

ANALYSIS OF FINANCIAL PERFORMANCE MEASUREMENT AND Z-SCORE ASSESSMENT OF CEMENT COMPANIES IN INDONESIA (STUDY CASE: PT. SEMEN BATURAJA TBK, PT. SEMEN INDONESIA TBK, PT. INDOCEMENT TUNGGAL PRAKARSA TBK, AND PT. SOLUSI BANGUN INDONESIA TBK PERIOD 2015-2019)

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ABSTRACT

Under the new president Mr. Joko Widodo, the Indonesian government is focusing on infrastructure development as their work plan. The increase in infrastructure development projects requires cement companies to increase their production capacity and performance. However, from 2015 to 2019, the cement industry in Indonesia experienced an excess supply condition. This research study aims to analyze and measure the financial health condition and bankruptcy prediction of cement companies listed on the Indonesia Stock Exchange: PT. Semen Baturaja Tbk, PT. Semen Indonesia Tbk, PT. Indocement Tunggul Prakarsa Tbk, and PT. Solusi Bangun Indonesia Tbk for periods of 2015 to 2019. The data used are collected from the published audited financial statement. Financial ratio analysis used as a methodology, and the results are validated by SOEs Ministerial Decree No.KEP-100/MBU/2002 about a financial health condition. Using the Altman z-score model method to find out the possibility of bankruptcy. Specifically, the financial ratios that will be used are: 1) return on equity, 2) return on investment, 3) cash ratio, 4) current ratio, 5) collection period, 6) inventory turnover, 7) total asset turnover and 8) total equity to total asset. Besides, return on invested capital results from the cement company will be compared to the weighted average cost of capital to measure whether cement companies are profitable enough in the cement industry. The result from the financial ratio analysis from 2015-2019 is; PT. Semen Baturaja (AA, A, BBB, BBB, BBB); PT. Semen Indonesia (AA, AA, A, A, A); PT. Indocement Tunggul Prakarsa (AA, AA, A, BBB, A) and PT. Solusi Bangun Indonesia (BBB, BB, BB, BBB, A), respectively. The return on invested capital of cement companies from 2015-2019 is: PT. Semen Baturaja (10,81%; 10,75%; 10,19%; 10,42%; and 10,40%); PT. Semen Indonesia (14,77%; 11,29%; 6,53%; 9,00%; and 7,45%); PT. Indocement Tunggul Prakarsa (15,89%; 10,46%; 5,75%; 3,48% and 6,19%) and PT. Solusi Bangun Indonesia (1,70%; 0,95%; 1,06%; 0,20%; 5,97%). Overall the ROIC of cement companies was below companies WACC. The result from the Altman z-score assessment from 2015-2019 is; PT. Semen Baturaja (safe zone in 2015-2018 and grey zone in 2019); PT. Semen Indonesia (safe zone in 2015-2018 and grey zone in 2019); PT. Indocement Tunggul Prakarsa (safe zone in 2015-2019); and PT. Solusi Bangun Indonesia (distress zone in 2015-2019). This study would give strong insight for manager in cement industry about the financial performance. Therefore, the managers should make decision to improve profitability and efficiency in cost structure during oversupply condition.

Keywords: Financial Performance, Financial Ratios, Bankruptcy, Cement Industry.

INTRODUCTION

The government has announced, beginning in 2014, since Mr Joko Widodo was appointed as president of Republic Indonesia, that infrastructure construction is one of its critical programs to boost the Indonesian economy (Kurlantzick, 2014). The government has provided much money for infrastructure projects in the government budget to facilitate this. According to State Budget, the funds available for infrastructure from 2015 until 2019 are rose annually from IDR 290 Trillion in 2015 to IDR 415 Trillion in 2019 (Kemenkeu.go.id, 2020). As the building block of infrastructure construction, cement industries will be directly affected, which will require cement industries to keep growing. However, due to the intense competition and the increasing number of new players in the industry, the growth in cement demand is not in line with the industry's production capacity, which causes an oversupply condition (indonesia-investments.com). As a result, as shown in figure 1, PT. Solusi Bangun Indonesia, as one of the players in the cement industry, record a loss in net profit from 2016 to 2018 while the other company, PT. Semen Indonesia, PT. Semen Baturaja and PT. Indocement Tunggul Prakarsa experienced a deteriorating trend in net profit. Due to this occurrence, analyzing its performance by analyzing its financial performance through the data in the audited financial statement will provide more insight into this industry. Besides, the prediction of bankruptcy possibilities by using the Altman z-score model will give another insight.

Figure 1 Net Profit of Cement Companies in Indonesia 2015-2019



Source: Author Analysis, 2020

One of the most effective tools to measure the company's financial performance is by using financial ratio analysis. Previous research about financial performance has been discussed in many sectors, such as steel, banking, coal, and construction. (Yet Mears, 1966) claimed that financial ratios cannot forecast bankruptcy in an absolute way and that their usefulness is given by the power to signal the company's health issue and their possible causes. (Riyanto, 1995) In general; financial ratios can be grouped into profitability ratio, liquidity ratio, activity ratio, and solvency ratio. (Washington, 2001) stated that research on the ability of financial models to provide early warning of corporate failure is favourable. It is possible to use financial ratio analysis in two separate but equally useful ways. Ratio analysis can be used to analyze the company's present results in its history to help identify future concerns that can be avoided. Furthermore, ratio analysis will help businesses align their output with their competitors in the same industry.

Therefore, this study focuses on four cement companies in Indonesia, namely, PT. Semen Indonesia, PT. Semen Baturaja, PT. Indocement Tunggul Prakarsa, and PT. Solusi Bangun Indonesia. It analyzed the company's financial performance from 2015 to 2019, validated by SOEs Ministerial Decree No.KEP-100/MBU/2002 about a financial health condition will be the main topic discussed. Besides, examining the possibility of experiencing bankruptcy by using the Altman z-score model would be carried out and compare the return on the company's invested capital result to its weighted average cost of capital to determine whether the company is profitable enough. Hence, the research problem can be determined: 1) How healthy the four cement companies' financial performance during the period 2015-2019 by using SOEs Ministerial Decree No.KEP-100/MBU/2002? 2) What is the level of profitability of four cement companies during 2015-2019? 3) What is the Altman z-score assessment of four cement companies during the period 2015-2019. This study would benefit both students and lecturers because it gave more insight and extended the knowledge about financial ratio analysis in the real world. Besides, this study research would be necessary for the manager because it will give further insight into how to see the company based on its financial performance and help them decide to improve the current situation.

LITERATURE REVIEW

Previous Research on Financial Performance

There are many empirical studies on financial ratios in various industries (Webb, 2003). Ratio analysis can determine the company's performance in the short and long term (Bloomenthal, 2020). (Magaladevi, 2015) states that financial ratios are an appropriate evaluation method for measuring the financial performance of a company. (Nafisah and Daryanto, 2020) have conducted research to determine the relationship between financial performance and stock prices in the coal mining industry. The result is the ratio of profitability using net profit margin, gross profit margin, return on equity, and return on assets have an effect on stock prices. Liquidity ratios using cash ratios, quick ratios, and current ratios also have an effect on stock prices. (Wiyono and Daryanto, 2020) conducted a study to analyze and evaluate PT. Pelindo's financial performance before and after the sea toll program. As a result, the profitability ratio, liquidity ratio, and total asset turnover decreased after the sea toll program. There have been many previous studies on financial ratio analysis in various industries (Daryanto, 2017; Daryanto, 2018; Okiviantoro, Naufal & Daryanto 2020), including the aviation, oil and steel industries. However, few industry studies include the z-score method.

METHODOLOGY

This research method uses quantitative descriptive method using financial ratio analysis as stated in the Decree of the Minister of BUMN No. KEP-100 / MBU / 2002 to measure the company's financial health condition. Financial ratio analysis is used to measure and analyze the financial health condition of PT. Semen Baturaja, PT. Semen Indonesia, PT. Indocement Tunggul Prakarsa, and PT. Solutions to Build Indonesia. In addition, the return on capital invested by each company is compared with the weighted average cost of capital to measure whether the cement company is profitable enough in the cement industry. The Altman z-score model was used to predict the likelihood of bankruptcy. This research study uses secondary data obtained from annual reports and

audits of each company's financial statements from their websites. After all the required data are obtained, the data will be processed, calculated and analyzed into financial ratios.

The calculation of financial ratios analysis in this study is based on the formula obtained from SOEs Ministerial Decree No.KEP-100/MBU/2002. The regulation consists of eight financial ratios, namely return on equity, return on investment, current ratio, cash ratio, collection period, inventory turnover, total asset turnover, and total equity to a total asset. PT. Semen Baturaja, PT. Semen Indonesia, PT. Indocement Tunggak Prakarsa, and PT. Solusi Bangun Indonesia is a Non-Infrastructure company. Based on SOEs Ministerial Decree No.KEP-100/MBU/2002 Non-Infrastructure company has a value of 70. Companies will be assessed based on its financial ratios and their standard. After that, the sum of the financial ratios will be divided to get the standard value. The result then will be grouped into level health of a company based on SOEs Ministerial Decree No.KEP-100/MBU/2002.

Table 1 Weighted Score and Indicator of Non-Infrastructure Company

No	Indicator	Score	
		Infra	Non Infra
1	ROE	15	20
2	ROI	10	15
3	Cash Ratio	3	5
4	Current Ratio	4	5
5	Collection Periods	4	5
6	Inventory Turnover	4	5
7	Total Asset Turnover	4	5
8	Total Equity to Total Asset	6	10
Total Score		50	70

Source: The Decree of Ministry of SOEs No. KEP-100/MBU/2002

Table 2 Company health level categories based on Kep-100/MBU/2002

Status	Rating	Total Score
Healthy	AAA	Total Score > 95
	AA	80 < Total Score <= 95
	A	65 < Total Score <= 80
Less Healthy	BBB	50 < Total Score <= 65
	BB	40 < Total Score <= 50
	B	30 < Total Score <= 40
Unhealthy	CCC	20 < Total Score <= 30
	CC	10 < Total Score <= 20
	C	Total Score <= 10

Source: The Decree of Ministry of SOEs No. KEP-100/MBU/2002

Profitability ratio

Profitability ratios is the most common ratios used for financial ratio analysis. This ratio is measured the general financial health of the company (Bodie, Kane, Marcus, 1996).

Return on Equity

Return on equity is used to measure the company ability to generate revenue based on funds invested by shareholder (Anthony et al, 2011). The higher the ratio means that company can generate shareholder value.

$$\text{Return on Equity (ROE)} = (\text{Net Income} / \text{Shareholder Equity}) \times 100\%$$

Return on Investment

Return on Investment used to calculate the return earned relative to its investment cost or original cost. The higher the ratio indicated that the company can generate shareholder value.

$$\text{Return on Investment (ROI)} = \frac{\text{(EBIT+Depreciation)} / \text{Capital Employed} \times 100\%}{}$$

Table 3 List of ROE and ROI Assessment Score

No	ROE (%)	Score	ROI (%)	Score
1	15 < ROE	20	18 < ROI	15
2	13 < ROE <=15	18	15 < ROI <= 18	13,5
3	11 < ROE <=13	16	13 < ROI <=15	12
4	9 < ROE <= 11	14	12 < ROI <= 13	10,5
5	7,9 < ROE <= 9	12	10,5 < ROI <=12	9
6	6,6 < ROE <= 7,9	10	9 < ROI <= 10,5	7,5
7	5,3 < ROE <= 6,6	8,5	7 < ROI <= 9	6
8	4 < ROE <= 5,3	7	5 < ROI <= 7	5
9	2,5 < ROE <= 4	5,5	3 < ROI <= 5	4
10	1 < ROE <= 2,5	4	1 < ROI <= 3	3
11	0 < ROE <= 1	2	0 < ROI <= 1	2
12	ROE < 0	0	ROI < 0	1

Source: The Decree of Ministry of SOEs No. KEP-100/MBU/2002

Liquidity ratio

Liquidity ratio is one of the ratios that measure company ability to meet its short-term obligations (Anthony et al, 2011).

Current Ratio

Current ratio is the most common balance sheet ratios. This ratio measure company ability to meet its short-term obligations relative to its current asset. The higher the ratio indicates that the company is liquid.

$$\text{Current Ratio} = \frac{\text{(Current Asset/Current Liabilities)} \times 100\%}{}$$

Cash Ratio

Cash ratio is the ratio that measure company ability to meet its short-term obligations with its cash or cash equivalent. The cash ratio under 1 or 100 percent indicates that company had insufficient cash to cover its liabilities.

$$\text{Cash Ratio} = \frac{\text{((Cash+Cash Equivalents)/Current liabilities)} \times 100\%}{}$$

Table 4 List of Current Ratio and Cash Ratio Assessment Score

No	Cash Ratio (%)	Score	Current Ratio (%)	Score
1	Cash Ratio ≥ 35	5	$125 \leq$ Current Ratio	5
2	$25 \leq$ Cash Ratio < 35	4	$110 \leq$ Current Ratio < 125	4
3	$15 \leq$ Cash Ratio < 25	3	$100 \leq$ Current Ratio < 110	3
4	$10 \leq$ Cash Ratio < 15	2	$95 \leq$ Current Ratio < 100	2
5	$5 \leq$ Cash Ratio < 10	1	$90 \leq$ Current Ratio < 95	1
6	$0 \leq$ Cash Ratio < 5	0	Current Ratio < 90	0

Source: The Decree of Ministry of SOEs No. KEP-100/MBU/2002

Activity ratio

Activity ratio is the ratio used to calculate how effective a company leverages its assets to generate revenue.

Collection Period

Collection period is the ratio used to measure the average time company needed to each of account receivable result from customer. The lower the ratio means that company relatively have short time receive a payment.

$$\text{Collection Period} = \frac{\text{Total Account Receivable}}{\text{Total Revenue}} \times 365$$

Inventory Turnover

Inventory turnover is the ratio to measure the effectiveness of the management to turn inventory in a period. Inventory turnover shows the flow of at which goods pass through the company (Anthony et al, 2011).

$$\text{Inventory Turnover} = \frac{\text{Total Inventories}}{\text{Total Revenue}} \times 365$$

Total Asset Turnover

Total asset turnover is the ratio to measure company ability to generate revenue from their asset. The higher the ratio indicates that company used its asset effectively while low ratio indicates that the company have a management or production problems.

$$\text{Total Asset Turnover} = \frac{\text{Total Revenue}}{\text{Capital Employed}} \times 100\%$$

Table 5 List of Collection Period and Inventory Turnover Assessment Score

No	Collection	Adjusment	Score	Inventory	Adjusment	Score
1	$x \leq 60$	$x > 35$	5	$x \leq 60$	$x > 35$	5
2	$60 < x \leq 90$	$30 < x \leq 35$	4,5	$60 < x \leq 90$	$30 < x \leq 35$	4,5
3	$90 < x \leq 120$	$25 < x \leq 30$	4	$90 < x \leq 120$	$25 < x \leq 30$	4
4	$120 < x \leq 150$	$20 < x \leq 25$	3,5	$120 < x \leq 150$	$20 < x \leq 25$	3,5
5	$150 < x \leq 180$	$15 < x \leq 20$	3	$150 < x \leq 180$	$15 < x \leq 20$	3
6	$180 < x \leq 210$	$10 < x \leq 15$	2,4	$180 < x \leq 210$	$10 < x \leq 15$	2,4
7	$210 < x \leq 240$	$6 < x \leq 10$	1,8	$210 < x \leq 240$	$6 < x \leq 10$	1,8
8	$240 < x \leq 270$	$3 < x \leq 6$	1,2	$240 < x \leq 270$	$3 < x \leq 6$	1,2
9	$270 < x \leq 300$	$1 < x \leq 3$	0,6	$270 < x \leq 300$	$1 < x \leq 3$	0,6
10	$300 < x$	$0 < x \leq 1$	0	$300 < x$	$0 < x \leq 1$	0

Source: The Decree of Ministry of SOEs No. KEP-100/MBU/2002

Table 6 List of Total Asset Turnover Assessment Score

No	TATO (%)	Adjusment = x (%)	Score
1	$TATO > 120$	$20 < TATO$	5
2	$105 < TATO \leq 120$	$15 < TATO \leq 20$	4,5
3	$90 < TATO \leq 105$	$10 < TATO \leq 15$	4
4	$75 < TATO \leq 90$	$5 < TATO \leq 10$	3,5
5	$60 < TATO \leq 75$	$0 < TATO \leq 5$	3
6	$40 < TATO \leq 60$	$TATO \leq 0$	2,5
7	$20 < TATO \leq 40$	$TATO < 0$	2
8	$TATO \leq 20$	$TATO < 0$	1,5

Source: The Decree of Ministry of SOEs No. KEP-100/MBU/2002

Solvency ratio

Solvency ratio is one of the ratios that measure company ability to meet its long-term debt-related interest cost (Anthony et al, 2011).

Total Equity to Total Asset

Total equity to total asset is one of the ratios that shows the scale of capital funded by shareholder equity to acquire it assets. The higher the ratio indicates that the proportion of equity relatively higher than debt in the term of funding its assets.

$$\text{Total Equity to Total Asset Ratio} = \left(\frac{\text{Total Equity}}{\text{Total Asset}} \right) \times 100\%$$

Table 7 List of Total Equity to Total Asset Assessment Score

No	Total Equity to Total Asset (TETA) (%)	Score
1	TETA < 0	0
2	0 <= TETA < 10	4
3	10 <= TETA < 20	6
4	20 <= TETA < 30	7,25
5	30 <= TETA < 40	10
6	40 <= TETA < 50	9
7	50 <= TETA < 60	8,5
8	60 <= TETA < 70	8
9	70 <= TETA < 80	7,5
10	80 <= TETA < 90	7
11	90 <= TETA < 100	6,5

Source: The Decree of Ministry of SOEs No. KEP-100/MBU/2002

Level of profitability

There are several methods for determining whether a company's business is profitable. One of them is the use of the profitability ratio. One of the ratios that are used is the return on invested capital. Return on invested capital is an essential measure of the efficiency of earnings and represents the management's ability to generate and sustain shareholder value. Measurement of profitability used return on invested capital is also one of the indicators to present the company's competitive advantage (Tang and Liou, 2010). If the return on invested capital higher than the weighted cost of capital, the company creates value; the opposite is true when the return on invested capital is lower than the weighted cost of capital (Hawawini et al., 2002). The comparison between return on invested capital to the weighted average cost of capital measured whether the company used the capital investment effectively.

Return on invested capital

Return on invested capital is ratio to measure the company ability to utilize its invested capital from shareholder and investor to generate profit.

$$\text{Return on Invested Capital} = (\text{NOPAT}/\text{Invested Capital}) \times 100\%$$

Weighted cost of capital

Weighted cost of capital is the measurement of the weighted average of the company sources from financing including debt and equity.

$$\text{WACC} = ((E/V) \cdot Re) + (D/V) \cdot Rd \cdot (1 - Tc)$$

Where;

E: Market value of equity

D: Market value of debt

Re: Cost of equity

Rd: Cost of debt

V: Total market value of the firm financing

E/V: Percentage of financing that is equity

D/V: Percentage of financing that is debt

Tc: Corporate tax rate

Altman z-score model

Altman z-score model is one of the financial models to forecast the possibility of the firm experiencing bankruptcy. Bankruptcy is a condition when the company unable to fulfilled obligations or debt due to insufficient fund to run the business (Brigham and Ehrhardt, 2005). This model created by Edward Altman in 1968 and using various value from balance sheet and income statement.

$$Z = 1,2X1 + 1,4X2 + 3,3X3 + 0,6X4 + 1,0X5$$

Where;

Z = Altman's Z Score

X1 = Working Capital/Total Assets

X2 = Retained Earnings/Total Assets

X3 = Earnings Before Interest and Taxes/Total Assets

X4 = Market Value of Total Equity/Book Value of Total Liabilities

X5 = Sales/Total Assets

RESULTS AND ANALYSIS

Profitability analysis

Return on equity in table 8 shows the profitability performance of PT. Semen Baturaja, PT. Semen Indonesia, PT. Indocement Tunggul Prakarsa and PT. Solusi Bangun Indonesia. The minimum standard of ROE based on the decree is 15 per cent. PT. Semen Baturaja and PT. Solusi Bangun Indonesia was below standard from 2015 to 2019. On the other hand, PT. Semen Indonesia and PT. Indocement Tunggul Prakarsa were below standard from 2016 to 2019. Overall, the profitability performance of cement companies shows a declining trend. It indicates that the profitability of cement companies decreasing every year. The decrease in cement price resulted in the lower margin, an increase in coal price was one of the factors that affected their profitability. PT. Solusi Bangun Indonesia has a bad performance compare to others based on their return on equity ratio that experiencing negative from 2016 to 2018. It shows that PT. Solusi Bangun Indonesia cannot generate positive net income in that year or suffer from losses.

Table 8 Return on Equity

No	Profitability Ratio	2015	2016	2017	2018	2019
ROE						
1	Semen Baturaja	12%	8,30%	4,31%	2,19%	0,86%
2	Semen Indonesia	16,49%	14,83%	6,71%	9,43%	7%
3	Indocement Tunggul Prakarsa	18,26%	14,81%	7,57%	4,93%	7,95%
4	Solusi Bangun Indonesia	2,07%	-3,53%	-10,53%	-12,91%	7,15%

Source: (Annual Reports Cement Companies 2015-2019)

Return on investment in table 9 shows the profitability performance of PT. Semen Baturaja, PT. Semen Indonesia, PT. Indocement Tunggul Prakarsa and PT. Solusi Bangun Indonesia. The minimum standard of ROI based on the decree is 18 per cent. The trend of return on investment quite similar to the trend of return on equity. However, PT. Solusi Bangun Indonesia's return on investment ratio has a different result from its return on equity which can see from 2016 to 2018 when the return on equity is minus, the return on investment still positive. Furthermore, PT. Semen Baturaja and PT. Solusi Bangun Indonesia ROI is below standard for five years. Meanwhile, PT. Indocement Tunggul Prakarsa was below standard from 2016 to 2019 and PT. Semen Indonesia was below standard from 2017 to 2019.

Table 9 Return on Investment

No	Profitability Ratio	2015	2016	2017	2018	2019
ROI						
1	Semen Baturaja	13,74%	10,28%	7,77%	8,44%	7,98%
2	Semen Indonesia	23,69%	19,30%	13,40%	15,19%	12,74%
3	Indocement Tunggul Prakarsa	24,09%	17,24%	12,07%	9,92%	13,11%
4	Solusi Bangun Indonesia	9,37%	9,36%	8,73%	12,13%	10,67%

Source: (Annual Reports Cement Companies 2015-2019)

Liquidity analysis

The cash ratio is one of the ratios that represent the liquidity of the company. The ratio will represent the ability of the company to meet its short-term obligations with its cash. Table 10 shows PT. Indocement Tunggul Prakarsa has the best cash ratio, followed by PT. Semen Baturaja, PT. Semen Indonesia and PT. Solusi Bangun Indonesia. From the result, we can conclude that PT. Indocement Tunggul Prakarsa has massive cash because of their cash ratio above 100% from 2015 to 2019. On the other hand, PT. Semen Baturaja and PT. Semen Indonesia cash ratio is good enough because it still above 30%. However, PT. Solusi Bangun Indonesia has a liquidity problem because their cash ratio is below 30%. Overall, PT. Semen Baturaja, PT. Indocement Tunggul Prakarsa, and PT. Semen Indonesia does not have a liquidity problem during PT. Solusi Bangun Indonesia may face a struggle to fulfil their short-term obligations due to low cash ratio.

Table 10 Cash Ratio

No	Liquidity Ratio	2015	2016	2017	2018	2019
Cash Ratio						
1	Semen Baturaja	488,67%	115,41%	72,70%	73,24%	39,58%
2	Semen Indonesia	60,07%	34,76%	41,32%	63,95%	32,27%
3	Indocement Tunggul Prakarsa	322,02%	303,45%	238,43%	184,05%	197,57%
4	Solusi Bangun Indonesia	15,92%	6,10%	10,31%	3,46%	13,05%

Source: (Annual Reports Cement Companies 2015-2019)

The current ratio of the cement companies shows the fluctuation trend from 2015 to 2019. Table 11 shows that PT. Semen Baturaja, PT. Semen Indonesia, PT. Indocement Tunggul Prakarsa does not have any liquidity problem as their current ratio is above 100%. However, PT. Solusi Bangun Indonesia's current ratio is below 100% from 2015 to 2018 and indicates a liquidity problem. Furthermore, PT. Solusi Bangun Indonesia can improve its current ratio above 100% in 2019 because it can decrease its current debt.

Table 11 Current Ratio

No	Liquidity Ratio	2015	2016	2017	2018	2019
Current Ratio						
1	Semen Baturaja	757,42%	286,99%	168,01%	213,52%	228,57%
2	Semen Indonesia	159,71%	127,24%	156,77%	195,15%	136,10%
3	Indocement Tunggul Prakarsa	488,62%	452,48%	370,31%	313,70%	331,24%
4	Solusi Bangun Indonesia	64,44%	45,94%	54,35%	26,67%	108,20%

Source: (Annual Reports Cement Companies 2015-2019)

Activity analysis

The collection period is the ratio that represents the ability of cement companies to collect payment from their customer. The lower the ratio, the better for the company. Table 12 shows the collection period ratio for cement companies from 2015 to 2019. PT. Solusi Bangun Indonesia has the best collection period, following by PT. Semen Indonesia, PT. Indocement Tunggul Prakarsa and PT. Semen Baturaja. From 2015 to 2016, PT. Semen Baturaja collection period surge from 9 days to 51 days due to increase in their account receivable did not follow with the increase of their revenue. Overall, the collection period of cement companies increases indicates that they can generate higher sales but mostly in terms of credit rather than cash.

Table 12 Collection Period

No	Activity Ratio	2015	2016	2017	2018	2019
Collection Period						
1	Semen Baturaja	9,74	51,05	95,95	89,42	87,6
2	Semen Indonesia	48	53,6	64,12	68,82	58,68
3	Indocement Tunggul Prakarsa	51,99	61,89	62,85	71,26	68,33
4	Solusi Bangun Indonesia	42,27	40,17	47	35,91	44,92

Source: (Annual Reports Cement Companies 2015-2019)

Inventory turnover is the ratio to measure the company able to sell its inventory in the given period. Table 13 shows the inventory turnover of cement companies from 2015 to 2019. PT. Solusi Bangun Indonesia has the best ratio, followed by PT. Semen Indonesia, PT. Indocement Tunggul Prakarsa and PT. Semen Baturaja. Overall, cement companies' inventory turnover ratio is increase indicates that cement companies can generate higher production over the years. Furthermore, an increase in its production should follow an increase in sales too.

Table 13 Inventory Turnover

No	Activity Ratio	2015	2016	2017	2018	2019
Inventory Turnover						
1	Semen Baturaja	46,67	41,7	47,74	53,23	62,23
2	Semen Indonesia	32,63	37,3	48,37	42,15	41,97
3	Indocement Tunggul Prakarsa	33	42,29	44,74	44,16	43,4
4	Solusi Bangun Indonesia	21,85	21,46	34,27	33,87	36,4

Source: (Annual Reports Cement Companies 2015-2019)

Total asset turnover is the ratio to measure its ability to utilize its asset to generate revenue. Table 14 shows the total asset turnover ratio from cement companies from 2015 to 2019. Overall, PT. Semen Indonesia, PT. Indocement Tunggul Prakarsa and PT. Solusi Bangun Indonesia has managed its asset well. PT. Semen Baturaja's ratio is below 50 per cent. It indicates that the company did not use its asset effectively. Furthermore, PT. Semen Baturaja should utilize their asset more efficiently to generate higher revenue in the future.

Table 14 Total Asset Turnover

No	Activity Ratio	2015	2016	2017	2018	2019
Total Asset Turnover						
1	Semen Baturaja	48,49%	37,36%	35,35%	40,72%	39,20%
2	Semen Indonesia	85,40%	72,44%	69,08%	71,45%	59,75%
3	Indocement Tunggul Prakarsa	71,33%	56,97%	56,85%	63,66%	66,87%
4	Solusi Bangun Indonesia	69,39%	65,44%	65,88%	116,25%	66,60%

Source: (Annual Reports Cement Companies 2015-2019)

Solvency analysis

Total equity to the total asset is one of the ratios to measure solvency performance. Table 15 shows the total equity to the total asset of cement companies from 2015 to 2019. Overall, PT. Semen Baturaja, PT. Semen Indonesia, PT. Indocement Tunggul Prakarsa uses more equity to acquire its asset. Meanwhile, PT. Solusi Bangun Indonesia use more debt to acquire its asset. Furthermore, PT. Solusi Bangun Indonesia should decrease their debt because if they use more leverage to acquire an asset while its profitability is not increasing, their risk to face an insolvency condition will be greater.

Table 15 Total Equity to Total Asset

No	Solvency Ratio	2015	2016	2017	2018	2019
Total Equity to Total Asset						
1	Semen Baturaja	90,21%	71,44%	67,45%	62,73%	62,50%
2	Semen Indonesia	71,92%	69,13%	62,03%	63,99%	42,47%
3	Indocement Tunggul Prakarsa	86,35%	86,69%	85,08%	83,57%	83,30%
4	Solusi Bangun Indonesia	48,78%	40,79%	36,67%	34,37%	35,69%

Source: (Annual Reports Cement Companies 2015-2019)

Health assessment

Decree No.KEP-100/MBU/2002. The total score and weight are determined from the value of the eight financial ratios above. Table 10-14 shows the health assessment of PT. Semen Baturaja, PT. Semen Indonesia, PT. Indocement Tunggul Prakarsa and PT. Solusi Bangun Indonesia. From the result, it shows that PT. Semen Baturaja Tbk was categorized as a healthy company from 2015-2016 and less healthy in 2017-2019 with ratings (AA, A, BBB, BBB, BBB). PT. Semen Indonesia Tbk was categorized as a healthy company from 2015-2019 with ratings (AA, AA, A, A, A). PT. Indocement Tunggul Prakarsa Tbk was categorized as a healthy company from 2015-2019 except in 2018 categorized as less healthy with ratings (AA, AA, A, BBB, A). PT. Solusi Bangun

Indonesia was categorized as a less healthy company from 2015-2018 and healthy in 2019 with ratings (BBB, BB, BB, BBB, A). Overall, based on this assessment, cement companies' financial performance is right even though their value decreases over the year.

Table 16 Health Assessment of PT. Semen Baturaja

PT. Semen Baturaja										
Indicators	2015		2016		2017		2018		2019	
	Ratio	Score	Ratio	Score	Ratio	Score	Ratio	Score	Ratio	Score
ROE (%)	12,00	16	8,30	12	4,31	7	2,19	4	0,86	2
ROI (%)	13,74	12	10,28	7,5	7,77	6	8,44	6	7,98	6
Cash Ratio (%)	488,67	5	115,41	5	72,70	5	73,24	5	39,58	5
Current Ratio (%)	757,42	5	286,99	5	168,01	5	213,52	5	228,57	5
Collection Period (Days)	9,74	5	51,05	5	95,95	4	89,42	4,5	87,60	4,5
Inv. Turnover (Days)	46,67	5	41,7	5	47,74	5	53,23	5	62,23	4,5
Total Asset Turnover (%)	48,49	2,5	37,36	2	35,35	2	40,72	3,5	39,20	2
Total Equity to Total Asset (%)	90,21	6,5	71,44	7,5	67,45	8	62,73	8	62,50	8
Total Score	57		49		42		41		37	
Total Weight	81,43%		70,00%		60,00%		58,57%		52,86	
Healthy Level	AA (Healthy)		A (Healthy)		BBB (Less Healthy)		BBB (Less Healthy)		BBB (Less Healthy)	

Table 17 Health Assessment of PT. Semen Indonesia

PT. Semen Indonesia										
Indicators	2015		2016		2017		2018		2019	
	Ratio	Score	Ratio	Score	Ratio	Score	Ratio	Score	Ratio	Score
ROE (%)	16,49	20	14,83	18	6,71	10	9,43	14	7,00	10
ROI (%)	23,69	15	19,30	15	13,40	12	15,45	13,5	12,87	10,5
Cash Ratio (%)	60,07	5	34,76	4	41,32	5	63,95	5	32,27	4
Current Ratio (%)	159,71	5	127,24	5	156,77	5	195,15	5	136,10	5
Collection Period (Days)	48,00	5	53,6	5	64,12	4,5	68,82	4,5	58,68	5
Inv. Turnover (Days)	3	5	37,3	5	48,37	5	42,15	5	41,97	5
Total Asset Turnover (%)	85,4	3,5	72,44	3	69,08	3	71,45	3	59,75	2,5
Total Equity to Total Asset (%)	71,92	7,5	69,13	8	62,03	8	63,99	8	42,47	9
Total Score	66		63		52,5		58		51	
Total Weight	94,29%		90,00%		75,00%		82,86%		72,86%	
Healthy Level	AA (Healthy)		AA (Healthy)		A (Healthy)		A (Healthy)		A (Healthy)	

Source: (Author Analysis, 2020)

Table 18 Health Assessment of PT. Indocement Tunggal Prakarsa

PT. Indocement Tunggal Prakarsa										
Indicators	2015		2016		2017		2018		2019	
	Ratio	Score	Ratio	Score	Ratio	Score	Ratio	Score	Ratio	Score
ROE (%)	18,26	20	14,81	18	7,57	10	4,93	7	7,95	12
ROI (%)	24,09	15	17,24	15	12,07	10,5	9,92	7,5	13,11	12
Cash Ratio (%)	322,02	5	303,45	5	238,43	5	184,05	5	197,57	5
Current Ratio (%)	488,62	5	452,48	5	370,31	5	313,7	5	331,24	5
Collection Period (Days)	51,99	5	61,89	4,5	62,85	4,5	71,26	4,5	68,33	4,5
Inv. Turnover (Days)	33,00	5	42,49	5	44,74	5	44,16	5	43,40	5
Total Asset Turnover (%)	71,33	3	56,97	2,5	56,85	2,5	63,66	3,5	66,87	3
Total Equity to Total Asset (%)	86,35	7	86,69	7	85,08	7	83,57	7	83,30	7
Total Score	65		62		49,5		44,5		53,5	
Total Weight	92,86%		88,57%		70,71%		63,57%		76,43%	
Healthy Level	AA (Healthy)		AA (Healthy)		A (Healthy)		BBB (Less Healthy)		A (Healthy)	

Source: (Author Analysis, 2020)

Table 19 Health Assessment of PT. Solusi Bangun Indonesia

PT. Solusi Bangun Indonesia										
Indicators	2015		2016		2017		2018		2019	
	Ratio	Score	Ratio	Score	Ratio	Score	Ratio	Score	Ratio	Score
ROE (%)	2,07	4	-3,53	0	-10,53	0	-12,91	0	7,15	10
ROI (%)	9,33	7,5	9,36	7,5	8,73	6	12,13	10,5	10,67	9
Cash Ratio (%)	16,12	3	6,1	1	10,31	2	3,46	0	13,05	2
Current Ratio (%)	65,25	0	45,94	0	54,35	0	26,67	0	108,2	3
Collection Period (Days)	42,27	5	40,17	5	47,00	5	35,91	5	44,92	5
Inv. Turnover (Days)	21,85	5	21,46	5	34,27	5	33,87	5	36,40	5
Total Asset Turnover (%)	69,13	3	65,44	3	65,88	3	116,25	5	66,6	3
Total Equity to Total Asset (%)	48,78	9	40,79	9	36,67	10	34,37	10	35,69	10
Total Score	36,5		30,5		31		35,5		47	
Total Weight	52,14%		43,57%		44,29%		50,71%		67,14%	
Healthy Level	BBB (Less Healthy)		BB (Less Healthy)		BB (Less Healthy)		BBB (Less Healthy)		A (Healthy)	

Source: (Author Analysis, 2020)

Level of profitability assessment

The comparison of the return on invested capital to the weighted average cost of capital reveals whether the company is profitable enough and is using its capital investment effectively. Table 20 shows that the ROIC of cement companies has decreased from year to year. Overall, the return on capital invested by cement companies is below the weighted average cost of capital, which indicates that cement companies are not profitable enough, and they cannot provide value to their investors. In addition, the oversupply condition continued with a decline in the profitability of cement companies due to lower cement prices and lower margins.

Table 20 Return on Invested Capital and Weighted Average Cost of Capital

Year	Semen Baturaja		Semen Indonesia		Indocement Tunggal Prakarsa		Solusi Bangun Indonesia	
	WACC	ROIC	WACC	ROIC	WACC	ROIC	WACC	ROIC
2015	10,81%	8,21%	11,31%	14,77%	11,28%	15,89%	8,35%	1,70%
2016	10,75%	6,54%	9,82%	11,29%	10,46%	10,46%	7,17%	0,95%
2017	10,19%	3,32%	8,69%	6,53%	9,49%	5,75%	6,36%	1,06%
2018	10,42%	3,87%	10,26%	9,00%	10,95%	3,48%	7,78%	0,20%
2019	10,40%	3,53%	9,38%	7,45%	10,51%	6,19%	7,43%	5,97%

Source: (Author Analysis, 2020)

Altman z-score assessment

Evaluation of the company's health assessment based on SOEs Ministerial Altman z-score assessment is one measurement to predict the possibility of the company experiencing bankruptcy. Table 21 shows the result of the Altman z-score assessment of cement companies from 2015 to 2019. PT. Indocement Tunggal Prakarsa was categorized as a safe zone from 2015 to 2019. PT. Semen Indonesia and PT. Semen Baturaja was categorized in the safe zone from 2015 to 2018, while in 2019, both companies were categorized in the grey zone. However, Solusi Bangun Indonesia is categorized as a distress zone and have a possibility to experience bankruptcy in the future. Furthermore, Solusi Bangun Indonesia should improve its financial condition shortly to avoid insolvency.

Table 21 Altman Z-Score Assessment

No	Company	2015		2016		2017		2018		2019	
		Z-score	Zone	Z-score	Zone	Z-score	Zone	Z-score	Zone	Z-score	Zone
1	Semen Baturaja	7,19	Safe	14,31	Safe	14,62	Safe	6,04	Safe	2,20	Grey
2	Semen Indonesia	6,01	Safe	4,27	Safe	3,58	Safe	4,14	Safe	2,32	Grey
3	Indocement Tunggal Prakarsa	16,35	Safe	10,85	Safe	13,35	Safe	10,91	Safe	11,22	Safe
4	Solusi Bangun Indonesia	1,19	Distress	0,82	Distress	0,75	Distress	0,83	Distress	1,27	Distress

Source: (Author Analysis, 2020)

LIMITATION

The limitation of this study research was only using secondary data. This study in analyzing the companies' financial performance in the cement industry uses SOEs Ministerial Decree No.KEP-100/MBU/2002 about financial health level. Furthermore, the study only compared the return on the company's invested capital result with the company's weighted cost of capital to find out whether the company is profitable enough in the industry and only using the Altman z-score model as a method for predicting the possibility of bankruptcy. Besides, this study also focused on the financial aspect only.

CONCLUSION AND RECOMMENDATION

Conclusion

Based on the calculation and evaluation of financial ratio analysis, health level assessment, level of profitability assessment and Altman z-score assessment of the cement companies during oversupply condition period 2015-2019, it is concluded that:

1. Cement companies' financial performance during oversupply condition on 2015-2019 based on the eight financial ratio measurement of the SOEs Ministerial Decree No.KEP-100/MBU/2002 mostly are good even though there is a slight decrease in financial ratio values in general. PT. Semen Baturaja Tbk was categorized as a healthy company from 2015-2016 and less healthy in 2017-2019 with ratings (AA, A, BBB, BBB, BBB). PT. Semen Indonesia Tbk was categorized as a healthy company from 2015-2019 with ratings (AA, AA, A, A, A). PT. Indocement Tunggul Prakarsa Tbk was categorized as a healthy company from 2015-2019 except in 2018 categorized as less healthy with ratings (AA, AA, A, BBB, A). PT. Solusi Bangun Indonesia was categorized as a less healthy company from 2015-2018 and healthy in 2019 with ratings (BBB, BB, BB, BBB, A).
2. The return of invested capital from the cement companies is lower than their weighted average cost of capital during oversupply condition from 2015 to 2019. It indicates that the company is not profitable enough in the industry and cannot effectively use the invested capital during the oversupply condition. Besides, the company cannot create value for its shareholder and investor.
3. The Altman z-score assessment of cement companies from 2015 to 2019 shows the result as follow: PT. Semen Baturaja Tbk was categorized in a safe zone from 2015-2018 and grey zone in 2019. It indicates that PT. Semen Baturaja Tbk has a low possibility of experiencing bankruptcy. PT. Semen Indonesia Tbk was categorized in a safe zone from 2015-2018 and grey zone in 2019. It indicates that PT. Semen Indonesia Tbk has a low possibility of experiencing bankruptcy. PT. Indocement Tunggul Prakarsa Tbk was categorized in a safe zone from 2015-2019, and it indicates that the company have a low possibility of experiencing bankruptcy. PT. Solusi Bangun Indonesia was categorized in the distress zone from 2015-2019, and it indicates that the company have a possibility of experiencing bankruptcy shortly. Furthermore, oversupply condition during 2015-2019 resulted in deteriorating on the financial condition of cement companies which are seen on the decrease in their Altman z-score assessment

Recommendation

1. PT. Semen Baturaja: According to the Semen Baturaja financial ratio result, it shows that the company management has managed the company well. However, from the analysis that has been done, the company's financial performance tends to decline. The company still fights the tight competition in the domestic market, making its profitability performance deteriorated. Therefore, the company should expand its market share targeting outside South Sumatera as its current focus market share. The company should focus on the market that generates a higher margin. The company should implement cost efficiency in order to sustain during oversupply condition. Hopefully, by making several recommendations above, Semen Baturaja can improve its profitability to avoid financial distress conditions or even bankruptcy as reflected in their Altman Z-Score, which above the distress zone.
2. PT. Semen Indonesia: According to the Semen Indonesia financial ratio, it shows that the company relative has excellent financial performance compared to its competitor. However, the problem is Semen Indonesia's profitability tends to decline due to tight competition, On the other hand, Semen Indonesia should focus on growing their business in order to expand their market share to international market not only domestic market. The company also can improve their diversification on other building material in order to increase its profitability. Refinancing their debt and operating efficiency can increase its profitability in order to sustain during oversupply condition. Hopefully, by making several recommendations above, Semen Indonesia can improve its profitability to avoid financial distress conditions or even bankruptcy as reflected in its Altman Z-Score, which above the distress zone.
3. PT. Indocement Tunggul Prakarsa: According to the Indocement Tunggul Prakarsa financial ratio result, it shows that the company management has managed the company well. However, the problem is that Indocement Tunggul Prakarsa's profitability tends to decline due to tight competition. Indocement Tunggul Prakarsa should utilize factories that are most efficient in producing activity to reduce production costs. The company needs to focus on growing their business to increase their market share by focusing on distributing on its primary market to improve its profitability so they can avoid financial distress conditions or even bankruptcy as reflected in their Altman Z-Score, which above the distress zone.
4. PT. Solusi Bangun Indonesia: According to the Solusi Bangun Indonesia financial ratio result, it shows that the company is in dangerous condition as shown in their profitability, liquidity, and Altman Z-Score. The company has the possibility

to insolvent and illiquid. Tight competition in the domestic and international market is why its condition that leads them suffered a loss in several years. Solusi Bangun Indonesia should focus on improving its profitability and financial condition. The company should focus on growing its business in order to expand its market share. The company should be improving its capital structure by reducing its debt to avoid insolvency condition. On the other hand, the company should be doing operational efficiency to improve its cost structure. Hopefully, by making several recommendations above, Solusi Bangun Indonesia can improve its financial performance to avoid financial distress conditions or even bankruptcy.

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