

THE EFFECT OF SYSTEMATIC AND FUNDAMENTAL FACTORS ON THE VALUATION OF CEMENT MANUFACTURERS IN INDONESIA

Dewa Nyoman Wiryasantika Wedagama^{*1}, Dedi Budiman Hakim^{**}), Bambang Juanda^{**}), Trias Andati^{***})

^{*}School of Business, IPB University
Jl. Pajajaran Bogor 16151, Indonesia

^{**}Department of Economics, Faculty of Economic and Management, IPB University
Jl. Agatis, Campus IPB Dramaga Bogor 16680, Indonesia

^{***}PPM School of Management
Jl. Menteng Raya 9-19, Menteng Jakarta Pusat 10340, Indonesia

Abstract: There are two kinds of factors that influenced companies' valuation: systematic factors and fundamental factors. The relationship between the company valuation of cement companies listed on the Indonesia Stock Exchange (IDX) and several systematic factors and fundamental factors need to be identified to know determinant factors of the valuation. The valuation of each company from 2013 to 2019 was examined to four systematic factors: the excess capacity of each company (idle capacity), market share, government infrastructure spending, and excess supply of cement in the market. As a result of the panel data regression between valuation as the dependent variable and the four systematic factors in this research, the market share has a greater influence on the valuation than the other three factors, the government infrastructure spending, the excess capacity of each company, and the oversupply of cement in the market. Fundamental factors as valuation determinants have been examined and identified, then through relative valuation-multiples, the panel data regression of valuation as the dependent variable and fundamental factors showed companies fundamental factors have a higher influence on the valuation of SMCB, SMGR and INTP, meanwhile, non-fundamental factors have a higher influence on SMCB and SMCB and SMBR valuation.

Keywords: valuation, infrastructure budget, oversupply of cement market, company's excess capacity

Abstrak: Ada dua macam faktor yang memengaruhi valuasi perusahaan yaitu faktor sistematis dan faktor fundamental. Hubungan antara valuasi perusahaan pada perusahaan manufaktur semen yang terdaftar di Bursa Efek Indonesia (BEI) dengan beberapa faktor sistematis dan faktor fundamental perlu diidentifikasi untuk mengetahui faktor-faktor penentu valuasi. Valuasi masing-masing perusahaan selama tahun 2013 hingga 2019 dikaji dalam kaitannya dengan empat faktor sistematis: kelebihan kapasitas masing-masing perusahaan (idle capacity), pangsa pasar, belanja infrastruktur pemerintah, dan kelebihan pasokan semen di pasar. Hasil regresi data panel antara valuasi sebagai variabel dependen dan keempat faktor sistematis dalam penelitian ini, pangsa pasar memiliki pengaruh yang lebih besar terhadap valuasi dibandingkan tiga faktor lainnya, yaitu belanja infrastruktur pemerintah, kelebihan kapasitas masing-masing perusahaan, dan kelebihan pasokan semen di pasar. Faktor fundamental sebagai penentu valuasi telah diperiksa dan diidentifikasi, kemudian melalui valuasi relatif, regresi data panel dengan valuasi berganda sebagai variabel dependen dan faktor fundamental menunjukkan faktor-faktor fundamental perusahaan memiliki pengaruh besar terhadap hasil valuasi SMCB, SMGR dan INTP sedangkan faktor-faktor non-fundamental berpengaruh besar terhadap hasil valuasi SMCB dan SMCB dan SMBR.

Kata kunci: valuasi, anggaran infrastruktur, kelebihan pasokan pasar semen, kelebihan kapasitas perusahaan

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¹ Alamat korespondensi:

Email: dnsw2305.jurnaljabm@gmail.com

INTRODUCTION

The performance of the Indonesia cement industry since 2014 has shown a continuous decline. In recent years, the rapid increase in installed capacity has made the Indonesian cement market oversupply. Based on data obtained from the Annual Financial Statements (from 2013 to 2019) of cement companies those are listed on the Indonesia Stock Exchange (IDX), it is found that the level of profitability has a declining trend (Table 1).

The increased capacity of existing cement companies and the entry of new players in the cement industry resulted in an oversupply condition in the domestic cement market. There are many changes in Indonesia cement industry in the last seven years, as follows:

- 1 Since 2012 new players have entered the industry by establishing new factories while existing companies have added massive production capacity resulting in oversupply.
- 2 Based on data released by the Indonesian Cement Association, the Ministry of Industry and a report made by PT Indocement Tunggal Prakarsa, Tbk, in 2019 the cement production capacity has reached 114.8 million tons. Meanwhile, the demand in 2019 only reached 70 million tons, indicating a surplus of nearly 45 million tons.
- 3 The increased level of competition was followed by a decrease in profitability due to lower selling prices. The new entrants set a lower selling price than the existing players to penetrate the market.

The impact of this cement sector condition can be seen from the stock prices of the big three: SMGR, INTTP, and SMCB which declined from 2013 to 2020. Another negative factor is decreasing market power. Rismayani et al.. (2017) in their research show that the structural

characteristics of the cement industry in Indonesia are oligopoly with a market concentration ratio (CR3) in 2005–2015 of 89.22%. Based on data from the Indonesian Cement Association quoted by Kontan Daily, the market share of the three largest cement companies, namely SMGR, INTTP, and SMCB as of the end of June 2020 (Semester I) was a total of 79.2% (CR3), which means that there has been a 10% decline in CR3 in the last four years.

Besides those negative conditions, several factors will give a positive boost to the cement industry in the future, namely government programs that have given priority to infrastructure development in recent years and also in the future. This can be seen from the government's budget for infrastructure, which in the last ten years tends to increase drastically, from IDR 76.3 trillion in 2009 to IDR 417.4 trillion in 2021 (www.kemenkeu.go.id, 10/01/2021). The cement industry as part of the building materials industry is expected to be part of the industry that enjoys increasing infrastructure projects.

Another positive factor is the growing demand for cement in Indonesia due to cement consumption per capita which is still lower than other ASEAN countries such as Malaysia, Vietnam, and Thailand. Based on data released by the government in June 2018, Indonesia's per capita cement consumption rate was only 262 kg while other ASEAN countries such as Malaysia 763 kg, Vietnam 617 kg, and Thailand 458 kg. Inflation in Indonesia continues to decline in the last 6 years, from 8.36% in 2014 to 2.72% in 2019. This positive trend is expected to continue in the future. Low and stable inflation conditions are expected to give a positive impetus to the cement industry considering that low inflation has a positive impact on the property sector (Follain, 1982), where loan interest rates are expected to be lower.

Table 1. Profitability (ROE) of public cement companies in Indonesia from 2013 to 2019

Company	Symbol	2013	2014	2015	2016	2017	2018	2019
PT Semen Baturaja, Tbk	SMBR	12.7%	12.2%	11.8%	8.8%	3.9%	2.1%	0.8%
PT Solusi BI, Tbk	SMCB	11.5%	7.6%	1.7%	-3.4%	-12.0%	-12.2%	8.1%
PT Indocement TP, Tbk	INTP	22.7%	20.8%	17.8%	14.5%	7.5%	5.3%	8.2%
PT Semen Indonesia, Tbk	SMGR	26.8%	22.6%	17.0%	14.3%	5.6%	10.8%	6.7%

Referring to the facts above, identification of factors, both systematic and non-systematic, that affect the company's valuation is highly required. This study has objectives to meet this need. The condition of the cement industry is currently in decline, but at the same time, there is a fact that several indicators show excellent opportunities in the future, such as an increase in the government's infrastructure budget, current low cement consumption per capita, and the tendency of a low inflation rate in the medium term.

Many studies investigated determinant factors that influence valuation previously. These studies focus on fundamental financial factors, systematic factors, and both. Previous studies on the influence of financial factors on valuation were conducted by Kamar (2017) which researched the impact of ROE (Return on Equity) and DER (Debt to Equity Ratio) on company stock prices in three cement companies that have publicly listed, namely: PT Semen Indonesia Tbk, PT Indocement Tunggal Prakarsa, Tbk, and PT Holcim Indonesia, Tbk. From the results of the study, it was found that ROE and DER together have a significant impact on stock prices, but individually ROE has a positive and significant impact on the company's stock price while DER has a positive but not significant impact on stock prices. The research is based on data from 2011 to 2015. Najib et al. (2016) research found as individual factor, Economic Value Added (EVA), Return on Asset (ROA), ROE, Exchange rate, and Lending rate are influence insignificant to stock return, meanwhile inflation has significant influence. Simultaneous all factors are not significantly influence the stock return. Gupta (2018) compare four multiples to identify the best method of valuation. The finding is EV/EBITDA is the best method to valuate India Stock Exchange listed companies in three sectors, namely steel, banking, and automotive.

Similar study done by Pasaribu (2019) investigated influence of financial and external factors toward companies' value on IDX real estate and property sector. Financial factors which investigated are ROE, DER, asset growth, meanwhile external factors are inflation, exchange rate, and PDB. The study period from 2013 to 2019, and the result findings show ROE, DER, asset growth, and inflation have a positive impact on valuation, meanwhile exchange rate has a negative impact and PDB is not give any impact to valuation. ROE as determinant of valuation in cement listed companies in Indonesia also identified by

Kusumowardhani (2020) after analyze three financial factors namely ROE, DER, and Total Asset Turn over (TAT). Slightly different focus by Daryanto (2018) which investigated eight financial factors; 1) return on equity, 2) return on investment, 3) cash ratio, 4) current ratio, 5) collection period, 6) inventory turnover, 7) total asset turnover, 8) total equity to total asset condition to determine financial health of two state own cement companies SMGR and SMCB during infrastructure massive growth from 2011 to 2019. Based on criteria issued by Ministry of State-Owned Enterprise, the study concluded both companies are financially healthy.

Research on company valuation and its relationship to the capital structure was investigated by Oded et al. (2011) who found companies structure policy strongly influenced company valuation. Ariff, Hassan, and Shamser (2008) found that the capital structure will always be adjusted dynamically in a bad company's financial condition. Bhayani (2009) uses three independent variables as determinants of the company's total valuation. The three are financial leverage (FL), cost of capital (K_o), and the comparison of stock prices with the company's net profit (PER). The important findings from this research are there is no significant relationship between each independent variable that can have an impact on other variables independently and the total valuation of a company can increase due to various combinations of the three independent variables, namely: cost of capital, financial leverage, and Price Earnings Ratio.

Aby Jr et al. (2001) conducted a study on the growth of firm value by selecting four factors as influential variables. The P/E ratio is compared between those of more than ten and those of less than ten. The market price is below the book value of $MP < BV$, ROE, and the percentage of DPR dividends. From the research, the P/E ratio combined with $MP < BV$ underperformed when compared with the aggregate market, companies with $ROE > 12\%$ at the time of selection tend to consistently provide higher investment returns in the future compared to companies with $ROE < 12\%$ at the time of sample selection. Meanwhile, companies that pay smaller dividends have relatively larger accumulated retained earnings, which tend to grow higher.

Research on the effect of systematic factors on valuation was conducted by Salvo (2005) who examined the application of market power in an oligopolistic market, especially in the cement industry in Brazil, which

focused on two things, namely the implications of mergers on the application of market power and how to measure market power. The important finding is there is tacit collusion in the cement market due to market division, and capacity utilization of companies tends to be stable from year to year. Another study was also conducted on competition policy in the cement industry in Turkey by Kulaksizoglu (2004) where the finding is the market power tends to decline year by year but the relation with the introduction of competition policy is not clear.

Research on the influence of systematic and fundamental factors on valuations related to the cement industry, focuses on several variables that can influence firm value such as examining the relationship between stock returns with systemic risk and non-systemic risk by Magistasari et al. (2017), the study results are systemic risk has a significant effect on stock return, meanwhile, the non-systemic risk did not have a significant effect on stock return. Rismayani (2017) examines the relationship between firm performance (ROA) with structural variables (CR3 and MES) and behavioral factors, namely OPEX and CAPEX. All these studies were conducted on the cement industry in Indonesia. The result is Indonesia's cement industry performance has achieved better with relatively high ROA. Mulyadi and Supriyati (2014) make a theoretical model regarding the relationship between firm value and other factors that are considered influential. They divided these factors into exogenous, endogenous, and intermediate variables. Exogenous variables consist of Social Responsibility, Corporate Governance, and company Size. While the value of the companies is classified in endogenous variables, and Profitability is classified as an intermediate variable.

In this research, the differences with previous researches are the methods that had been used on the research and investigation of two kinds of factors those influence the valuation. The identification of fundamental factors and systematic factors was done separately, where is the first through an analysis of regression results of four relative valuation multiples and respective fundamental factors and the second through direct regression between enterprise value and systematic (government and market) factors. Influences of fundamental factors are identified through four regression models of relative valuation multiples. Meanwhile systematic factors are identified through one regression model.

The separation of regression analysis has to be done due to systematic factors specifically related to cement market or industry, meanwhile fundamental factors which related to financial performance of companies when analyzed using relative valuation model could be applied either to similar characteristics of companies, same business, expanded to sectors, or a whole market in order to improve analysis accuracy (Damodaran, 2012). In this study, the regression of relative valuation multiples uses 32 companies which represent three IDX subsectors: cement, real estate/property, and construction. These three subsectors have close relation due to as a main consumer of cement products, the other two significantly influence the cement industry (Indopremier, 2018).

The study expected to confirm whether increase or decrease of government infrastructure spending, companies' excess capacity, market share of each company, and market excess supply cause similar movement to companies' valuation. Influence of fundamental factors to companies' value were measured through regression of fundamental factors to each multiple. Increase in both government infrastructure spending and market share expected influence positive to the valuation, meanwhile increase in market oversupply and idle capacity have a negative impact on valuation. Also, this study to investigate whether fundamental factors have an influence on the one of four relative valuation multiples. These multiples are PE, EV/EBITDA, EV/Sales, and EV/BV which represent the company's value. Based on relative valuation process, fundamental factors could be classified into one of the key drivers of valuation, namely cash flow, risk, and growth (Damodaran, 2006). The best regression model of multiples is selected as the basis for analysis of fundamental factors which influence value of a company. It is expected the influence of fundamental factors varies among these cement companies.

The result of the study will provide guidance to cement companies' management to assess the change of systematic factors and make strategic decision to maximize the positive effect of the change. Meanwhile identification of fundamental or financial factors to provide direction for management where are the factors should be better managed in order to maximize company value. These parallel actions are expected to provide comprehensive strategic approach to tackle recent and future cement industry threat and opportunities.

METHODS

This study focuses on analysing the influence of both systematic and fundamental factors to enterprise value on the four cement companies listed on Indonesia Stock Exchange (IDX) which are: PT Indocement Tunggul Prakarsa, Tbk, PT. Semen Indonesia, Tbk, PT. Semen Holcim, Tbk, and PT Semen Baturaja, Tbk. The sources of the data for the first study that is investigating the influence of systematic factors to valuation are taken from the cement market data since 2013 to 2019 period, namely market oversupply, market share, and company's idle capacity, which are issued by the Indonesia Cement Association (ASI), Ministry of Industry reports, except the infrastructure budget data which is not specific cement industry data, come from the Ministry of Finance of the Republic of Indonesia.

The 2nd study that is relative valuation analysis to identify influence of fundamental factors to valuation, require large cross-section data. Therefore, the multiple and fundamental factors data taken from 32 selected companies as comparable companies. According to Damodaran (2012) there are three methods to control the differences across firms in relative valuation, namely subjective adjustment, modified multiples, and sector regression. Considering differences in many variables or fundamental factors, and larger comparable companies is better, and as concluded by Alford (1992), the last method seen as most efficient and suitable one to regress the multiple against fundamental factors in order to determine regression model of each company. Criteria for the selection are sectors from close relation business, namely cement and building material, real estate/property, and construction. Other criteria are EBIT, EBITDA, and Book Value always positive. The research period was carried out by taking data on the financial statements of each company and other reports from 2013 to 2019.

The research was conducted with a descriptive method where several factors considered having a relationship and influence on the company's valuation will be examined and tested. Tests were also carried out on independent variables related to the relationship between these variables to identify and eliminate multicollinearity problems. The data in this study is a panel data which is combination of cross section and time series. Then it is expected will reduce the non-stationary effect as stated by Juanda and Junaidi (2012), almost all-time series data is not stationary.

There are two kinds of panel data regression models used in these studies which had been applied for the investigation of fundamental and systematic factors having a high influence on firm value. The first kind of regression model is the identification of influential fundamental factors toward valuation. It is represented by four RV multiples as firm value proxies. The determinants used are derived from Damodaran (2006, 2012), De Luca (2018) and Djaja (2018) formulas. There are four RV multiples regression model as follows:

$$P/E_{it} = \alpha + b_1 \cdot Ke_{it} + b_2 \cdot DPR_{it} + b_3 \cdot growth_{it} + e_{it} \quad (1)$$

$$EV/EBITDA_{it} = \alpha + b_1 \cdot RIR_{it} + b_2 \cdot DA_{it} + b_3 \cdot WACC_{it} + b_4 \cdot growth_{it} + b_5 \cdot tax + e_{it} \quad (2)$$

$$EV/Sales_{it} = \alpha + b_1 \cdot ATOM_{it} + b_2 \cdot RIR_{it} + b_3 \cdot Ke_{it} + b_4 \cdot growth + e_{it} \quad (3)$$

$$EV/BV_{it} = \alpha + b_1 \cdot WACC_{it} + b_2 \cdot growth_{it} + b_3 \cdot ROI_{it} + e_{it} \quad (4)$$

Where the four multiple as firm value proxies are P/E (stock price divided by earning per share), EV/EBITDA (Enterprise Value divided by Earnings Before Interest, Tax, Depreciation, and Amortization), EV/Sales (Enterprise Value divided Total Revenue), and EV/BV (Enterprise Value divided by company Book Value). The independent variables are k_e (Cost of Equity), DPR (Dividend Payout Ratio), growth (of earning), RIR (Reinvestment Rate), DA (Depreciation and Amortization), WACC (Weighting Average Cost of Capital), ROI (Return on Investment), e (error term), i (cross-section, 32 companies) and t (time, 2013-2019). The entire regression process of the four multiples using panel data, the cross-section is thirty-two companies as samples. These companies are selected from the Cement, Property, and Real Estate, and Construction sectors.

The 2nd kind of regression model is the relation between systematic factors and valuation. The formula is as follow:

$$EV_{it} = \alpha + b_1 \cdot Infrac_{it} + b_2 \cdot Excacom_{it} + b_3 \cdot Pang said + b_4 \cdot Excpasar_{it} + e_{it} \quad (5)$$

Where all variables describe as follow EV (Enterprise Value), Infrac (government infrastructure spending), Excacom (companies' excess capacity), Pangsa (market share of each company), Excpasar (market excess supply).

Several hypotheses were developed in this research, which is related to the systematic and fundamental factors that affect the valuation are as follows:

H1: Certain fundamental/financial factors of the company affect the value of the company. Relative valuation multiples represent the firm value. It is constructed from financial/fundamental factors as components; therefore, it needs to be investigated which factor influencing the valuation individually or as together and the influence on each company. There is at least one of $\beta_1, \beta_2, \beta_3, \beta_n \neq 0$ so that H1 can be accepted, but if all the coefficients are $\beta_1, \beta_2, \beta_3, \beta_n = 0$ then H1 is rejected, which means there are no independent variables examined above that affect the company's valuation.

H2: The increase of the market share of each cement company has a positive influence on the value of the company. The hypothesis will be accepted if there is a relationship between changes in market share that have an impact on changes in the valuation of each cement producing company in the same direction.

H3: The growth of the infrastructure budget affects increasing the valuation of cement-producing companies. The hypothesis will be accepted if the

growth of the infrastructure budget influences the growth of the value of each company.

H4: Oversupply market conditions affect the performance of cement companies which results in a decline in company value. The hypothesis will be accepted if changes in the excess supply of cement will affect the firm value in the opposite direction.

H5: The company's idle capacity results in cost inefficiency in the company so it affects the company's valuation. The hypothesis will be accepted if the increase in unused capacity will decrease the firm value.

The theoretical basis of this research (Figure 1) has combined the determinant factors from both relative valuation theory and investment theory. Determinants derived from relative valuation consisted of fundamental and market/industry factors, meanwhile systematic factors identified from companies' external conditions and relatively uncontrollable factors of companies. Regression models had been tested to eliminate autocorrelation, stationarity, multicollinearity, and heteroscedasticity.

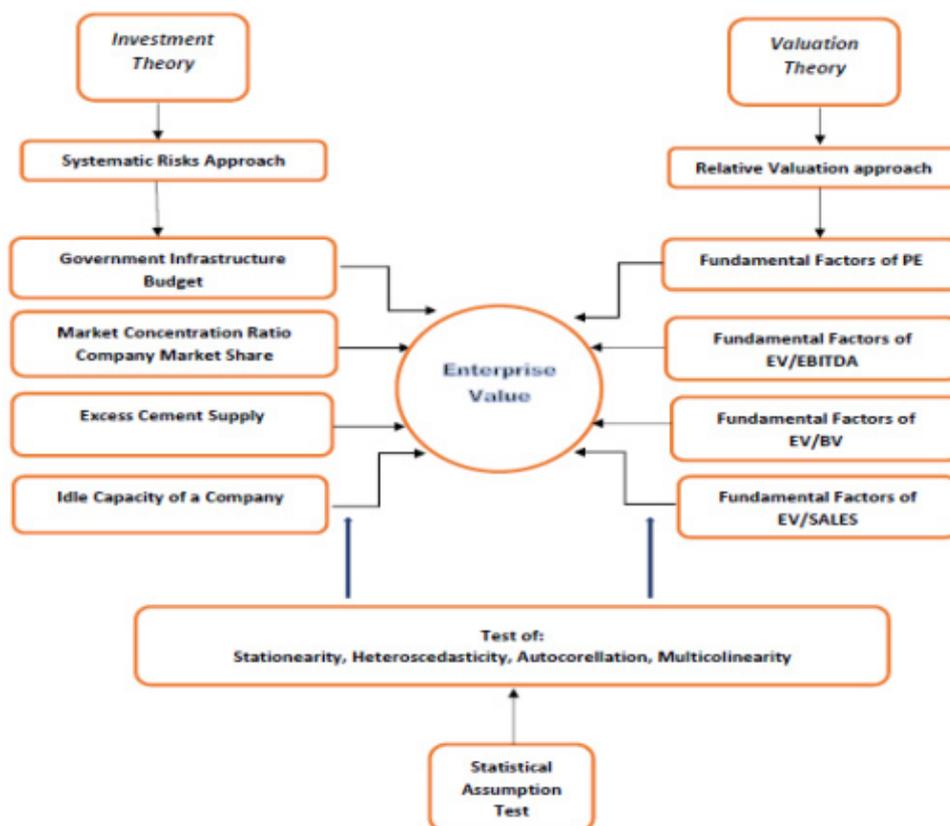


Figure 1. Framework of the research

RESULTS

Statistical Test of Four RV Multiples Regression Model

The regression process for fundamental (financial) factors as independent variables and RV multiples as dependent variables were carried out using the EViews statistical application. Multicollinearity, stationarity, autocorrelation, and heteroscedasticity tests were performed to ensure that this regression gave BLUE results. A comparison of the three data panel regression models, namely: Common Effect, Fixed Effect, and Random Effect was carried out to select the most suitable method for each RV multiples regression. Based on comparison results the PE and EV/BV multiples used Random Effect Model as suitable, meanwhile EV/SALES and EV/EBITDA used Fixed Effect Method.

Based on Table 2 which displays the regression results using the Random Effect Method (REM) for PE and EV/BV, then Fixed Effect Method (FEM) for EV/EBITDA and EV/SALES, the following findings are obtained:

- 1 The ability of the independent variables together to explain the movement of the dependent variable is vary, where the lowest value on the ability of all independent variables together to explain the dependent variable PE only reaches -1.2% while the highest is EV/SALES where adj. R-squared is 77.6 %.
- 2 In each independent variable, the ability to explain the dependent variable with t-statistic probability when the value is <0.05 , the independent variable has the ability to explain the dependent variable. Where in the multiple PE regression model there is no independent variable that has a strong influence on PE. Meanwhile, in EV/EBITDA there are three independent variables, namely RIR (Reinvestment Rate), DA (Depreciation and Amortization) and Tax Rate which have an influence on EV/EBITDA. In the EV/Sales multiple there is one independent variable that have a strong influence on the dependent variable, namely ATOM (After Tax Operating Margin). One independent variable that is ROI have an influence on EV/BV.
- 3 Company valuation according to Damodaran (2012) is a function of Cash Flow, Growth and Risk. By

referring to the independent variables that affect the multiples above, there is at least one financial factor that can be classified into Cash Flow, Growth, and Risk. For multiple PE ratios, there is no factor as independent variable has an effect to the PE as dependent variable. Cash Flow (RIR and DA) and Risk (Tax rate) are determinant factors in EV/EBITDA, while EV/Sales is a function of Cash Flow (ATOM). For EV/BV, the elements of Cash Flow that is ROI as the only determinants. It is inline with Damodaran (2012), which identified single dominance variable to determine the multiple as companion variable, where is RIR as companion variable of EV/EBITDA, ATOM as companion variable of EV/SALES, and ROI as companion variable of EV/BV. Except for PE which is in this study could not identified growth as companion variable.

- 4 The EV/EBITDA and EV/SALES model are the best model where the independent variables have strong ability to explain the dependent variable. PE and EV/BV multiples are regression model which have very weak explaining power due to very low adjusted R-square. EV/EBITDA and EV/SALES will be analysed to investigate influence of fundamental factors through comparing the intercept and identify which company is undervalued or overvalued through comparing the multiple value. Both comparisons are applied to the four IDX listed cement companies.

Analysis of determinant factors of the multiples

Based on the regression results on the four multiple RVs, two multiples are negligible for further process due to lack of explaining power as shown by Table 2. These two are P/E and EV/BV regression model which have very low adjusted R-square. The other two EV/EBITDA, and EV/Sales which have relative strong explaining power are qualify for calculation of the valuation. The mathematical model for calculating the relative valuation is shown in Table 3. Each company has a different constant or intercept for each RV multiple. The data on the independent variables are estimated data for the next five-year period, namely 2021 to 2025. Calculations are carried out for each company and for each multiple.

Table 2 Regression model results

		Independent Variables					Adj. R-squared	
		C	DPR	Ke	Growth			
PE	Coeff	20.9427	0.103	-2.2713	0.223			
	t-statistic prob	0.0001	0.988	0.9303	0.6138	-0.0128		
Random Effect	INTP	6.0031						
	SMGR	0.3255						
	SMCB	-10.1575						
	SMBR	60.273						
		C	RIR	DA	WACC	Growth	Tax Rate	
EV/EBITDA	Coeff	14.2665	0.5488	34.7398	-0.2558	0.2176	-41.4372	0.5921
	t-statistic prob	0.0000	0.0026	0.0000	0.9753	0.3564	0.0001	
Fixed Effect (cross)	INTP	1.4621						
	SMGR	-5.7599						
	SMCB	-17.2806						
	SMBR	16.7704						
		C	ATOM	RIR	Ke	Growth		
EV/SALES	Coeff	3.356159	2.69395	-0.018121	0.742102	0.037823	0.7761	
	t-statistic prob	0.0000	0.0000	0.2573	0.3048	0.3201		
Fixed Effect (cross)	INTP	0.006364						
	SMGR	-0.602019						
	SMCB	-1.643799						
	SMBR	4.140993						
		C	WACC	Growth	ROI			
EV/BV	Coeff	2.3095	1.3426	-0.1054	12.2411	0.0770		
	t-statistic prob	0.0000	0.7214	0.2413	0.0000			
Random Effect	INTP	-0.8612						
	SMGR	2.7246						
	SMCB	0.0834						
	SMBR	0.5592						

Table 3. Regression model of the selected multiples of companies

RV Multiple	Regression Model
EV/EBITDA	EV/EBITDA-intp = 15.73 + 0.55 RIR + 34.74 DA - 0.26 WACC - 0.22 Growth - 41.44 Tax Rate
	EV/EBITDA-smgr = 11.66 + 0.55 RIR + 34.74 DA - 0.26 WACC - 0.22 Growth - 41.44 Tax Rate
	EV/EBITDA-smcb = 10.22 + 0.55 RIR + 34.74 DA - 0.26 WACC - 0.22 Growth - 41.44 Tax Rate
	EV/EBITDA-smbr = 31.04 + 0.55 RIR + 34.74 DA - 0.26 WACC - 0.22 Growth - 41.44 Tax Rate
EV/SALES	EV/SALES-intp = 3.363 + 2.694 ATOM - 0.018 RIR + 0.742 Ke + 0.038 Growth
	EV/SALES-smgr = 2.754 + 2.694 ATOM - 0.018 RIR + 0.742 Ke + 0.038 Growth
	EV/SALES-smcb = 1.712 + 2.694 ATOM - 0.018 RIR + 0.742 Ke + 0.038 Growth
	EV/SALES-smbr = 7.497 + 2.694 ATOM - 0.018 RIR + 0.742 Ke + 0.038 Growth

The following Table 4 is the result of multiple calculations for the four cement companies. Considering that the variation of multiple each year is relatively small; the average calculation to be used as the basis for calculating the multiple ratios. Meanwhile, to calculate the company's valuation, the denominator in the ratio

used is the value in 2025. Estimates of various financial factors in the next five years are carried out with the assumption that growth in NI is directly proportional to revenue growth. In this estimation, the profitability ratio, namely the net income ratio, is constant but the absolute value increases from year to year.

As proposed by Damodaran (2012), median is better than average when determine under or overvalued. Taking into account all the above results, it can be concluded that SMGR and SMCB consistently show their valuation below the industry median in the IDX cement subsector. SMGR's acquisition of SMCB is the right step considering the undervalued of SMCB. However, with projections based on current growth assumptions, the future valuation of SMGR will remain undervalued. Looking from the other side, companies with multiple ratios below the industry median also indicate companies with low growth prospects. For SMBR the both multiples show overvalued because it is always above the industry average. INTP showed higher-than-median multiples in both EV/SALES and EV/EBITDA. Hendrawan et al. (2019) in their research found SMCB and SMBR are undervalued and INTP is overvalued. Period of research based on historical data from 2013 to 2017 and projection from 2018 to 2022. Their finding on SMBR is contrary to finding of this research. Different historical data period caused very different result. SMBR in 2018 and 2019 has sharp decline in financial performance. This low performance for the consecutive two years has affected SMBR lower estimation on future financial performance.

Table 5 below shows the value of intercept and R² from the regression results of the two qualified multiples on financial factors for each company. By comparing the regression results for the four companies, namely SMGR, INTP, SMCB, and SMBR on the multiple ratios, for EV/EBITDA the influence of financial factors is the same as the order of EV/Sales, SMCB has the biggest influence of financial factors on valuation, while SMGR and INTP are the next. The smallest influence of financial factors is on SMBR. By looking at coefficient of determination R², it can be seen that EV/SALES is the best multiple valuation method to explain the influence of financial factors on valuation.

SMCB is highly influenced by fundamental or financial factors meanwhile SMBR is least influenced. It's mean influence of fundamental factors could be different between companies in the same industry. Fundamental factors that do not have a strong influence are also found in a study by Havander et al. (2019) where valuation is represented by EV/EBITDA. However, they stated that the condition of a wider research base would make the fundamental factors more influential. Research by Nguyen et al. (2021) concludes from the results of his research that profitability, sales, and liquidity have no effect on equity valuation. Codau (2013) in his research on all stock exchanges in Europe concludes that certain fundamental factors, namely the EBITDA ratio, equity/assets ratio and liquidity quick ratio, are relatively influential except in certain sectors and markets that have less influence.

Systematic Factors Analysis

Several systematic factors are influence the company's valuation. The condition of the cement industry is experiencing an oversupply where since 2015 there has been an oversupply of more than 50%, excess of capacity to sales every year. Since that year, the valuation of companies in the cement industry tends to decline. Only one company, namely PT Semen Baturaja, Tbk (SMBR) increased several times in 2016 and 2017 but then decreased the following year whereas for 2019 the company's stock price decreased drastically by only 13.3% from the 2017 price.

The excess installed capacity against sales for each company also occurred during this period and may continue to occur in the next five years although the percentage of excess will tend to decrease. The idle production capacity is estimated to affect all cement producers but with various percentages. For this reason, the impact of this condition on the company's valuation will also be examined in this regression.

Table 4. Values of RV Multiple for respective cement companies

	SMGR	INTP	SMCB	SMBR	Average	Median
EV/EBITDA	12.94	19.66	4.77	40.37	19.44	16.3
EV/SALES	3.19	3.70	1.97	7.90	4.19	3.45

Table 5. Analysis of the influence of Financial Factors on the calculation of RV

Multiple		INTP	SMGR	SMCB	SMBR	R2
EV/EBITDA	Intercept	15.729	11.659	10.223	31.037	0.592
EV/SALES	Intercept	3.363	2.754	1.712	7.497	0.776

The market share affecting the company's performance needs to be investigated further, especially the impact on the company's valuation. Some companies try to increase their market share with various steps that sometimes even lower profit margins. This is due to various programs such as selling price discounts, sales promotions accompanied by various incentives or prizes, increasing sales and promotion costs, as well as various other marketing campaigns. In the opposite strategy, some companies sacrifice their market share by allowing the decline to a certain level while maintaining their profit margins. This is done by focusing on loyal customers who value quality or other aspects such as technical support, openness to customer complaints, and others.

The last factor studied is government infrastructure spending and its effect on the valuation of companies in the period 2013 to 2019. The general assumption states that infrastructure spending will have a significant influence on the performance of cement-producing companies. The study was conducted to determine how much influence this factor has on the company's valuation. In the period from 2013 to 2019, the government's infrastructure budget and the realization of its expenditure showed a significant increase. During the seven years, infrastructure spending increased 2.25 times from IDR 184 trillion to IDR 415 trillion.

Regression Model of Valuation vs Systematic Factors

The panel data regression method for valuation regression on the four independent variables representing systematic factors can only use two methods, namely common effects, and fixed effects because random-effects cannot be applied considering that the cross-section of four does not exceed the independent variables where the requirement to use the random method is the number of cross-sections more than the number of independent variables. Therefore, only the CEM and FEM methods can be applied. To make comparisons to choose the best method, the Chow test was carried out. From the results of the Chow test, it can be seen that the cross-section F value has a probability of 0.0032 < 0.05. This means that FEM is more suitable for this regression model. For this reason, the regression model used in this regression is FEM. The method used is to include a dummy in the regression model.

Based on Table 6 for each company, the regression equation model is obtained as follows:

$$\begin{aligned} \text{INTP: Val} &= 35.67601 - 0.031714\text{Excapcomp} - 0.028162\text{Infras} + 1.389318\text{Pangsa} + 0.036333\text{Excpasar} \\ \text{SMGR: Val} &= 35.42823 - 0.031714\text{Excapcomp} - 0.028162\text{Infras} + 1.389318\text{Pangsa} + 0.036333\text{Excpasar} \\ \text{SMCB: Val} &= 6.92457 - 0.031714\text{Excapcomp} - 0.028162\text{Infras} + 1.389318\text{Pangsa} + 0.036333\text{Excpasar} \\ \text{SMBR: Val} &= 18.37259 - 0.031714\text{Excapcomp} - 0.028162\text{Infras} + 1.389318\text{Pangsa} + 0.036333\text{Excpasar} \end{aligned}$$

Table 6. Regression of Valuation vs Systematic Factors with the dummy variable

Independent Variable	FEM		
	Coefficient	t-stat	Prob
Intercept C	24.10035	1.409032	0.1742
Fixed Effect Cross Section (Dummy Variables)	INTP_C	11.57566	
	SMGR_C	11.32788	
	SMCB_C	-17.17578	
	SMBR_C	-5.727759	
Companies Excess Capacity	-0.031714	-0.339079	0.7381
Govt. Infrastructure Spending	-0.028162	-0.644598	0.5265
Market Share	1.389318	2.052179	0.0535
Market Excess Supply	0.036333	0.205028	0.8396
Adj. R squared	0.953767		
Durbin Watson stat.	2.029863		
F stat			0.0000

Where are all variables described as follow: Valuation (Val) in trillion Rupiah, Excess Capacity of each company (Excapcomp) in percentage units, Government Infrastructure Expenditure (Infras) in trillion Rupiah, Market Share (Share) in percentage units, and Oversupply in the cement market (Excpasar) in percentage units.

INTP has the highest intercept, while the lowest is SMCB. This shows that the influence of the independent variable on the valuation is greatest at SMCB and the smallest is INTP. Based on the regression results, the intercept for SMGR is 35.42823, INTP intercept = 35.67601, SMCB intercept = 6.92457 and SMBR intercept = 18.37259.

Referring to the regression results in table 6 whereas the four systematic factors as independent variables simultaneous have a strong ability to explain valuation. This can be seen from the high adjusted R-square value of 95.4%. However, individually there is no independent variable that has a strong explanatory ability because the probability value of t-statistics is more than 0.05 each.

The impact of the company's excess capacity is in the opposite direction to the valuation, where every 1% increase in idle capacity in a company will decrease the relatively small valuation of Rp. 0.03171 trillion or Rp. 31.71 billion. Infrastructure spending by the government has the opposite impact on the valuation where an increase of Rp. 1 trillion in infrastructure spending by the government lowered the company's valuation by Rp. 0.028 trillion. The market share and oversupply in the cement market have a direct impact on the company's valuation value, where a 1% increase in market share will increase the valuation by Rp. 1.389 trillion. While the excess supply of cement market by 1% will increase the valuation by Rp. 0.036 trillion.

The decrease in idle capacity and the increase in market share have a positive effect on the company's valuation, although with different magnitudes. The increase in infrastructure spending by the government during the study period had little impact on valuations. Meanwhile, the oversupply cement market condition did not reduce the valuation because, furthering the

research period from 2013 to 2019, the valuations were relatively stagnant with a slight tendency to increase.

To increase the company's valuation which is the main task of company management to satisfy the ultimate goal of investors or shareholders, maximum efforts to exploit positive impacts and reduce the disadvantages are very important. When a company wants to increase market share, it will provide some incentives to customers. There are two characteristics of these incentives, namely lowering selling prices directly or indirectly or providing various promos and technical support and quality incentives that increase costs. When these initiatives are undertaken by companies, competitors tend to do the same. For this reason, management must think about the consequences. Currently, the cement market is very competitive so many small companies are unable to compete. Therefore, another option to increase market share is through acquisitions such as that made by PT Semen Indonesia Group, Tbk to PT Lafarge Holcim Indonesia, Tbk.

As a comparison, a regression was carried out between Stock Prices in Rupiah with the same systematic factors, namely Excess Capacity of each company (Excapcomp) in percent units, Government Infrastructure Expenditure (Infras) in Trillion Rupiah, Market Share (Share) in percent units, and Oversupply in cement market (Excpasar) in percent units. The stock price as a representation of the company's equity value, move dynamically following investors' perception toward company prospective value.

From the regression results shown in Table 6, there is a difference in the direction of the effect of oversupply in the market compared to Table 7 were is in the latter table show an increase in 1% of excess supply in the cement market will reduce the share price by Rp. 10.70. Table 6 shows the opposite result, the oversupply of the cement market by 1% will increase the valuation by Rp. 0.036 trillion. The difference occurs because the company valuation includes the valuation of the company debt, while the stock prices only take into account the valuation of equity. Stock prices adjust their value more quickly to the change in systematic factors while debt values adjust very slowly that company valuations become less sensitive than equity valuations.

Table 7. Regression of Stock Price vs Systematic Factors with the dummy variable

Independent Variable	FEM		
	Coefficient	t-stat	Prob
Intercept C	5420.840	1.681290	0.1083
Fixed Effect Cross Section (Dummy Variables)	INTP_C	9903.327	
	SMGR_C	-2651.133	
	SMCB_C	-5218.841	
	SMBR_C	-2033.354	
Companies Excess Capacity	-11.92840	-0.771228	0.4496
Govt. Infrastructure Spending	-5.104352	-0.799445	0.4334
Market Share	233.2485	1.726668	0.0996
Market Excess Supply	-10.70582	-0.419876	0.6791
Adj. R squared	0.955575		
Durbin Watson stat.	1.887380		
F stat			0.0000

Managerial Implication

Management which has main objective to maximize company value should aware about factors which influence the value. Management actions to managed the determinant factors should be well planned and executed. Based on result of first study, it has been identified those are four fundamental factors which determined relative valuation multiples. These are Reinvestment Rate (RIR), Depreciation and Amortization (DA), and Tax rate for EV/EBITDA, then After-Tax Operating Margin (ATOM) for EV/SALES. The result of second study on influence of systematic factors to the valuation, it has showing market share factor is the most significant factor which should be well managed.

Development of action plans to manage the four fundamental factors and one systematic factor above will determine the success of management to gain maximum benefit from the results of this study. It is determined as strategic targets of all management levels in the company and various derivative programs to be implemented until the lowest management level will make this study perfectly provide guidance to achieve maximum value of the company. As controlling is a management function, implementation of these programs should be controlled and redirected continuously to achieve effective result.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

SMCB is the company which the valuation is the most influenced by financial factors. Meanwhile, SMGR is the company that valuation is least influenced by financial factors. SMGR and INTP are in between of the two companies. When referring to the amount of multiple, SMBR is overvalued and its value is not supported by its financial performance. But in other point of view, SMBR could be seen by an investor as prospective company which will achieve higher growth in the future. It is reflected by their willingness to pay at premium prices. The opposite situation happened to SMCB, which is undervalued even the company valuation is highly affected by financial performance. It means the investor perceives the company's future is not promising with slow growth. SMGR and INTP has moderate to high value with fundamental factors influence the company's valuation. As big players with combine market share around 75% both companies' performance highly influence cement market in Indonesia. INTP has higher multiple values than SMGR which means slightly higher overvalued than SMGR. Based on findings as above mention, there are fundamental factors that influence the valuation of the four cement companies. It shown from EV/EBITDA and EV/Sales coefficient of determination, R2 which value are above 0.50. Then the hypothesis H1 can be accepted.

The result of the regression model between valuation and systematic factors is showing that both INTP and SMGR had less influence from systematic factors. Valuation of SMCB has most influenced by systematic factors and followed by SMBR. It is identified from high intercept in INTP and SMGR. Meanwhile, SMCB is the lowest and SMBR is slightly higher. When combined with fundamental factors SMCB highly influenced by both fundamental and systematic factors. That means the financial performance of SMCB is affected by systematic factors, then influenced its valuation. SMBR has been highly influenced by systematic factors but has little influence from fundamental factors. It shows SMBR's financial performance is free from systematic factors effects. INTP and SMGR have moderate effect from fundamental factors and little influence from systematic factors. Market share as a systematic factor is the only factor which influence enterprise value. Other systematic factors such as Government infrastructure spending, Market over supply, and Idle capacity of company are not influence the enterprise valuation. It mean the hypothesis H2 can be accepted, but H3, H4, and H5 are rejected.

Recommendation

In order to improve the benefits of this research through development of more detail and/or effective research in the future, it is suggested to the next researchers to expand the research period of the data, and add systematic and fundamental factors which influence the company's valuation based on prediction of future conditions. Continuous improvement of this research will provide better knowledge and benefits to company's managers, investors, analyst, and scholars.

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