Stock Valuations in Cement Companies: Evidence from Indonesia Stock Exchange

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Keywords: Cement Companies, Discounted Cash Flow, Relative Valuation.

Abstract: This research aimed to assess the fair value of stock price at Cement Companies listed in Indonesia Stock Exchange using Discounted Cash Flow (DCF) with Free Cash Flow to Firm (FCFF) approach to calculate the value of a company and Relative Valuation methods with Price Earning to Ratio and Price Book to Value approach to validate DCF result. The samples of this research are Indocement Tunggal Prakarsa (INTP), Holcim Indonesia (SMCB) and Semen Baturaja (SMBR) which are the big three cement company. The research data were derived from historical data 2013 – 2017 which considered as reference for projection years 2018 – 2022 involving three scenarios namely pessimistic, moderate and optimistic scenario and the value of the research compared within market price on January 2, 2018. Findings from this research showed that using DCF FCFF fair value on INTP has overvalued in all scenarios, for SMCB and SMBR have overvalued in the pessimistic scenario but undervalue in moderate and optimist scenarios. Furthermore, in relative valuation method within PER and PBV, the research is within the industry range that means the result of a calculation is proper. The conclusion of this research is to recommend selling INTP shares, buying SMCB and SMBR shares.

1 INTRODUCTION

Along with the growth of the cement industry in supporting development in the infrastructure sector in Indonesia. A large number of investors and business opportunities creates business competition in the cement industry and the impact on fluctuations in financial performance and share prices of each company.

In the context of the phenomenon of stock price fluctuations, many investors use it in the short term by buying a lower stock price and selling it when the stock price is high. The decision to buy shares based on stock prices only can lead to a bad decision because it does not value the company as a whole and over a more extended period.

The fluctuations in stock price performance and the return value of cement companies in Indonesia stock exchange namely Indocement Tunggal Prakarsa (INTP), Holcim Indonesia (SMCB) and Semen Baturaja (SMBR) which are the determinants in this study are as follows:

Based on Figure 1 the daily stock price of INTP tends to fluctuate followed by fluctuations in the return pattern. In a certain period, there is a significant daily return rate, with the lowest occurring on January 16, 2015, amounting to -10.8% and the highest occurring on October 25, 2017, at 11.9%. The historical fluctuation value is an interesting thing to see if the pattern can be used as a reference for forecasting or making new assumptions and normalizing existing patterns and then determining the fair value of the company.

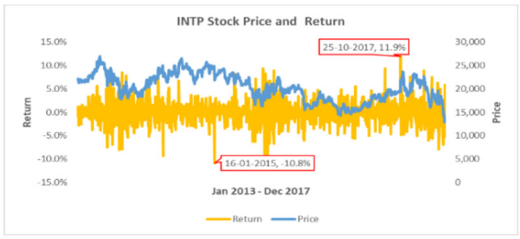

Figure 1: INTP Stock Price and rate return (Jan 2013-Dec 2018).

Based on Figure 2, it can be seen that the trend of the decline in SMCB stock prices is not directly proportional to the return pattern. The lowest growth occurred on June 28, 2013, amounting to -11.6% and the highest occurred on August 2, 2016, at 12.6%.

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Figure 2: SMCB Stock Price and rate return (Jan 2013-Dec 2018).

Based on Figure 3, the daily price of SMBR for the period June 2013 to June 2018 tends to be stagnant from the beginning of the IPO until the end of 2015 and from the beginning of 2016, the pattern of SMBR stock prices is followed by a pattern of daily returns which looks stable because the flat pattern of the chart will remain in a certain period there is a daily return rate that is above average, the highest return on August 2, 2016 is 22.3% and the lowest is -28.5%. Occurred on January 4, 2017.

To calculate the value of shares, investors and shareholders can use stock valuation models and make decisions on stock trading accordingly, but in the market stock price fluctuations triggered by supply and demand of stock. If more people want to buy a particular stock, it is market price will increase. Conversely, if more people want to sell a stock, its price will fall.

Stock prices in the market not necessarily reflect the right price of the company, fundamental analysis is needed to find out the value of the company (Damodaran, 2012).

Zemba & Hendrawan (2017), stated that every investor has different terms in stock valuation which cause the stock price fluctuation. The difference refers to some conditions namely optimistic, moderate and pessimistic. An optimistic condition is

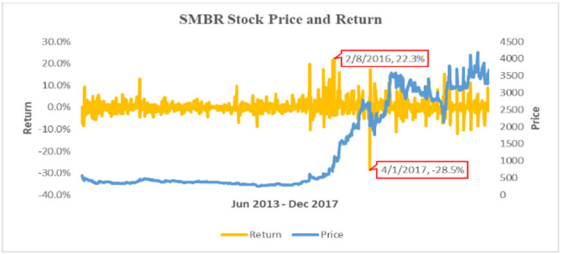

Figure 3: SMBR Stock Price and rate return (Jun 2013-Dec 2018).

a condition in which investors can sell stocks at the highest potential price because of the performance of a company higher than industry. The moderate condition is a condition in which the desire of investors to sell stocks following the wishes of other investors (buyers). While the pessimistic condition is a condition in which investors can buy stocks at the least price as possible because of the performance of the company lower than industry.

Valuation of an asset can be determined in three ways. First, as the intrinsic value of the asset, based on its capacity to generate cash flows in the future. Second, as a relative value, by examining how the market is pricing similar or comparable assets. Finally, we can value assets with cash flows that are contingent on the occurrence of a specific event as options (Damodaran, 2012).

Based on the phenomenon as explained there is a fluctuating stock price of cement 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 of Indocement Tunggal Prakarsa (INTP), Holcim Indonesia (SMCB) and Semen Baturaja (SMBR) using Discounted Cash Flow (DCF) method with Free Cash Flow to Firm (FCFF) approach and Relative Valuation Method with Price Earning to Ratio (PER) approach and Price Book to Value (PBV).

The study result provides guidance to help investors on corporate valuation that explains the intrinsic value to make investment decisions.

2 REVIEW OF RELATED LITERATURE

This study uses several theories as a reference to determine the method of calculating corporate value valuations and makes consideration in conducting evaluations.

2.1 Firm Values

Knowing what an asset is worth and what determines that value is a prerequisite for intelligent decision making in choosing investments for a portfolio, in deciding on the appropriate price to pay or receive in a takeover, and in making an investment, financing, and dividend choices when running a business (Damodaran, 2012).

Damodaran's statement illustrates that in the business world it is essential to know assets that provide value for a company. The value of the company is indeed very beneficial for internal

company, its shown the success in managing company and also for external or investors, company value can be useful as information in investment decisions, good value will bring in more investors to invest or buy the company's shares so that the company's value is also related to the company's stock price. Investors' requests and offers form the stock price. High stock prices make the value of the company high and can increase market confidence not only in the company's current performance but also infuture prospects.

2.2 Valuation Theory

According to Damodaran (2012), states that in general there are three approaches to valuing an asset, namely: (1) Discounted Cash Flow Valuation; (2) Relative Valuation; and (3) Contingent Claim Valuation.

2.3 Discounted Cash Flow Valuation

Discounted Cash Flow Valuation is the value of an asset that is calculated based on the present value of the cash flow generated in the future (expected future cash flow) of an asset discounted using a specific discount rate. The approach used in DCF consists of Dividend Discounted Model (DDM), Free Cash Flow to Equity (FCFE) and Free Cash Flow to Firm (FCFF).

2.3.1 Dividend Discount Model

Damodaran (2012), Dividend Discounted Model (DDM) is the most extended model used in the Discounted Cash Flow (DCF) model, the principle that underlies this DDM Model is when investors buy shares in public companies (IPOs), they generally expect two benefits: first profit from dividend during the holding period and profit from the increase in the share price itself at the end of the holding period. Because the price of a stock that is expected to be determined by a future dividend, the value of a share can be reflected as the present value of dividends forever.

The following formula can be used to calculate the intrinsic value of shares (Damodaran, 2012):

$$\mathbf{P_0} = \frac{D1}{(1+k)} + \frac{D2}{(1+k)^2} + \frac{D3}{(1+k)^3} + \ldots\ldots\ldots + \frac{D\infty}{(1+k)^\infty} \qquad (1)$$

2.3.2 Free Cash Flow to Equity

Free Cash Flow to Equity (FCFE) is cash flow available to shareholders after the company takes into account capital expenditure, working capital and corporate debt (Damodaran, 2012).

The equation is presented as follow:

FCFE = Net Income
- Capital Expenditures
- Depreciation
- Change non-cash working capital
+ New debt issued
- Debt repayment (2)

2.3.3 Free Cash Flow to Firm

Free Cash Flow to Firm (FCFF) represents the amount of cash flow from operations available for distribution after depreciation expenses, taxes, working capital, and investment are paid (Damodaran, 2012).

The equation is presented as follow:

FCFF = (EBIT*(1-Tax)) + Depreciation
- Change noncash working capital (3)

FCFF calculates the intrinsic value of a company by discounting cash flow to the firm with a weighted average cost of capital (WACC). By using the WACC formula to discount the FCFF value, the company value will be obtained with the following formula (Damodaran, 2012):

$$\text{Value of Firm} = \sum_{t=1}^{t=\infty} \cdot \frac{\mathbf{FCFF_t}}{(1+\mathbf{WACC})^t} \qquad (4)$$

2.4 Cost of Capital

Generally, sources of corporate funding can be obtained through shareholder's equity and from creditors in the form of debt. Cost of Capital is the rate of return desired by providers of corporate funds, namely a combination of equity, debt and hybrid securities which is proxied as a weighted average cost of capital (WACC).

WACC is one of the critical factors in the calculation using the DCF model. Minor changes in WACC will result in significant changes in company value. The WACC is calculated by weighting the source of capital according to the company's financial structure and then multiplying them at their expense.

The equation is presented as follow:

WACC = (Composition of equity * rate of equity)
+ ((composition of debt * rate of debt)

*(1-tax)) (5)

In the WACC calculation there are several factors which will be explained as follows:

a. Cost of equity

Definition of cost of equity (R_e) is the rate of return expected by the shareholder (equity) on his investment in a company. The formula to calculate the cost of equity (R_e) is as follows (Damodaran, 2012):

$$ERi = Rf + \beta(ERm - Rf) \quad (6)$$

If the company distributes dividends regularly, an alternative formula that can be used to calculate R_e is as follows (Kenton, 2018):

$$R_e = \frac{DPS/Po}{\text{Dividends Growth Rate}} \quad (7)$$

b. Cost of debt

Cost of debt (Cod) is the interest rate that must be paid by the company for its debt or external capital (Damodaran, 2012).

2.5 Terminal Value

Terminal value is the present value of all future cash flows obtained after a period determined by scenario analysis. The thinking behind terminal values is to assume a constant growth rate for the time after the period analyzed, where the constant growth rate is symbolized by g then WACC is symbolized by r as the discount rate used.

Terminal Value is calculated using the constant growth model as follows (Damodaran 2012):

$$TV = \frac{FCFF_{t+1}}{(r-g)} \quad (8)$$

2.6 Enterprise Value

Enterprise Value is an economic measure that reflects the market value of a business. Enterprise Value is used as one of the benchmarks in business, financial, accounting, portfolio analysis, and risk analysis. In simple terms, the Enterprise Value formula (EV) is the market cap value plus debt minus cash.

The equation is presented as follow:

EV = Market value of equity + debt – cash (9)

2.7 Relative Valuation

Relative Valuation is one of the most commonly used valuation methods by comparing companies that are similar or with the industries in which the company is located. Market prices are obtained by relative valuation, as a result of using real data during the analysis. The tool used to do Relative Valuation is multiples.

One form of multiples is price multiples, where the main component of price multiple is the market price. Some examples of price multiples include Price Earning to Ratio (PER), Price Book to Value (PBV).

The advantages of the Relative Valuation model are also weaknesses. First, ease in Relative Valuation can be put together, pulling together with several groups of similar companies, can also produce estimates of values that are not consistent where key variables such as risk, growth, or potential cash flows are ignored. Second, the fact that multiples reflect the market atmosphere also illustrates that using the Relative Valuation method to value an asset can produce a value that is too high when the market overestimates similar companies or vice versa is too low 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.

2.7.1 Price Earning Ratio

Another alternative in conducting valuations to calculate the intrinsic value of a stock or fundamental value is to use the value of profit from the company. Estimates of the intrinsic value of shares in a company's analysis can be done using two important information components of the company, namely earnings per share and earnings multiplier, (Damodaran, 2012).

The equation of PER is presented as follow (Damodaran, 2012):

P_0 = Estimasi EPS x PER (10)

2.7.2 Price Book to Value

One alternative approach to determining 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 book value.

The equation is presented as follow:

$$PBV = \frac{P_0}{BV} \quad (11)$$

2.8 Research Framework

The research framework is presented as follow:

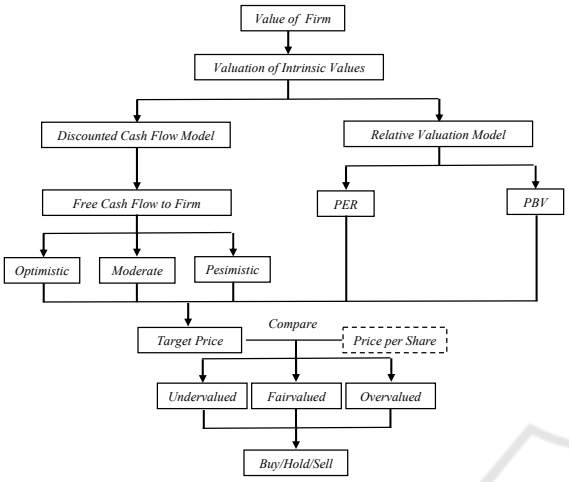

Figure 4: Research Frameworks.

With the stock price fluctuations that occur in cement industry companies, to obtain fair company fair value, fundamental analysis of the intrinsic value stock prices is needed so that stock price valuation needs to be done based on the chosen method namely Discounted Cash Flow (DCF) method with Free Cash Flow to Firm (FCFF) approach and Relative Valuation (RV) with Price Earning to Ratio (PER) approach and Price Book to Value (PBV) approach using three scenarios, namely scenario optimistic, moderate and pessimistic.

In order to conduct the fair value of stock prices, projections of company performance are needed by using historical data on company performance. To map the performance of companies in an industry, scenarios are made, namely optimistic scenarios (company performance above industry), moderate scenarios (company performance in the industry range) and pessimistic scenarios (company performance under industry). Scenarios can be determined and viewed based on information on environmental data and facts (Neaxie and Hendrawan, 2017).

The results of valuation calculations based on the DCF method and relative valuation will be compared with market price, and the results can be known whether the market price is overvalued, fair valued or undervalued. If the result is overvalued, the investor is recommended to sell the shares, if fair value is the stock can still be maintained and if it is undervalued, investors are recommended to buy the stock.

2.9 Previous Research

Khatik & Patil (2018), stated that to know the value of a company, analysts, investors, researchers not only understand the value of the company but must know where the value of the company originates, valuation of company value is done by estimating the value of the company based on cash flow calculations in the future or with comparing it with the value of its assets.

Neaxie & Hendrawan (2017) using the DCF method and Relative Valuation to evaluate the shares of Telecommunications companies listed on the Indonesia Stock Exchange, the use of both methods is considered reliable because the results are still in the industry range.

Trinh & Thao (2017), the corporate valuation model approaches discounted cash flow (DCF) and capital asset pricing model (CAPM) for strategic financial decisions of investment appraisal and capital structure, the study provides an effective tool in corporation valuation and value-based management.

Jamshidi, Akbari, Asgari, & Renani (2015), the necessity of considering the economic valuation of the arts and culture comes from the competition between different public and merit goods which seek government.

D'Amato & Anghel (2013), in conducting valuations using the DCF method, the critical thing that needs to be taken into account is the discount rate, where the discount rate range used between risk-free and a risk premium.

Fairchild (2010), in his research, provides an overview of the importance of corporate managerial communication in corporate dividend distribution decisions, small or down dividends are often connoted as corporate values that are down again, affecting investors' valuation of the company and vice versa large dividends will have good corporate value image, but information regarding this dividend distribution if it is not managed correctly it will be counterproductive because the company also needs to reinvest in continuity and business development, the indicator used to determine the dividend value is knowing Net Present Value (NPV). Dividends can be reduced for investments in NPV projects that are negative until they get benefits.

Yoo (2006), this research using a combination of simple valuation techniques where the data used to make estimates also come from historical multiples

combinations where the more relevant information is to improve the valuation accuracy.

Another tool to validate the result of valuation is relative valuation method, this method making the comparison of the intrinsic value of the company, as long as a result is within industrial range, the result of DCF calculation is reliable and proper (Neaxie & Hendrawan, 2017).

3 PROBLEM DEFINITION

Based on the introduction, the problems in this study is stock prices fluctuations, and stock prices in the market have not become certainty for investors to be used as a basis for investment decisions, it is necessary to do a valuation of the intrinsic value of stock prices, for which research objectives are made that will help these problems, as follows:

a. To analyze the intrinsic value of stock price in cement companies in Indonesia Stock Exchange using Discounted Cash Flow (DCF) method with Free Cash Flow to Firm (FCFF) approach and Relative Valuation method with Price Earning to Ratio (PER) and Price Book to Value (PBV) on an optimistic scenario in 2018.
b. To analyze the intrinsic value of stock price in cement companies in Indonesia Stock Exchange using Discounted Cash Flow (DCF) method with Free Cash Flow to Firm (FCFF) approach and Relative Valuation method with Price Earning to Ratio (PER) and Price Book to Value (PBV) on a moderate scenario in 2018.
c. To analyze the intrinsic value of stock price in cement companies in Indonesia Stock Exchange using Discounted Cash Flow (DCF) method with Free Cash Flow to Firm (FCFF) approach and Relative Valuation method with Price Earning to Ratio (PER) and Price Book to Value (PBV) on a pessimistic scenario in 2018.

4 METHODOLOGY / APPROACH

This research uses quantitative research method that is a research method by calculating with a specific method to get the desired result, in this case, is to get fair value of stock prices used Discounted Cash Flow (DCF) with Free Cash Flow to Firm (FCFF) approach and Relative Valuation method with Price Earning to Ratio (PER) and Price Book to Value (PBV) approach as calculation tools referring to previous research (Neaxie and Hendrawan, 2017).

In this study, researchers will use sampling techniques with purposive sampling techniques. The purposive sampling technique is getting samples by setting specific characteristics that are suitable for the objectives of the study.

The stages of selecting samples according to the purposive sampling criteria that have been determined are as follows:

a. Cement companies listed on the Indonesia Stock Exchange in 2018 is presented as follows follow:
    1. Indocement Tunggal Prakarsa (INTP)
    2. Semen Indonesia (SMGR)
    3. Holcim Indonesia (SMCB)
    4. Semen Baturaja (SMBR)
    5. Wijaya Karya Beton (WTON)
    6. Waskita Beton Precast (WSBP)
b. Cement companies that have the last five years of financial statements (2013-2017) are presented as follows:
    1. Indocement Tunggal Prakarsa (INTP)
    2. Holcim Indonesia (SMCB)
    3. Semen Baturaja (SMBR)

Based on the criteria of the purposive sampling determined, the sample of this study is Indocement Tunggal Prakarsa (INTP), Holcim Indonesia (SMCB) and Semen Baturaja (SMBR).

5 RESULT AND DISCUSSION

In this section of the discussion we will explain the result of the calculation using the Discounted Cash Flow method with Free Cash Flow to Firm (FCFF) approach and by using Relative Valuation method with the Price Earning to Ratio (PER) and Price Book to Value (PBV) approach using three scenarios, namely pessimistic, moderate, and optimistic.

5.1 The Intrinsic Value by Discounted Cash Flow

Historical data from financial statements are needed over the past five years (2013-2017) to conduct stock price valuations using the Discounted Cash Flow (DCF) method with Free Cash Flow to Firm (FCFF) approach and Relative Valuation method with Price Earning to Ratio (PER) and Price Book to Value (PBV) approach.

Based on historical data the financial ratios are calculated such as EBIT, EBITDA, Net Income, Enterprise Value, Value Terminals. Where the ratio will be used to calculate the fair value of the stock price.

Furthermore, based on historical data and its ratio, the growth projection is made up to the next five years with three scenarios namely pessimistic, moderate and optimistic.

An essential thing in projecting is to make sales growth projections because all ratios are very dependent on the growth of sales.

To make the Revenue Projection, it must first be known (Neaxie and Hendrawan, 2017):

a. Historical average industrial sales growth
b. Historical average sales growth of the company
c. Spread (delta between historical average industrial sales growth with average sales growth of company)
d. Industrial sales projection

The summary of sales projection using those assumptions is presented as follows:

Table 1: Revenue projection growth.

	INTP	SMCB	SMBR	Industry
Historical	-3.1%	0.9%	7.4%	4.7%
Spread	-7.8%	-3.8%	2.7%	
Sales Projection				6.6%
Optimistic	6.6%	6.6%	10.6%	
Moderate	-1.2%	2.8%	9.3%	
Pessimistic	-5.1%	0.9%	6.6%	

Source: Author's computations

By using calculated sales growth, the other parameter or financial ratios needed such as Ebitda, Depreciation and amortization, Capex, Ebit and so on will follow the historical trend and some of them managed to go down like capex which could be reduced because investment in the previous period was already substantial to go down for example capex reduce like capex. Furthermore, the projection value is used to calculate the intrinsic value of the company following the formula previously explained, namely the formula for calculating DCF-FCFF and Relative Valuation.

After calculating the sales growth and financial ratios associated with stock price valuations are made, the fair value of each company can be seen and can be compared with market prices on January, 2nd 2018.

The summary of valuation result by DCF-FCFF is presented as follow:

Table 2: The valuation result by DCF

Stock Code	Scenario	Po (IDR)	Target Price (IDR)	Result
INTP	Pessimistic	23,000	6,828	Overvalued
	Moderate		8,181	Overvalued
	Optimistic		15,119	Overvalued
SMCB	Pessimistic	825	637	Overvalued
	Moderate		882	Undervalued
	Optimistic		1,829	Undervalued
SMBR	Pessimistic	3,690	921	Overvalued
	Moderate		1,888	Overvalued
	Optimistic		3,837	Undervalued

Source: Author's computations

Based on Table 2, it can be seen that in the pessimistic scenario the fair value of INTP, SMCB and SMBR shares using Discounted Cash Flow (DCF) method with Free Cash Flow to Firm (FCFF) approach is overvalued. With this result, investors are recommended to sell their shares and companies, must increase sales productivity and optimize the costs of both expense and Capital Expenditures.

Results of intrinsic value calculation on the pessimistic scenario are still far below the market price value. This occurs because the projection of revenue of each company is still low such as INTP which is predicted to be negative growth was 5.1%, SMCB has growth projection 0.9%, and SMBR growth was 6.6 %, which means lower than average of the 2013-2017 period was 7.4%.

Based on the results of intrinsic value calculations in a moderate scenario where the results of INTP and SMBR share price was overvalued. This result in line with revenue growth all of them is below in which INTP has growth negative 1.23%, and the market price of SMBR was influenced by previous period performance expectations which had good historical average growth around 7.4% and a large capex value in the 2016 and 2017 periods. Whereas SMCB has intrinsic value that is in an undervalued condition, it means the investors recommended to buy SMCB shares. SMCB's performance is in line with market expectations with a positive growth was 2.8%, up from the 2013-2017 historical average growth only 0.9%.

Based on the calculation of the intrinsic value in the optimistic scenario, it can be seen that INTP is still overvalued, this happened because as overall performance INTP has lower in sales growth while expense ratio is managed equally according to historical trends and capex is also lower than the historical average, but the results are still below market expectations. In while SMCB and SMBR was undervalued, this is in line with the excellent performance where SMCB's sales growth has been above the historical average sales growth, while SMBR besides its sales growth is above the historical average sales growth and also above the industry sales growth where both of them also manage opex according to historical trends and CapEx is planned to be lower than historical average.

5.2 The Intrinsic Value by Relative Valuation

To validate the calculation of intrinsic value using DCF-FCFF, other valuation tools are needed, namely Relative Valuation, where from relative valuation based on Price Earning to Ratio (PER) and Price Book Value (PBV) approach, the results can be seen whether the value is still within the industry range in the Indonesia stock exchange (IDX) data or outside the industry range, if in the range, it means that the DCF-FCFF calculation results are considered reliable or proper and vice versa if it is still outside the range, it can be seen the assumptions used in calculating the valuation. In this case, the comparative data is IDX data as of the 1st quarter, 2018.

The summary calculation of intrinsic value that uses relative valuation method with PER and PBV approach is presented as follow:

Table 3: Industry Range of PER & PBV.

	PER of Industry (IDX 1st Quarter 2018)	**PBV of Industry (IDX 1st Quarter 2018)**
Min.	-7.10	1.02
Average	15.86	1.23
Max.	277.89	2.27

Table 4: The Valuation result by relative valuation.

Stock Code	Scenario	PER (Times)	PBV (Times)	Result
INTP	Pessimistic	9.58	1.02	In industry range
	Moderate	11.03	1.23	In industry range
	Optimistic	18.88	2.27	In industry range
SMCB	Pessimistic	7.60	0.63	In industry range
	Moderate	10.33	0.88	Out of Industry range
	Optimistic	20.65	1.82	In industry range
SMBR	Pessimistic	35.09	2.68	In industry range
	Moderate	70.19	5.49	In industry range
	Optimistic	140.89	11.16	In industry range

Source: Author's computations

The results of PER calculation in the pessimistic scenario, INTP is 9.58 times, SMCB is 7.60 times, and SMBR is 35.09 times. While on IDX data as of 1st quarter, 2018 shows that average PER value of cement companies is 15.86 times, with the lowest PER value in Holcim Indonesia (SMCB) Is -7.10 times and the highest PER value for Semen Barturaja (SMBR) is 277.49 times. This shows that the results of research calculations are in the range of PER in the market.

Furthermore, the PBV calculation results on the pessimistic scenario show that INTP is 1.02 times, SMCB is 0.63 times, and SMBR is 2.68 times. While on IDX data as of 1st quarter, 2018 shows that the average PBV value of cement companies is 3.38 times, with the lowest of PBV in Holcim Indonesia (SMCB) Are 0.83 times and the highest PBV value in Semen Baturaja (SMBR) is 11.92 times. This shows that the results of research calculations are in the PBV range in the market except for SMCB slightly below industry range.

Based on the results of the valuation calculation in the pessimistic scenario using Relative Valuation method with PER approach, it is found that the SMCB stock price is lower compared to INTP and SMBR, where the PER value of SMCB is smaller than INTP and SMBR, with PER value of 7.60 times. Which means that if we invest in SMCB shares, the return on investment is around seven years six months, faster than INTP and SMBR. So suggestions

for investors should prefer SMCB shares compared to INTP and SMBR shares. While suggestions for companies if they want a low PER value, the company needs to increase earnings per share from its shares. Whereas if using the PBV approach, then the SMCB stock price is cheaper compared to INTP and SMBR, where the value of SMCB PBV is smaller than INTP and SMBR, which is equal to 0.63 times, which means that the stock price of SMCB is valued at 0, 63 times when compared to its intrinsic value. While INTP's stock price is valued at 1.02 times when compared to its intrinsic value, and the stock price of SMBR is valued at 2.68 times compared to its intrinsic value.

Based on PER calculation results on a moderate scenario, INTP is 11.03 times, SMCB is 10.33 times, and SMBR is 70.19 times. While on IDX data as of 1st quarter, 2018 shows that the average PER of cement companies is 15.86 times, with the lowest PER value in Holcim Indonesia (SMCB) Is -7.10 times and the highest PER value for Semen Barturaja (SMBR) is 277.49 times. This shows that the results of research calculations are in the range of PER in the market.

Furthermore, the PBV calculation results on moderate scenarios show that the INTP is 1.23 times, SMCB is 0.88 times, and SMBR is 5.49 times. While on IDX data as of 1st quarter 2018 shows that the average PBV value of cement companies is 3.38 times, with the lowest PBV value on Holcim Tbk (SMCB) is 0.83 times and the highest PBV value in Semen Baturaja Tbk (SMBR) is 11.92 times. This shows that the results of research calculations are in the PBV range in the market.

Based on results of valuation calculation in moderate scenario using the Relative Valuation method with PER approach, it is found that the SMCB share price is cheaper compared to INTP and SMBR, where the PER value of SMCB is smaller than INTP and SMBR, with a PER value of 10.33 times, which means that if we invest in SMCB shares, the return on investment is 10 years and 3.3 months, faster than INTP and SMBR. So investors should prefer to choose SMCB shares when compared to INTP and SMBR shares. While suggestions for companies if they want a low PER value, the company needs to increase earnings per share from its shares.

Using PBV approach, SMCB stock price is lower compared to INTP and SMBR, which is where the PBV value of SMCB is 0.88 times, smaller than INTP and SMBR, which means that the price of SMCB shares is valued at 0.88 times when compared to its intrinsic value. While INTP's stock price is valued at 1.23 times compared to its intrinsic value, and SMBR's share price is valued at 5.49 times when compared to its intrinsic value, as recommendation investors to prefer SMCB shares compared to INTP and SMBR shares. Whereas for companies it is recommended to increase the book value of the company by increasing the amount of equity in order value of the PBV go down.

In the optimistic scenario, calculation results show that INTP PER value is 18.88 times, SMCB PER value is 20.65 times, and SMBR is 140.89 times. While on IDX data as of 1st quarter, 2018 shows that average PER value of cement companies is 15.86 times, with the lowest PER value in Holcim Indonesia (SMCB) Is -7.10 times and the highest PER value for Semen Baturaja (SMBR) is 277.49 times. This shows that the results of research calculations are in the range of PER in the market.

Overall, SMBR has a very high PER value or far above the average where the pessimistic scenario is 35.09 times, moderate scenario is 70.19 times, and optimistic scenario is 140.89 times while PER of industry average is 15.86 times even though still within the industry range, this is caused by market expectations of historical performance of SMBR which have high revenue growth while opex and capex are also significant, so the result makes small earnings.

Based on the results of PBV calculation on optimistic scenarios, INTP is 2.27 times, PBV is 1.82 times, and SMBR is 11.16 times. While on IDX data as of 1st quarter, 2018 shows that the average PBV value of cement companies is 3.38 times, with the lowest PBV value of Holcim (SMCB) is 0.83 times and the highest PBV value in Semen Baturaja (SMBR) is 11.92 times. This shows that the results of research calculations are in the PBV range in the market.

PER calculation results in optimistic scenario using the Relative Valuation PER approach shows INTP stock prices are cheaper compared to SMCB and SMBR, where the INTP PER value is smaller compared to SMCB and SMBR, with a PER value of 18.88 times, which means that if we invest in INTP, the return on investment (BEP) for 18 years is 8.8 months, faster than SMCB and SMBR. So suggestions for investors should prefer INTP shares when compared to SMCB and SMBR shares. While suggestions for companies if they want a low PER value, the company needs to increase earnings per share.

Whereas if using PBV approach, SMCB stock price is lower compared to INTP and SMBR, which is the PBV value of the SMCB is 1.82 times or smaller

than INTP and SMBR, which means that the price of SMCB shares is valued at 1.82 times intrinsic value. Whereas INTP's share price is valued at 2.27 times compared to its intrinsic value, and the stock price of SMBR is valued at 11.16 times compared to its intrinsic value, The recommendations are investors prefer SMCB shares compared to INTP and SMBR shares and companies recommended to increase the book value of the company by increasing the amount of equity, so that the value of the PBV will be down.

6 CONCLUSIONS

This research produces different valuation values assuming different growth, in the pessimistic scenario by DCF-FCFF calculation show that INTP, SMCB, and SMBR are overvalued. Then in the moderate scenario that INTP and SMBR in Overvalued and SMCB conditions are undervalued, whereas in the optimistic scenario the results of DCF-FCFF calculations show that INTP is in overvalued condition while SMCB and SMBR are undervalued. From the Relative valuation calculation, all scenarios show that the results of INTP, SMCB, and SMBR are in the industry range, which means that DCF-FCFF calculations are reliable and proper. The conclusions of this research is to recommend selling INTP shares and buying SMCB and SMBR shares.

This study illustrates that the method used to evaluate the intrinsic value of stock prices is Discounted Cash Flow (DCF) with the Free Cash Flow to Firm (FCFF) approach and the Relative Valuation method with the Price Earning to Ratio and Price Book to Value (PBV) approach on Previous research (Neaxie & Hendrawan, 2017) is still valid and relevant where the results can be a reference for investment decisions.

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