it is necessary to improve corporate governance to provide a sense of security for investors who entrust their investments, as well as being a trigger for other BPDs to participate in registering their shares on the Indonesia Stock Exchange. The good corporate performance will attract the (prospective) investors to invest their capital in the BPD.

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