ANALYSIS OF INDONESIA CEMENT INDUSTRY IN THE INCREASING OF MARKET COMPETITION

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Abstract: *This study Aimed to capture the competitiveness condition of cement industry in the increasing market competition in Indonesia since 2013, to find strengthen factors of competitiveness based on porter's five force and to forecast trend and competition map of cement industry in the near future.*
The results of competitiveness and attractiveness analyisis in the cement industry showed that the conditions of rivalry among existing competitors in the cement industry is stronger than the others Porter's forces model.

Key Words: *Cement Industry, Competitiveness of cement industry in Indonesia, Porter's Five Force Model.*

1. INTRODUCTION:

In 2013, cement production capacity of Indonesia was 62.795.000 tons / year. Oversupply of cement in Indonesia began since 2013. It happened because of there were construction of a new plant by the existing cement industry players with the addition of capacity reached 20.2 million tons / year. The details can be seen as follow. Table 1.1.

Table 1.1. a new cement plant in Indonesia built by existing cement industry player

No	Company	Description	Capacity (ton/th.)	Year
1	PT Semen Indonesia - Tuban	Built new Plant in Tuban	2.500.000	2011
	PT Semen Indonesia - Tonasa	Built new Plant in Tonasa	2.500.000	2011
	PT Semen Indonesia - Padang	Built new Plant in Padang	1.500.000	2017
	PT Semen Indonesia - Rembang	Built new Plant in Rembang	3.000.000	2017
2	PT Holcim	Built new Plant in Tuban	1.500.000	2013
		Built new Plant in Tuban	1.500.000	2015
3	PT Indocement Tunggal Perkasa	Built new Plant in Citereup	4.400.000	2016
4	PT Semen Baturaja	Built new Plant in Baturaja	1.500.000	2017
5	PT Bosowa Maros	Built new Plant in Maros Sulsel	1.800.000	2014
	Total		20.200.000	

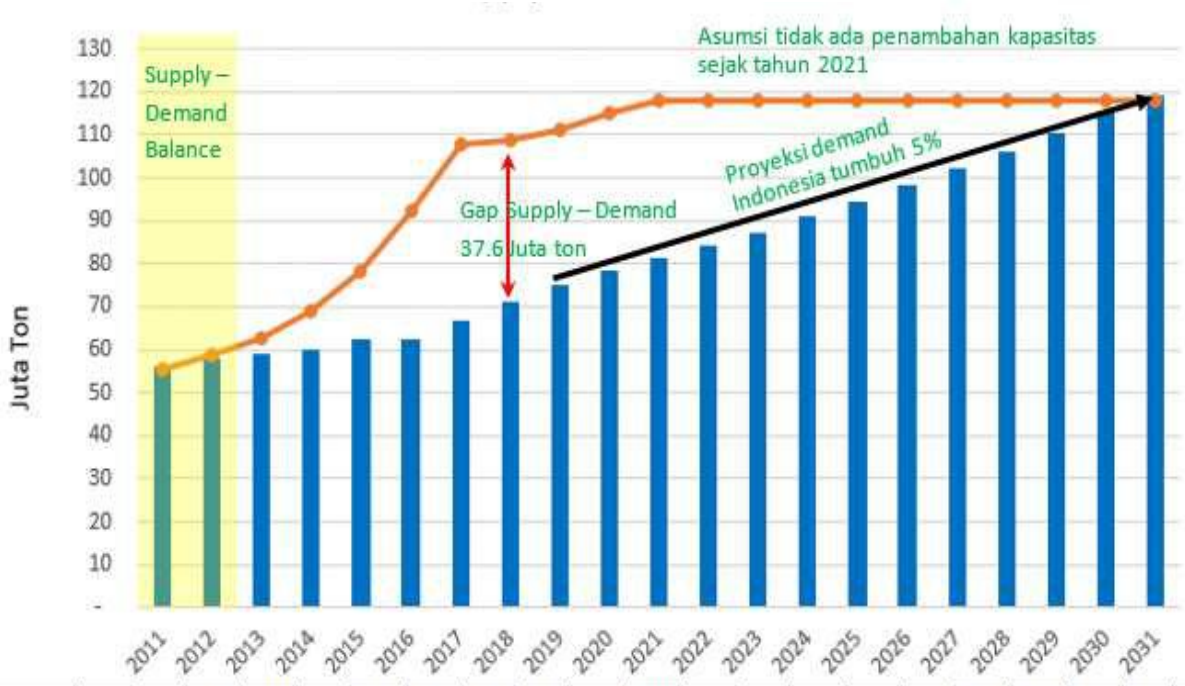
the increasing of new entrant in the Indonesian cement industry either from abroad or from domestic, also increase the capacity to 21.85 million tons / year. The Details can be seen in Table 1.2.

Table 1.2. a new cement plant in Indonesia built by new entrant

No	Company	Description	Capacity (ton/th.)	Year
1	PT Semen Merah Putih	Built new Plant in Banten and Jawa Timur	6.750.000	2014
2	PT Anhui Conch	Built new Plant in Kalimantan Selatan, Papua, Jawa Barat	9.300.000	2015
3	PT SGC (Siam Cement Group)	Built new Plant in Jawa Barat (Sukabumi)	1.800.000	2015
4	PT Jui Shin	Built new Plant in Jawa Barat (Karawang)	1.500.000	2014
5	PT Panasia	Built new Plant in Jawa Tengah (Banyumas)	2.000.000	2015
6	PT Puger	Built new Plant in Jawa Timur (Jember)	500.000	2014
	Total		21.850.000	

The total capacity of the national production in 2018 was 108.6 million tons / year while the needs for cement consumption was 71 million tons / year, or there was oversupply about 37.6 million tons / year.

Cement Demand – Supply in Indonesia



(Juta Ton)	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Demand	56	58	59	60	62	62	66	71	75	78	81	84	87	91	94	98	102	106	110	115	119
Supply	55	59	63	69	78	92	108	109	111	115	118	118	118	118	118	118	118	118	118	118	118

Figure 1.1 Cement Supply vs. Demand in Indonesia

Oversupply in cement production is estimated growing until 2030, with the assumption there are no new plant in Indonesia during this period and the Indonesian national cement consumption projected by ASI (2017) cement consumption is expected to grow about 5-6%. This oversupply condition raises higher competition in the cement industry.

Problem Statement

Based on the description and factors that will affect competition in the industry above, the problem statement of this study are:

a. How has the cement industry changed after the over supply conditions since 2013. It will be analysed by using Porter's five force analysis.
b. How is the competitive advantage and attractiveness of the cement industry based on Porter's Five Force Analysis.

Research purposes

Pusposes of this study are :

a. To Analyze Porter's five force analysis plus one in the cement industry after 2013's over supply condition.
b. To analyze competitive advantage and attractiveness of the cement industry based on Porter's Five Force Analysis.

Advantage of the study

The advantage of this study is as reference for stakeholders in cement industry to comprehend current condition and forecase future condition, and it can also be used to formulate the best strategies in order to improve its competitive advantage.

2. LITERATURE REVIEW:

According to Porter (2005), the intensity of competition in industry occurs based on five forces industry competition that will determine the long-term potential earnings of the company. it does not occurs based on luck or faith. Competition is described in five forces model of Industry Competition, they are potential new entrant, bargaining power of suppliers, bargaining power of customers, threat of substitute products and rivalry among existing competitor industry competition in the industry. According to Wheelen and Hunger (2006) competition in the industry is also affected by the stakeholders and it is divided into six.

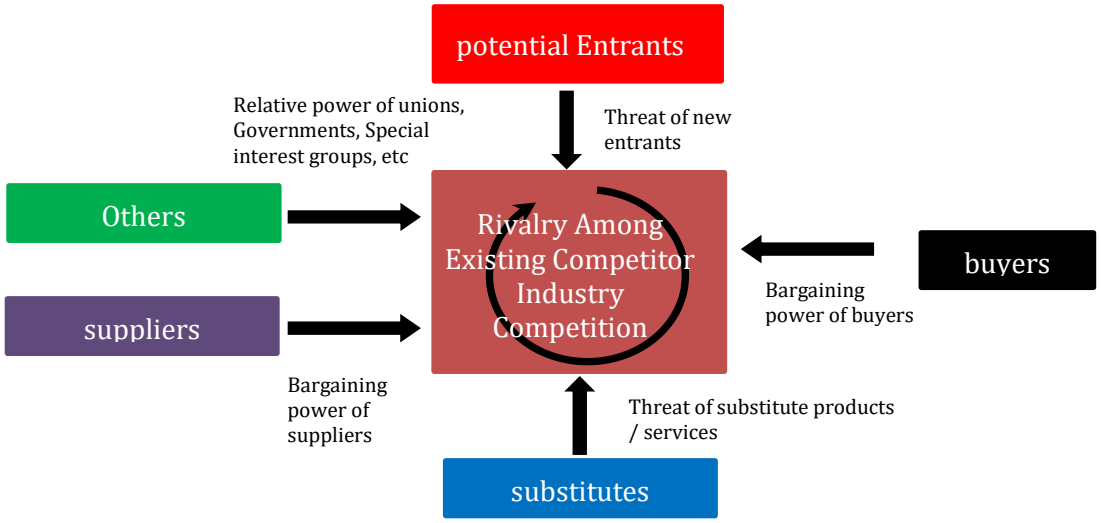


Figure 2.1: Map of the competition in industry according to Porter and Wheelen & Hunger

New Entrant

New entrant will increase the capacity, market share and availability of resources. How big the threat of new entrants is depending on the reaction from existing competitors.

Bargaining Power of Customer

The bargaining power of customers is a form other obstacles where the customer requires producers to provide goods that can meet their needs with super quality, low price, good service and the fastest delivery.

Bargaining Power of Supplier

Suppliers get advantage from their bargaining power by raising prices or by reducing the quality of goods. The bargaining position of the supplier is determined by several factors including importance of goods.

Threat of Substitutes Product or Service

Replacement or substitution products that can perform the same functions as products in the industry, where the price offered is cheaper so that it can satisfy the customers.

Rivalry Among Existing Competitor in the industry

The level of competition among existing competitors requires smart and innovative strategies by using tactics such as quality improvement, price competition, fast delivery, advertising warfare, product introduction, improving service and guarantee to consumers.

The relative strength of Stakeholders

Wheelen et al. (2006) added the sixth power that comes from stakeholder groups and affect the environment. Stakeholders can affect the strength of competition in the industry. Some stakeholder groups that influence the industry are Government, Local Community / Non-Governmental Organizations, Creditors, Trade Associations, Special interest groups, Unions, Capital Owners and Komplimentor.

Quantitative Porter's Five Force Analysis as a Strategic Management Tool

According to Shvindina & Shkurko (2015) the essence of strategic is formed as a balance between company competencies and external environmental conditions. Industry analysis is considered to be an important and complex stage of strategic planning. Industry analysis is carried out in systematic steps to find attraction in certain fields and competitive positions of company.

According to Shvindina et al. (2015) the methodology for the Five Force quantitative analysis are::

Step 1 Collect all information on each element of the Five Force.

Step 2 : Analyze and estimate the results in chart.

Step 3 : Formulate strategies based on conclusion.

3. METHOD:

This study is qualitative study. the data is collected from various sources, they are reports Cement Association of Indonesia, the annual report of each cement company listed on the Jakarta Stock Exchange, reports or studies by experts in the official publication, the expert or business analyst, news mass media, field notes, seminar notes, related law in Repbulic of Indonesia, important information from suppliers and buyers and direct observation.

Study Objectives

The study is a descriptive study that would describe the characteristics and conditions in the cement industry based on Porter's five compettitive force. After obtaining the characteristics of each factors that affecting the industrial competitiveness, then its competitiveness and attractiveness of the current cement industry is analyzed quantitatively. This study will also provide the forcesting trend or competition map of cement industry in the future.

Data collection technique

The type of data in this study is secondary data and they are obtained from several sources. Sources of data are obtained by studying related theories.

Data analysis

There are three stages in the data analysis process. First, input stage and reduction of data. Second, presentation of information in picture, schema or table. Third, analyze data and compare with the existing theory in order to get proper perspective fom existing problems before taking conclusion.

4. ANALYSIS:

Cement Industry Competition level in Indonesia

Before 2013, there are only 5 cement companies in Indonesia, namely PT Semen Indonesia (a holding company of PT Semen Padang, PT Semen Gresik and PT Semen Tonasa), PT Semen Holcim, PT Indocement Tunggal Perkasa, PT Semen Baturaja and PT Semen Bosowa Maros where two of the five companies are Indonesian state company such as PT Semen Indonesia and PT Semen Baturaja. After 2013, there are 15 companies in the cement industry. The number of new entrants to cement companies is 9 companies where 8 out of 9 new cement companies are private company. The total national production capacity until 2018 is 108.17 million tons / year with contribution from new entrants is 18% and existing players is 82%.

Table 4.1 Production capacity recorded in the statement of ASI (years 2012-2018)

Kapasitas Produksi (tahun 2012 - 2018) (yang tercatat di ASI)

No	Nama Perusahaan	2013	2014	2015	2016	2017	2018
1	PT Semen Indonesia	24.30	27.80	29.00	29.00	35.50	35.50
2	PT Semen Lafarge-Holcim	10.30	12.20	13.25	14.10	15.53	15.53
3	PT Indocement Tunggal Perkasa	18.60	20.50	21.00	24.90	25.50	25.50
4	PT Semen Baturaja	2.00	2.00	2.00	2.00	3.85	3.85
5	PT Semen Kupang	0.57	0.57	0.57	0.57	0.40	0.40
6	PT Semen Bosowa Maros	5.00	5.00	5.90	6.80	7.40	7.40
7	PT Cemindo Gemilang (Brand Semen Merah Putih)		0.75	1.55	2.75	7.69	7.69
8	PT Jui Shin (Brand Semen Garuda)		0.80	1.50	1.50	1.80	1.80
9	PT Sinar Tambang, Panasia Group (Brand Semen Bima)			0.50	2.00	2.00	2.00
10	PT Semen Jawa (Brand SGC)			0.70	1.80	1.80	1.80
11	PT Anhui Conch Indonesia		0.38	1.50	1.50	6.70	6.70
	TOTAL	60.77	70.00	77.47	86.92	108.17	108.17

Cement sales in 2018 was 71.28 million tons / year which means there is over supply about 36.89 million tons / year or 34%.

Table 4.2 Market Share National Cement Year 2012-2018

Market Share (tahun 2012 - 2018)

No	Nama Perusahaan	2013	2014	2015	2016	2017	2018
1	PT Semen Indonesia	25.45	25.16	25.97	25.68	27.08	27.42
2	PT Semen Lafarge-Holcim	10.35	10.62	10.47	9.43	9.68	10.63
3	PT Indocement Tunggal Perkasa	17.64	18.19	16.78	16.12	16.74	17.74
4	PT Semen Baturaja	1.27	1.26	1.54	1.63	1.76	2.18
5	PT Semen Kupang	0.21	0.20	0.25	0.24	0.22	0.23
6	PT Semen Bosowa Maros	3.10	3.47	3.13	2.96	2.65	2.48
7	PT Cemindo Gemilang (Brand Semen Merah Putih)			1.44	1.52	2.35	3.90
8	PT Jui Shin (Brand Semen Garuda)			0.86	0.94	1.18	1.33
9	PT Sinar Tambang, Panasia Group (Brand Semen Bima)			0.39	0.84	1.07	0.72
10	PT Semen Jawa (Brand SGC)			0.30	1.10	1.23	1.31
11	PT Anhui Conch Indonesia			0.87	1.19	2.32	3.34
	TOTAL	58.02	58.90	62.00	61.65	66.28	71.28

Based on the data above, the third biggest market share is as follows:

- Semen Indonesia reached 38.5% of the national market.
- Semen Tiga Roda reached 24.9% of the national market.
- Semen Lafarge-Holcim reached 14.9% of the national market.

The new entrants gain marketshare as follows:

- PT Cemindo Gemilang reached 5.5% of the national market.
- PT Anhui Conch reached 4.7% of the national market.

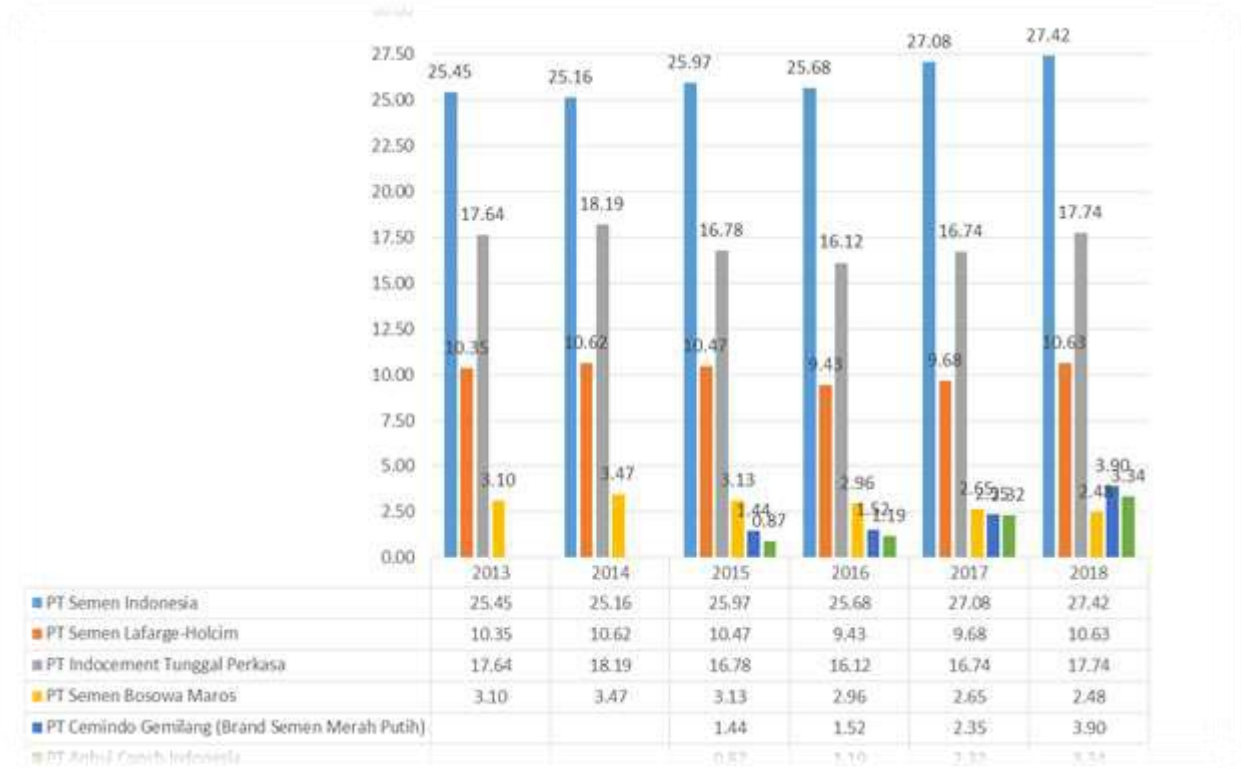


Figure 4.1 Comparision of Cement Market Share 2013 to 2018

Figure 4.1 is a comparison market share of 6 cement companies with the biggest capacity from 2013 to 2018. In Table 4.3, it can be seen market share of each company in Indonesia

Table 4.3 Market share of the company cement per region in Indonesia in 2017

Perusahaan	SUMATERA	JAWA	KALIMANTAN	SULAWESI	BALI & NUSA TENGG.	MALUKU & PAPUA
PT. SP	6,266,682	100,041	-	-	-	-
PT. SB	2,178,705	-	-	-	-	-
PT. CG	854,492	1,021,279	141,314	-	118,117	-
PT. ITP	1,593,927	13,079,478	979,786	548,658	1,387,442	152,065
PT. LHI	3,131,045	6,942,281	290,864	100,635	157,129	8,624
PT. JSI	144,656	1,180,488	2,132	-	-	-
PT. SJW	136,326	1,158,672	15,598	-	-	-
PT. STAR	-	719,186	-	-	-	-
PT. SG	10,268	13,964,077	975,851	-	754,898	129,559
PT. CCI	455,888	600,969	1,153,978	531,171	96,330	504,717
PT. ST	-	-	781,423	3,329,827	492,057	616,818
PT. SBM	231,311	238,295	76,881	1,128,531	619,515	182,661
PT. SK	-	-	-	-	228,570	-
Total	15,003,300	39,004,766	4,417,827	5,638,822	3,854,058	1,594,442

The growth of the market in each region in Indonesia is presented in table 4.4.

Table 4.4 Growth of the cement market by region in Indonesia from 2017 to 2018

NO.	D A E R A H	2017 Jan-Des	2018 Jan-Des	Pertumbuhan E/B	% dari Total (2017)	% dari Total (2018)
		B	E			
1.	D.I. Aceh	1,107,716	1,142,906	3.2		
2.	Sumut	3,116,872	3,150,570	1.1		
3.	Sumbar	1,162,839	1,264,597	8.8		
4.	Riau	1,816,584	1,770,734	(2.5)		
5.	Kep. Riau	655,870	770,346	17.5		
6.	Jambi	817,894	914,255	11.8		
7.	Sumsel	2,258,758	2,315,301	2.5		
8.	Bangka - Belitung	283,839	400,423	41.1		
9.	Bengkulu	827,307	562,559	(32.0)		
10.	Lampung	2,144,104	2,711,608	26.5		
TOTAL SUMATERA		**14,191,784**	**15,003,300**	**5.7**	**21.4%**	**21.6%**
11.	D. K. I. Jakarta	4,896,522	4,588,589	(6.3)		
12.	Banten	3,187,518	3,466,385	8.7		
13.	Jabar	9,618,501	10,356,205	7.7		
14.	Jateng	9,124,701	9,890,394	8.4		
15.	D. I. Y.	1,095,902	1,205,865	10.0		
16.	Jatim	9,541,341	9,497,327	(0.5)		
TOTAL JAWA		**37,464,484**	**39,004,766**	**4.1**	**56.5%**	**56.1%**
17.	Kalbar	1,341,954	1,224,836	(8.7)		
18.	Kalsel	1,087,425	1,167,237	7.3		
19.	Kalteng	551,245	614,740	11.5		
20.	Kaltim	915,796	1,160,239	26.7		
21.	Kaltara	224,614	250,775	11.6		
TOTAL KALIMANTAN		**4,121,034**	**4,417,827**	**7.2**	**6.2%**	**6.4%**
22.	Sultera	662,213	726,175	9.7		
23.	Sulsel	2,416,924	2,491,059	3.1		
24.	Sulbar	332,298	386,043	16.2		
25.	Sulteng	925,736	831,118	(10.2)		
26.	Sulut	715,504	852,609	19.2		
27.	Gorontalo	268,049	351,819	31.3		
TOTAL SULAWESI		**5,320,725**	**5,638,822**	**6.0**	**8.0%**	**8.1%**
28.	Bali	1,442,246	1,568,194	8.7		
29.	N. T. B.	1,144,781	1,177,806	2.9		
30.	N. T. T.	1,142,822	1,108,058	(3.0)		
TOTAL BALI NUSA TENGG.		**3,729,849**	**3,854,058**	**3.3**	**5.6%**	**5.5%**
31.	Maluku	382,568	382,097	(0.1)		
32.	Maluku Utara	281,083	321,062	14.2		
33.	Papua Barat	283,633	318,383	12.3		
34.	Papua	575,663	572,901	(0.5)		
TOTAL MALUKU PAPUA		**1,522,947**	**1,594,442**	**4.7**	**2.3%**	**2.3%**
TOTAL INDONESIA		**66,350,822**	**69,513,215**	**4.77**		

Here is an overview level of competition in various regions in Indonesia based on data from Indonesian Cement Assosiation (ASI).

- The level of competition in Sumatra can be seen in Figure 4.2.Companies that have plants in Sumatra are Indonesia Cement (PT SP), Lafarga-Holcim Indonesia Cement (PT LHI), Baturaja Cement (PT SB), Bosowa Maros Cement (PT SBM), and Merah Putih Cement (PT CG)

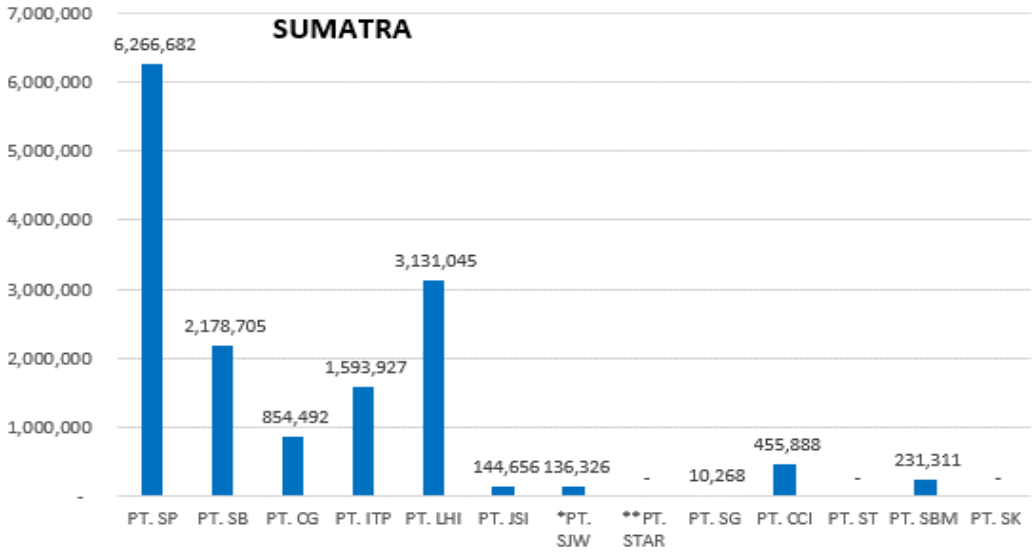


Figure 4.2 Cement Market Share in Sumatra

- Competition level in Java can be seen in Figure 4.3.Companies that have plants in Java are Indonesia Cement (PT SG)), Tiga Roda Cement (PT ITP), Lafarga-Holcim Indonesia Cement (PT LHI), Semen Merah Putih (PT CG), Conch Cement (PT CCI), Java Cement , Cement SCG, Jui Shin (Garuda) Cement (PT JSI), Bima Cement (PT STAR), Bosowa Cement (PT SBM), Puger Cement (PT SJW). This means that nearly all the players compete in a very tight cement in Java.

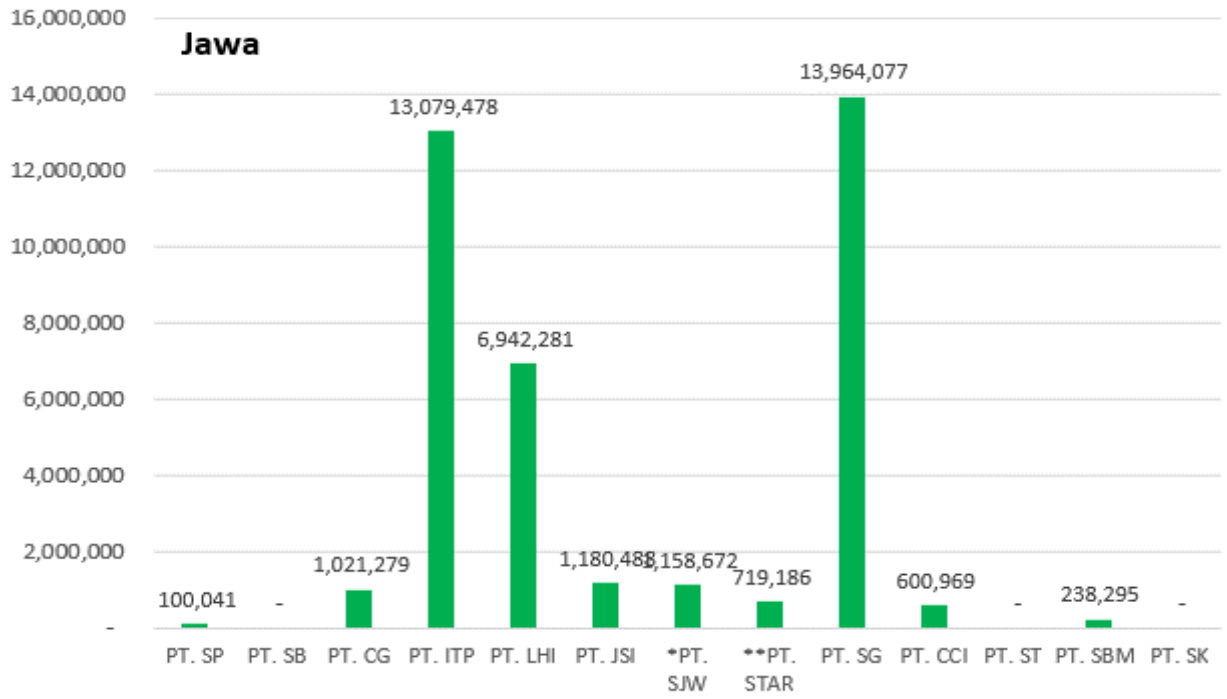


Figure 4.3 Cement Market Share in Java

- The level of competition in Kalimantancan be seen in Figure 4.4.Companies that have plants in Kalimantan are Tiga Roda Cement (PT ITP) and Conch Cement (PT CCI)

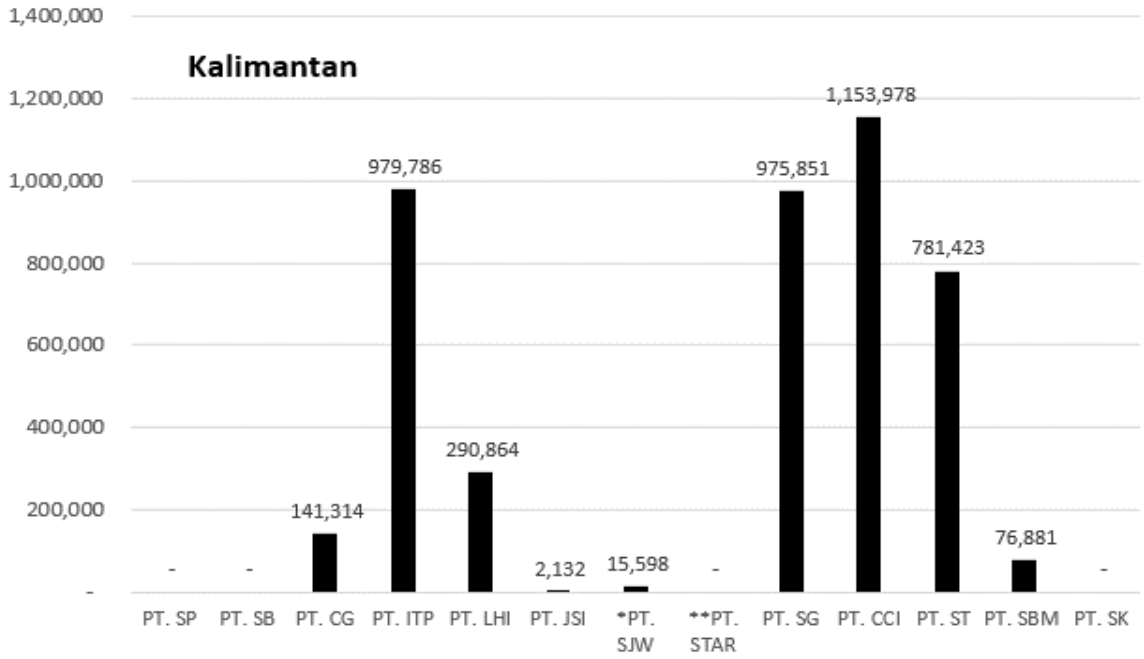


Figure 4.4 Cement Market Share in Kalimantan

- The level of competition in Sulawesi can be seen in Figure 4.5. Companies that have plants in Sulawesi are Indonesia Cement (PT ST), Bosowa Maros Cement (PT SBM), Conch Cement (PT CCI).

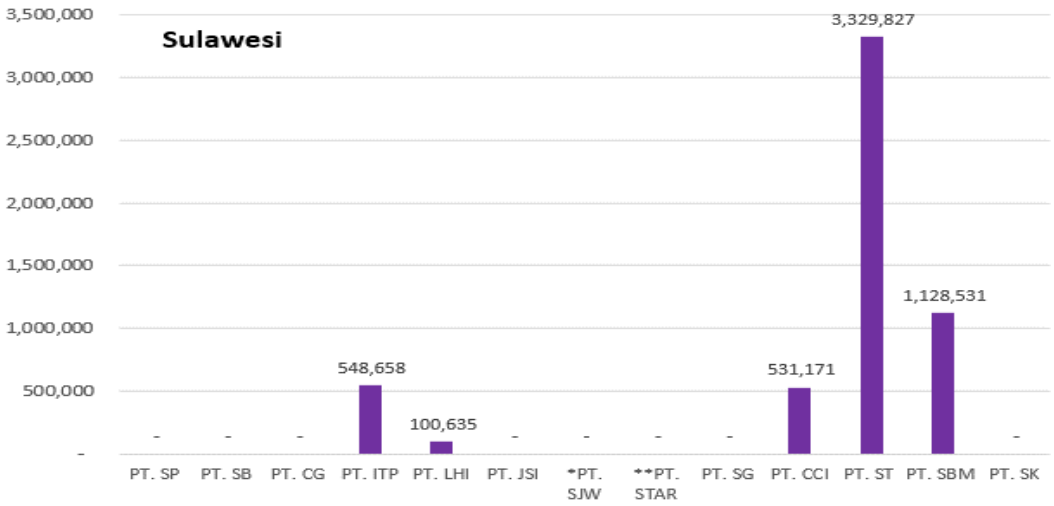


Figure 4.5 Cement Market Share in Sulawesi

- Competition level in Bali and Nusatenggara be seen in Figure 4.6. Companies that have plants in Bali and Nusa Tenggara is Kupang Cement (PT SK)

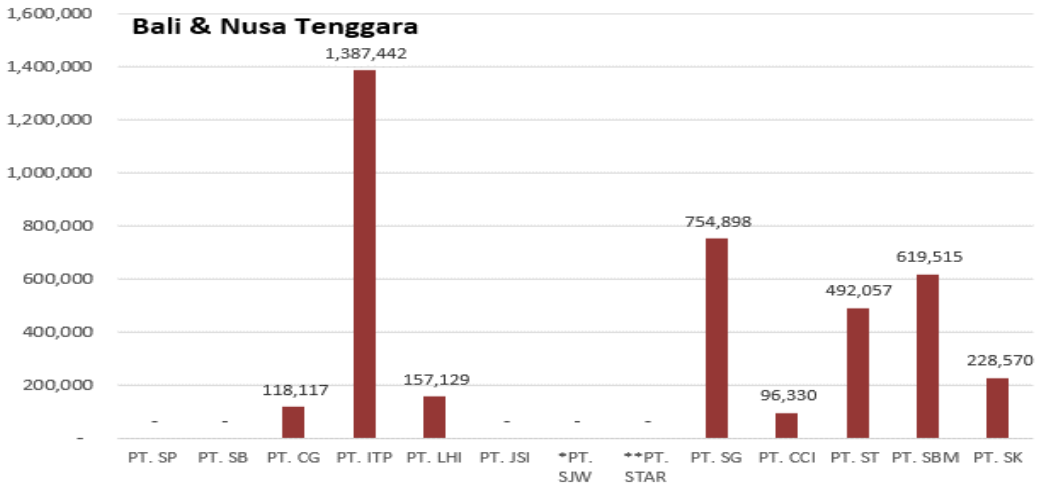


Figure 4.6 Market Share Cement in Bali and Nusa Tenggara

- The level of competition in Maluku and Papuacan be seen in Figure 4.7. Companies that have plants in Papua is Conch Cement (PT CCI)

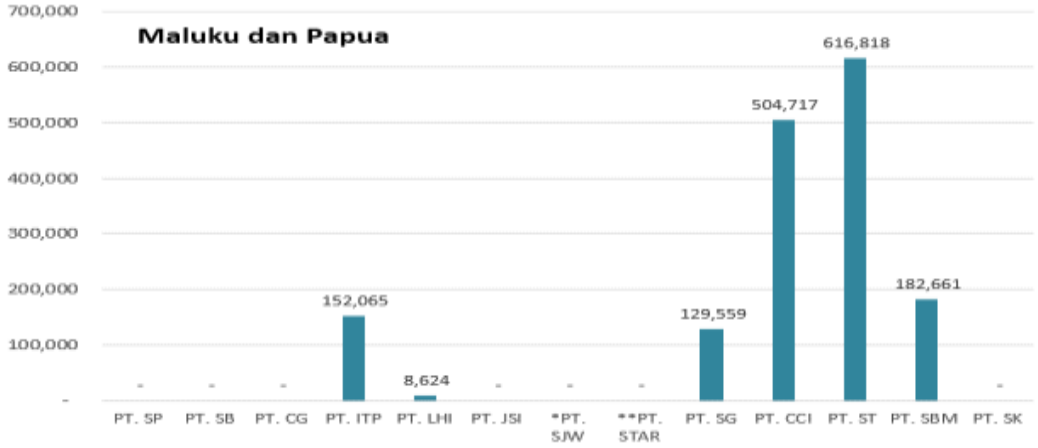


Figure 4.7 Market Share Cement in Maluku and Papua

The 3 Biggest Company Competition in Indonesian Cement Industry

To understand the level of competition in the cement industry requires more analysis of the three biggest companies. They are PT Semen Indonesia, PT Indocement Tunggal Perkasa and PT Lafarge-Holcim.

- Production capacity

Table 4.5 Comparison of Capacity 3 biggest cement player

Description	PT SI	PT ITP	PT LHI	Ket
Production Capacity	35,50	25,50	15,53	mio. Ton/tahun
Integrated Plant	14 Plant	13 Plant	6 Plant	Unit Integrated Plant
Grinding Plant	3 Unit	-	1 unit	Unit Grinding Plant
Plant Utilization	86%	65-68%	68,4%	%
% National Capacity	33%	24%	14%	%

- Market Share and Distribution Channels

Table 4.6 Comparison of market share of 3 biggest cement player

Descrition	PT SI	PT ITP	PT LHI	Remark
Market Share	27,42	17,74	10,63	mio. ton/tahun
Price sell	71000	73000	72000	Rp/Sak @50 kg
Distribution channel				
- Packing Plant	27	9	2	Unit Packing Plant
- Harbour/Port	17	8	9	Owned

- Corporate Finance

Table 4.7 Financial performance of the three biggest cement player

Description	PT SI	PT ITP	PT LHI
Income statement			
Persero business 2017:			
- Revenue	27.800.000.000.000	14.431.000.000.000	9.382.000.000.000
- Cost of revenue		9.423.000.000.000	7.507.870.000.000
- Gross Profit	7.959.599.000.000	5.008.000.000.000	1.874.130.000.000
- Net Income (BIT)	2.158.770.974.000	1.874.845.000.000	221.860.000.000
- Net Income (AIT)	2.014.015.000.000	1.859.818.000.000	(758.050.000.000)
Balance sheet			
Total Asset	48.963.503.000.000	28.864.000.000.000	19.626.403.000.000
- Current Asset	13.801.818.533.000	12.883.074.000.000	2.927.011.000.000
Total Liabilitas	18.524.451.000.000	4.307.000.000.000	12.429.452.000.000
- Liability short term	8.803.577.054.000	3.479.024.000.000	5.384.803.000.000
Equity	30.439.052.000.000	24.557.000.000.000	7.196.951.000.000
Compnay Value at Exchange			
- Earning Per share	340	505,22	-
Performance (low level)			
- Q1	8.575	14.600	881
- Q2	8.600	15.800	816
- Q3	9.025	17.150	771
- Q4	9.125	18.375	793

Table 4.8 Profitability ratios of the three biggest cement player

Finance ratio	PT SI	PT ITP	PT LHI
Gross profit Margin	29%	35%	20%
Operating Profit Margin	7,8%	13,0%	2,4%
Net Profit margin	7,2%	12,9%	-8,1%
Return on Assets (ROA)	4,4%	6,5%	1,1%
Return on Equity (ROE)	4,1%	6,4%	-3,9%

- The employees strength

Table 4.9 Employee Productivity of 3 biggest cement player

Description	PT SI	PT ITP	PT LHI	Unit
Number of employee	5552	4212	2501	People
- Organics employee	5465	4158	2.463	People
- Outsourcing	87	54	26	People
- Expatriat			12	People
Employee Productivity	6.394	6.054	6.210	ton/people

- Product diversity

Table 4.10 product diversity and differentiation

PT SI	PT ITP	PT LHI
OPC	OPC "Tiga Roda	PowerMax & WallMax
PCC	PCC "Tiga Roda"	Holcim Solid Road
PPC	PPC "Rajawali"	Holcim Serba Guna dgn Micro Filler
OWC	OWC "Tiga Roda"	-
White Cement	White Cement "Tiga Roda"	-
Slag Cement /MaxSTRENGTH Cement	TR Superslag Cement	-
Special Blended Cement (SBC)	Acian Putih TR-30 "Tiga Roa"	-
OPC Tipe II	OPC II "Tiga Roda	-
OPC Tipe V	OPC V "Tiga Roda	-
Ready Mix Concrete	Beton Siap Pakai (ready Mix Concrete. RMC)	RMX (ready Mix)
Precast Concrete	-	-
Aggregate Product	Agregat	Agregat
-	-	Holcim Mortar

Based on the data above, it can be compared the level of competition in the existing cement industry

Table 4.11 Comparison of Intensity of Competition in the existing cement industry

No	Description	Weight	PT SMI		PT ITP		PT LHI	
Finacial Aspect		32,5%	Value					
1	Company Financial		3	0,98	5	1,63	1	0,33
Customer Aspect		22,5%						
2	Market Share		5	0,56	3	0,34	1	0,11
3	Distribution Channel		5	0,56	3	0,34	1	0,11
Internal Bisnis Aspect		27,5%						
4	Production capacity		5	0,46	3	0,28	1	0,09
5	Product Quality		5	0,46	1	0,09	3	0,28
6	Diversity & Differensiasi Product		3	0,28	1	0,09	5	0,46
Growth Aspect		17,5%						
8	Research		1	0,09	3	0,26	5	0,44
9	Employee		5	0,44	3	0,26	1	0,09
Total				**3,82**		**3,28**		**1,90**

Based on table 4.11 above, the overall intensity of competition is surpassed by PT Semen Indonesia with point 3.82, followed by PT Indocement Tunggal Perkasa with point 3.28 and the last is PT Lafarge-Holcim Indonesia with point 1.9. From the analysis above, PT Semen Indonesia is the most competitive corporate among competitors in the cement industry in Indonesia.

Important buyers in Cement Industry

Based on the current condition of over supply, where the number of cement products in the market is 37.6 million tons nationally, while the growth rate of demand in Indonesia is estimated at 4%, it is assumed that buyers have higher strength. The buyer group can be divided into several groups as follow:

a. The company works in construction

b. Individual customers, they are buyers for consumptive use.

The growth potential buyers can be classified as low because it is estimated that cement consumption for construction activities will come from construction companies for project needs as well as business units related to cement.

Important suppliers in Cement Industry

Suppliers that play a role in supporting the operation of the cement industry are raw material suppliers, energy suppliers, spare part suppliers, packaging bags suppliers and transportation suppliers for distribution. Suppliers that have important role is energy suppliers. Energy used in the cement industry is coal and electricity. The use of coal for the cement industry is only 16-27 million tons / year.

Table 4.13 Coal Demand in Cement Industry 2018

No	Company	Production Capacity		Batubara consumption	
		Kap Max	Kap. mln	Min. (mio. ton/yr)	Max. (mio. ton/yr)
1	PT Semen Indonesia	35,50	30,53	6,72	8,88
2	PT Semen Lafarge-Holcim	15,53	10,87	2,39	3,88
3	PT Indocement Tunggal Perkasa	25,50	17,85	3,93	6,38
4	PT Semen Baturaja	3,85	2,31	0,51	0,96
5	PT Semen Kupang	0,40	0,24	0,05	0,10
6	PT Semen Bosowa Maros	7,40	2,96	0,65	1,85
7	PT Cemindo Gemilang (Brand Semen Merah Putih)	7,69	4,23	0,93	1,92
8	PT Jui Shin (Brand Semen Garuda)	1,80	1,44	0,32	0,45
9	PT Sinar Tambang, Panasia Group (Brand Semen Bima)	2,00	0,80	0,18	0,50
10	PT Semen Jawa (Brand SGC)	1,80	1,35	0,30	0,45
11	PT Anhui Conch Indonesia	6,70	4,02	0,88	1,68
	TOTAL	108,17		16,85	27,04

Electricity needs in the cement industry are obtained from PLN or company generators. Meanwhile, for the electricity tariff since 2018, there has been no increasing in the basic electricity tariff from PLN so that it does not affect the cost of cement.

New Entrant in Cement Industry

The number of new entrant companies is 9 out of 15 companies. As a new entrant company, the total capacity will only reach 21.7% of the national capacity, with an average of 1 integrated plant except for PT Conch Cement Indonesia which has 4 integrated plants with a total of 6.7 million tons / year. The company has set the target to increase its production capacity to be 25 million tons/year.

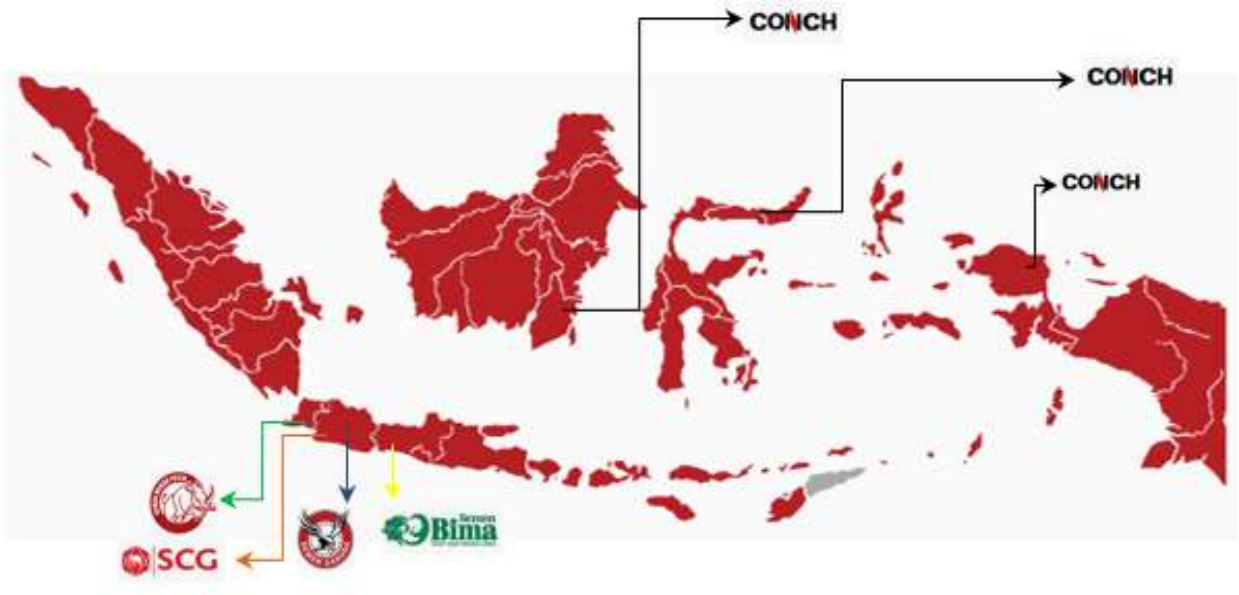


Figure 4.8 Distribution of new entrants plant

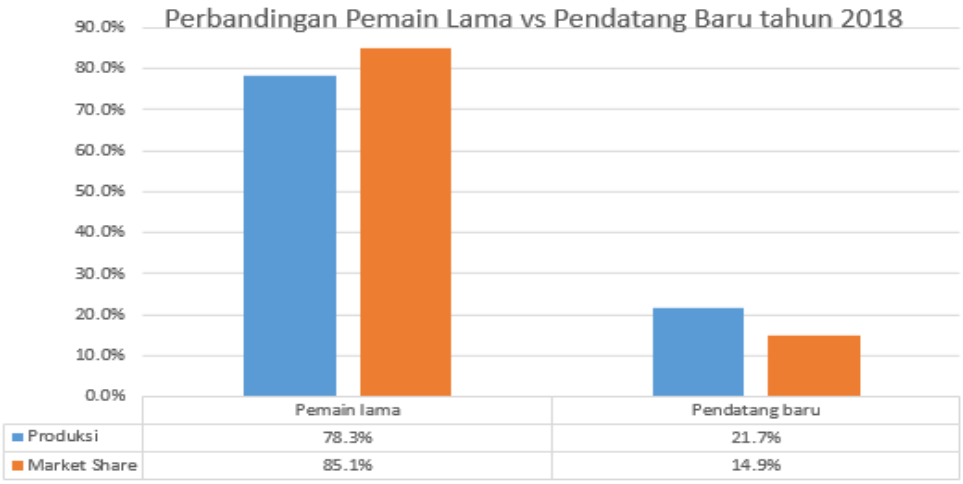


Figure 4.9 Comparison between existing compnay and new entrants in 2018

Cement Substitution Product

This cement product has few substitutes so it does not pose a threat to the cement industry, even if there will be a replacement for some functions but not as a whole.

Quantitative analysis of Porter's Five Forces as a Strategic Management Tool

According to the framework of five forces Porter, it can assess the level of attractiveness and competition position in the industry through evaluating the strength of threats from new entrants that will enter the industry, threats from substitutes that will replace existing products, bargaining power of buyers, bargaining power of supplier and level of competition and characteristics among businesses in the industry.

- The evaluation of new entrants thread.

Table 4:14 Assessment of the threat from new entrants

Criteria	Weight (Wi)	Expert Estimate (Ei)						Wi x Ei
Barrier to entry								
a. Economies of scale gained by main players	10%	High	0	1	2	3	Low	0,1
b. Product differentiation	10%	low	0	1	2	3	High	0
c. Costs inequity	10%	High	0	1	2	3	Low	0,2
d. Customer switching cost	10%	High	0	1	2	3	Low	0,3
e. Main players' cost or quality advantange)	10%	High	0	1	2	3	Low	0,2
f. Access to distribution channels	10%	limited	0	1	2	3	Free	0,3
g. Government policy restrictions	10%	High	0	1	2	3	Low	0,3
Expected retaliation								
a. Availability of resources to fight back the entrants' attack	10%	available	0	1	2	3	Unavailable	0,2
b. Competitor's willingness to cut price	10%	High	0	1	2	3	Low	0,2
c. Industry growth	10%	Low	0	1	2	3	High	0,2
		Σ (Wi x Ei)						2
		Σ (Wi x Ei) / Emax						0,67

From table 4.14, it means that the level of competing power affected by new entrants in the cement industry in Indonesia is currently measured to have a value of Σ (Wi x Ei) / Emax worth 0.67 which is in the strong category.

- The evaluation of the strength of the bargaining power of suppliers

Table 4:15 assessment of the strength of the bargaining power of suppliers

Criteria	Weight	Expert Estimate						Wi x Ei
a. Number of supplier	20%	Few	0	1	2	3	Many	0,4
b. Level of supplier concentration	20%	low	0	1	2	3	High	0,4
c. Switching costs in changing a supplier	15%	High	0	1	2	3	Low	0
d. Differentiation of purchased resources	15%	Low	0	1	2	3	High	0
e. Importance of industry for supplier	15%	Unimportant	0	1	2	3	Important	0,3
f. Potential threat of forward integration	15%	Low	0	1	2	3	High	0,15
		Σ (Wi x Ei)						1,25
		Σ (Wi x Ei) / Emax						0,42

From table 4.15 which means the level of competing power which is influenced by bargaining power The measured supplier currently has a value of Σ (Wi x Ei) / Emax worth 0.42 which is in a moderate category

- The evaluation of the strength of the bargaining power of buyers

Table 4:16 assessment of the strength of the bargaining power of buyers

Criteria	Weight	Expert Estimate						Wi x Ei
a. Number of buyers	20%	Few	0	1	2	3	Many	0,2
b. Level of buyers concentration	20%	low	0	1	2	3	High	0,2
c. Level of buyers' sophistication	20%	Low	0	1	2	3	High	0
d. Buyers' switching cost	10%	High	0	1	2	3	Low	0,3
e. Buyer price sensitivity	10%	Low	0	1	2	3	High	0,1
f. Importance of the products or service quality for the buyers	10%	Unimportant	0	1	2	3	Important	0,2
g. Expenditures structure	5%	Low	0	1	2	3	High	0,15
h. Potential threat of backward integration	5%	Low	0	1	2	3	High	0,05
		Σ (Wi x Ei)						1,2
		Σ (Wi x Ei) / Emax						0,4

table 4.16 explain that the level of competing power which is influenced by bargaining power of the measured Buyer currently has a value of Σ (Wi x Ei) / Emax worth 0.4 which is in the moderate category.

- The evaluation of the threat of substitute products

Table 4:17 Assessment of the threat of substitute products

Criteria	Weight	Expert Estimate						Wi x Ei
a. Number of substitution	25%	Few	0	1	2	3	Many	0,25
b. Obvious advantange of substitute	25%	Unattractive	0	1	2	3	Atractive	0
c. Buyers' switching costs to the substitute	25%	High	0	1	2	3	Low	0,25
d. Profitability level of industry offering substitute	25%	Low	0	1	2	3	High	0,25
		Σ (Wi x Ei)						0,75
		Σ (Wi x Ei) / Emax						0,25

table 4.17 explain about the level of competitive forces affected by the threat of measured substitution products currently has a value of Σ (Wi x Ei) / Emax worth 0.25 which is in the weak category.

- Evaluation of the intensity of competition in the industry

Table 4:18 Assessment of intensity of competition in the industry

Criteria	Weight	Expert Estimate						Wi x Ei
a. Number of equal (in size and power) competitor	16%	Few	0	1	2	3	Many	0,32
b. Industry growth	16%	low	0	1	2	3	High	0,32
c. Product Differentiation	12%	High	0	1	2	3	Low	0,36
d. Magnitude of capacity expansion required	12%	Small	0	1	2	3	Large	0,36
e. Exit barrier	14%	Low	0	1	2	3	High	0,28
f. Diversity of rivals	15%	High	0	1	2	3	Low	0,45
g. Threat of horizontal integration	15%	Low	0	1	2	3	High	0,3
		Σ (Wi x Ei)						2,39
		Σ (Wi x Ei) / Emax						0,80

From table 4.18, it can be seen that the level of competitive forces affected by the intensity of competition in the measured industry has a value of Σ (Wi x Ei) / Emax worth 0.80 which is in the strong category. To find out the direction of changes and estimates of competitiveness that will occur in the cement industry can be illustrated on the Five Force Chart. The chart illustrates the strength of competition in the cement industry against four other competitiveness forces such as threats from new entrants, threats from substitute products, bargaining power from suppliers and bargaining power from buyers. Based on the data above, it can be described as follows.

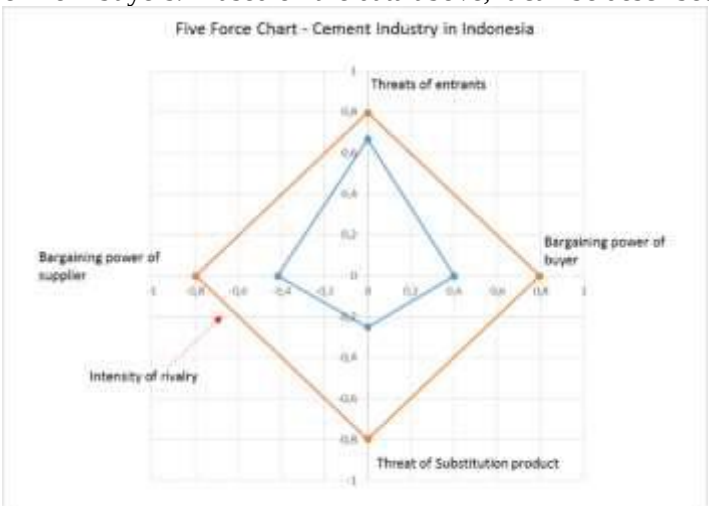


Figure 4.10 Five Force Chart for Cement Industry

Based on figure 4.10 above, the cement industry in the current level of competition in the industry is stronger than the other four competitiveness such as threats from new entrants, threats from substitute products, bargaining power from suppliers and bargaining power from buyers, while the threat of new entrants is also will strongly affect the cement industry in Indonesia.

5. RESULT:

Based on the results of the cement industry analysis in the increasing market competition this time, it can be concluded as follows:

- Analysis of the cement industry according to the framework of competitive forces in the industry using the Porter model can be summarized as follows:
  a. The level of competition in the cement industry is at a strong level.
  b. The threat of new entrants is at a strong level due to global scale players entered the cement industry.
  c. The threat level of substitute products is at a weak level because there is no substitute product that can replace the function of cement.
  d. The bargaining power of Suppliers is at a moderate level because until now the number of suppliers is still a lot both for suppliers of raw materials, energy, auxiliary materials so that it is easy to move from one supplier to another according to the desired economic level.
  e. The bargaining power of buyers is in a weak level because of the low number of buyer concentrations, low buyer switching costs because buyers easily move to other products, buyers who are very sensitive to price and product quality.
  f. The dominant strength of Stakeholders arises from Government regulations that allow the import of cement. Minister regulatation number 07/2018, Law number 22/2009.
- The future condition of the cement industry is still in an over supply condition and it will be estimated that there will be mergers and acquisitions between cement companies.
- the increasing of cement competition in the country and abroad, it will triggers the export of cement sales, and it is estimated that the cement industry will shift from manufacturing to building materials such as precast, mortar, ready mix concrete.

6. RECOMMENDATIONS:

Based on the analysis using the framework of Porter's Five Force, it can be used as guidelines in making strategic decisions in the cement industry in relation to:

a. The magnitude of potential competition in the cement industry in Indonesia will be different in each province and it is affected by several factors, including production facilities / plants owned by competitors, distribution channels, the development program outlined by the government in the province.
b. The projection of the purchasing power of cement from buyers in the Indonesian region and the factors that influence its purchasing power.
c. The potential for price wars in certain regions / provinces is related to the level of competition, potential entry of new entrants and the level of economic growth.
d. Marketing strategies for market penetration in certain regions based on the characteristics of buyers, existing industry players, product excellence.
e. Potential competitors with all forms of strengths and weaknesses.
f. Regulations that affect competitiveness.
g. Product characteristics needed by consumers.

7. CONCLUSION:

The results of the analysis of competitiveness and attractiveness in the cement industry is the condition of the level of competition in the cement industry is stronger than the other competitiveness according to Porter such as threats from new entrants, threat of substitute products, bargaining power of suppliers and bargaining power of buyers.

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