Note on: AIA Engineering

KEYNOTE

Date: 17th July 2019

Market Data	
CMP	1760
Sector	Cap. Goods
M.Cap	16600
Div yield	0.45%
EBITDA	21.25%
PEG	2.04
Debt / Equity	0.04
Shares OS (Crore)	9.43
Avg Vol (in lacs)	324
52 week H/L	2026 / 1453.2

Valuation	
Book Value	372.61
EPS	54.16
Stock PE	32.47
P/B	4.72
ROCE	19.5%
ROE	15.25%
EV in Cr.	16463

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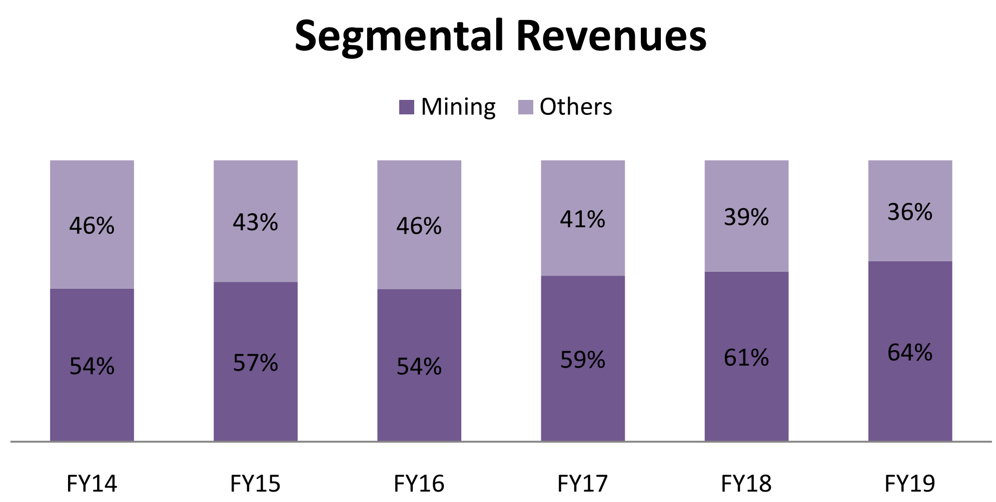
Global Duopoly in the Chrome Grinding Media industry

We initiate coverage on AIA engineering. Our stock optimism is based on a structural shift in the mining industry. The mining industry was previously using steel based grinding media in their mills, to grind the raw material. In contrast, chrome based grinding media lasts longer than conventional grinding media and also causes lesser wear and tear to the machinery. HCMI products have only penetrated 20% of the whole market, from which AIA market share is 35-40%. There is a clear indication towards growth potential and greater penetration of the market.

Grinding media is a significant expense as it accounts for ~10% of the total opex of a mid-cap mine. The total market size of grinding media globally is 5 million tons per year and ~1 million tonnes is Cast high chrome with the rest being Steel balls & Steel rods. The market in mining for high cast chromes is expected to reach 3 million tons per year and hence this augurs well for AIA Engineering.

Product Usage

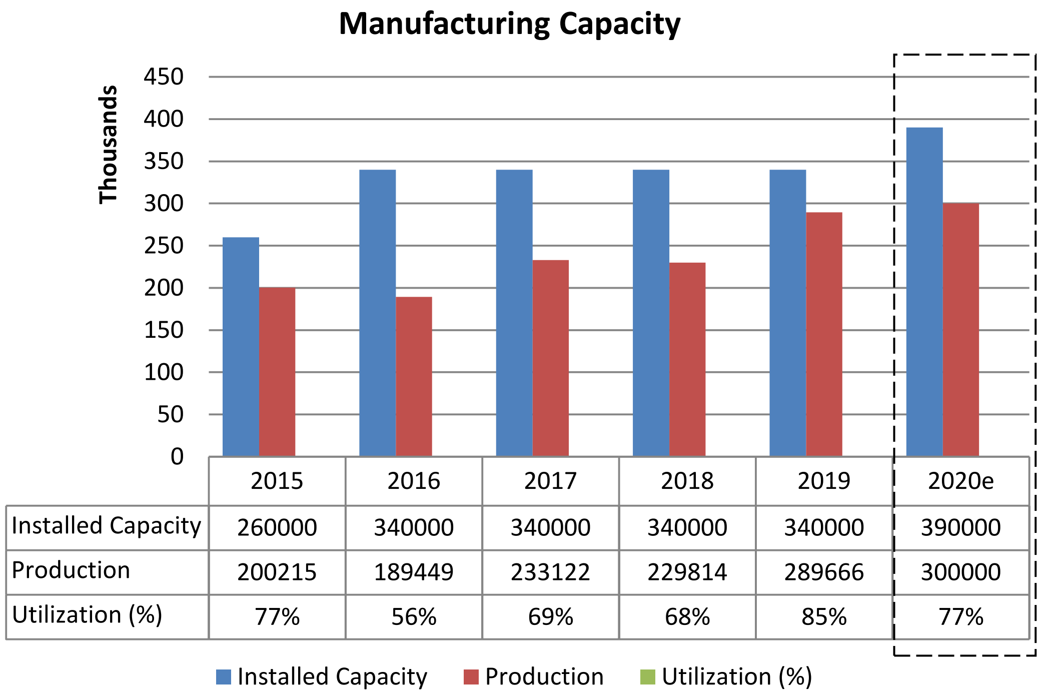
The HCMI product is used in three main industries; mining, cement and thermal power plants. Within these industries, the firm has the function of providing consultancy and grinding media. In the mining industry, the HCMI products grind the raw material and break up the larger mined soil. The demand of the HCMI product will be driven by the volume of metal being mined. Secondly, in the cement industry, the HCMI products are used to grind limestone and clay to create cement mixture. Finally, in thermal power plants, HCMI products are used to grind coal. Thus depending on these three industries, the demand of the replacement market will be affected, and thus influence their revenue stream.



Source: Company, Keynote

AIA has historically grown revenue at 7% CAGR for the last 5 years and profits at 15.9% CAGR over the same period. The company does not have term debt and is virtually debt free. The company utilizes working capital debt mainly due to high inventory days. Company has also been successful to maintain a healthy ROE & ROCE profile in the past and with increased demand, production & utilization should only get better.

The company expects to increase its capacity by 50,000 MT per annum by FY20 & expects to maintain capacity utilization at 77%. This should lead to ~4% volume growth which will be supplemented by cost optimization leading to higher profitability going ahead.



	2015	2016	2017	2018	2019	2020e
Installed Capacity	260000	340000	340000	340000	340000	390000
Production	200215	189449	233122	229814	289666	300000
Utilization (%)	77%	56%	69%	68%	85%	77%

Source: Company, Keynote

Leadership Position in Niche Segment

AIA Engineering maintains a leadership position in the HCMI product market. AIA is one of the two major global manufacturers of HCMI. Where AIA controls 25% of the global HCMI market, Magotteaux (competitor player) controls 35% of the global HCMI market. The rest of the HCMI market is controlled by minor unorganized players, especially situated in China. Moreover, they were able to secure a prime position by providing the exact same product but at least 20% cheaper than their main competitor.

Technological Advantage

AIA, in essence, manufacturers steel balls which are coated with Ferro chrome. These balls are 65-70% steel and the 30-35% Chromium based, depending on the clients demand. The steel used is scrap steel, acquired from recycle sources, whereas Chrome is bought from Tata Steel, Dipak Ferro alloy, Essel mining and Team Ferro alloys. One cannot coat the chrome on top of the steel through heat or forced mixture (such as painting it on top). The product would lose its function if it's done so. Thus the firm has been using advanced technology process known as electrolysis. Electrolysis is an energy intensive way of coating the scrap steel with Ferro chrome. It uses electricity to transfer each atom of Chromium, one by one and place them on top of the inner product (in this case scrap steel). This technology is very difficult to master and cannot be done by everyone. AIA has acquired the ability to work with electrolysis over a period of time and through their previous joint venture with Magotteaux. Moreover, they also hold several patents behind manufacturing of high grade chromium based products.

Market movement towards HCMI products

Currently, various industries are using steel based grinding media as this may be cheaper than HCMI based grinding material 20-40%. Steel based material leads to higher wear n tear on the machinery and is after all not so cost effective. For this reason, several firms are making the move towards HCMI products, the change in price is a very small fraction of their overall operations, but will lead to less wear of the mills.

Mining for newer metals

With the introduction of newer pollution regulations, the governments on a global scale are leading the fight for the introduction of electric cars and green energy generation. This will lead to the more mining of metals to manufacture car batteries. Moreover, with the move towards electricity, this will also lead to more generation of electricity. Both being beneficial for the company, as it supplies its HCMI products to both sectors.

High replacement market – Mining industry

AIA estimates that the annual replacement market in the mining industry is around 3 million MTPA. Steel grinding media constitutes majority of the grinding media market whereas HCMI products constitute 15% of the total market. This leaves a major room for growth in the coming years. The replacement demand is close to 90% of their total revenue. HCMI grinding media is replaced on a monthly basis, whereas mill liners are replaced on an annual basis inside the mills.

Electric Cars

EVs (Electric Vehicles) require more copper wiring than standard internal combustion engines. For example, the battery in an electric car contains about 38 kilograms of copper, 11 kilograms of cobalt and 11 kilograms of nickel. With the introduction of electric cars, the demand for these metals will increase, leading to an increase in mining. Today's conventional ICEV contain about 20 kg of copper, Whereas hybrids use about 40 Kg, an average PBEV (Pure Battery EV) requires about 80 kg. This is four times the amount of a conventional vehicle. Today there are about 1.1 Billion light vehicles globally, about 1 million are EVs. By 2035, we should see 140 million EVs or 8 % of the total 1.8 Bn fleet. Building the EV fleet will use about 11m tonnes of copper. By subtracting the amount that would have been used in the conventional vehicles displaced by EVs, and that figure comes down to about 8.5m tonnes of genuine new demand. This is equivalent to more than a third of total global copper demand today.

Increased infrastructure spending by the government in India

The government has put an emphasis on infrastructure, with increased fiscal stimulus in the sector. This has led to an increase in cement demand. From which the demand for grinding media will follow. In the Union Budget 2019-20, the Government of India has given a massive push to the infrastructure sector by allocating Rs 4.56 lakh crore (US$ 63.20 billion) for the sector. The logistics sector in India is growing 10.5 per cent annually and is expected to reach US$ 215 billion in 2020. India has a requirement of investment worth Rs 50 trillion (US$ 777.73 billion) in infrastructure by 2022 to have sustainable development in the country. Only 24 per cent of the National Highway network in India is four-lane, therefore there is immense scope for improvement. With initiatives like 'Housing for All' and 'Smart Cities Mission' the Government of India is working on reducing bottlenecks and impeding growth in the infrastructure sector. Rs 2.05 lakh crore (US$ 31.81 billion) will be invested in the smart cities mission. All 100 cities have been selected as of June 2018.

Commodity Upswing

Commodity prices have been very volatile and on the rise past several years. With an increased price, mining companies will be motivated to mine more and thus create demand for AIA's products. Increased production from end users will generate a higher demand for AIA's products.

Capex driven growth

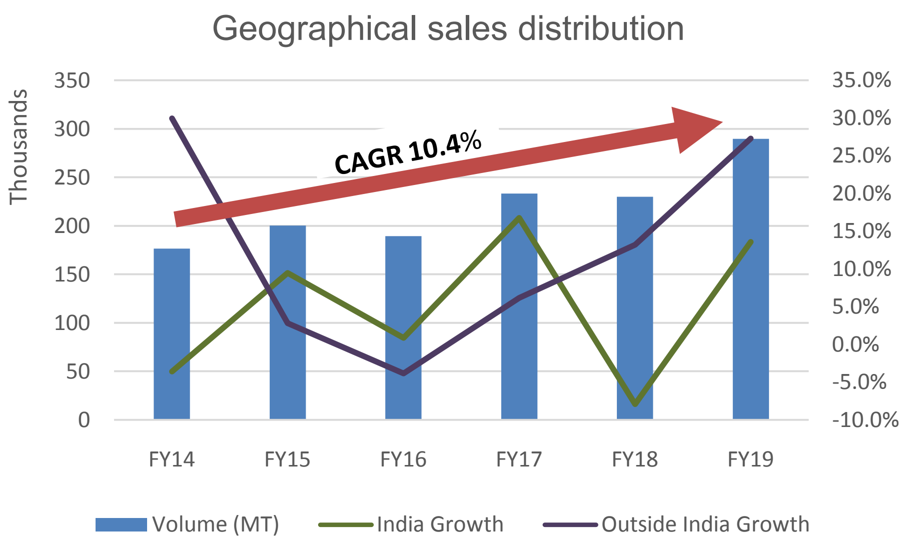
The firm is absolutely debt free and all their CAPEX operations are funded by their internal cash accruals. From the schedule below, one can see company's drive to expand capacities and cater to higher demand and garner a higher market share.

Target Year	Capital in Cr.	Info
2016	178	Total capex for the FY2016
2016		GIDC Kerala Greenfield Phase-I and Trichy Brownfield expansion effectively commissioned in Q-3 FY 2016. Present Installed Capacity 3,40,000 TPA
2017	350	GIDC Kerala, Phase-II Greenfield expected to be commissioned by October, 2017 – estimated capacity addition in Phase-II: 1,00,000 TPA making total installed capacity up to 4,40,000 TPA; by October, 2017 for total Capex of Rs. 350 crores.
2018	500	GIDC Kerala, Phase-II Greenfield expected to be commissioned in two phases. First phase will add 50,000 TPA capacity in F.Y. 2017-18 while Second phase will add another 50,000 TPA capacity in F.Y. 2018-19. Taking installed capacity to 4,40,000 TPA; total Capex of Rs. 500 crores.
2017	83	Capex during the year FY17
2020		GIDC Kerala, Phase-II Greenfield expected to be commissioned in two phases. The First phase will add 50,000 TPA capacity which we expect to be commissioned by June-2019 while the Second phase will add another 50,000 TPA capacity which is expected to be commissioned by December 2020; taking installed capacity to 4,40,000 TPA.
2020	250	The company has planned to set up manufacturing plant of Mining Liner with estimated capex of Rs. 250 crore which will add liner capacity of 50,000 MT per year & to be commissioned by December 2020.
2019	104	To hedge power cost, we have bought & installed 8 WTGs of 2.1 MW each at cost of Rs. 104 Crore during F.Y. 2018-19.
2019	206	Capex during the year FY2019

The company has done an expansion to increase the capacity of mill liners by 50,000 MT per annum and done a capex of 250 crores for the same. One can expect a higher contribution from mill liners going ahead.

Manufacturing capacity

MTPA	2015	2016	2017	2018	2019	2020e
Installed Capacity	260000	340000	340000	340000	340000	390000
Production	200215	189449	233122	229814	289666	300000
Utilization (%)	77%	56%	69%	68%	85%	77%



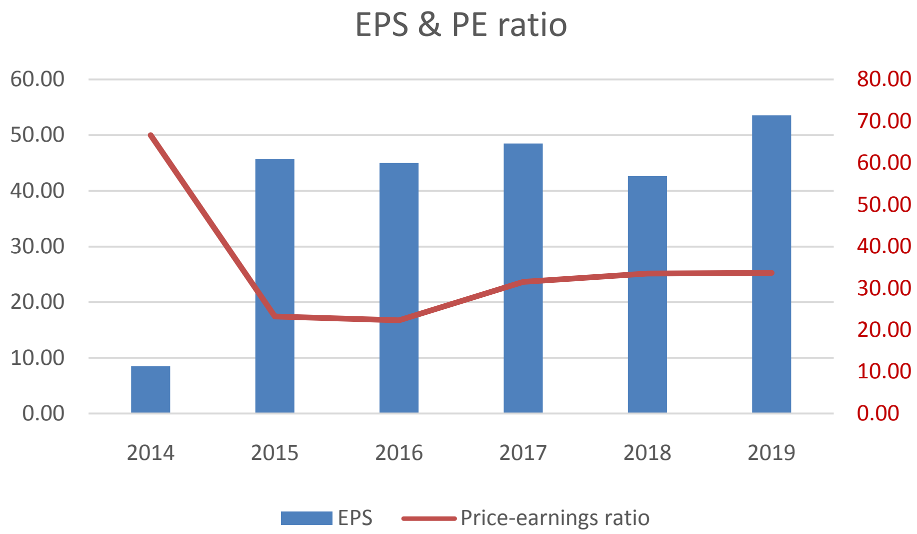
Source: Company, Keynote

Financial Overview

Year	FY14	FY15	FY16	FY17	FY18	FY19
Volume (MT)	176393	200215	189449	233122	229815	289666
Growth	4.7%	13.5%	-5.4%	23.1%	-1.4%	26.0%
Sales (Cr.)	2080.07	2183.63	2098.3	2298.1	2466.6	3069.5
India (Cr.)	508.8	557.2	562.0	656.4	604.5	686.7
Outside India (Cr.)	1507.8	1550.5	1491.0	1582.8	1791.7	2280.7
Export incentives	63.3	75.8	45.2	58.8	70.3	102.0
Sales Growth	18.8%	5.0%	-3.9%	9.5%	7.3%	24.4%
India Growth	-3.6%	9.5%	0.9%	16.8%	-7.9%	13.6%
Outside India Growth	29.9%	2.8%	-3.8%	6.2%	13.2%	27.3%

Financial Valuations

	FY14	FY15	FY16	FY17	FY18	FY19
EPS	8.50	45.69	44.98	48.47	42.65	55.49
PE	66.67	23.29	22.34	31.56	33.57	32.51
ROE	6.1%	20.7%	18.6%	16.8%	13.3%	14.9%



Source: Company, Keynote

Segmental revenues

MTPA	FY14	FY15	FY16	FY17	FY18	FY19
Mining	43757	106056	100684	126479	138398	170224
Others	80435	80600	85104	87998	90326	94950
Total	176393	186656	185788	214477	228724	265174
Mining	54%	57%	54%	59%	61%	64%
Others	46%	43%	46%	41%	39%	36%
Total	100%	100%	100%	100%	100%	100%

The firm’s revenues are led by their sales in mining, with major part of the revenue coming from outside India.

Double Edged Sword Market

The company is present in an industry with a double edged sword fate. If the scrap iron prices and chrome prices move upwards, the mining industry wants to mine more, but the raw material cost for AIA increase as well. Whereas when the price goes down, AIA is able to enjoy bigger margins, but the mining firms will no longer be mining at the same peak capacity.

Company overview

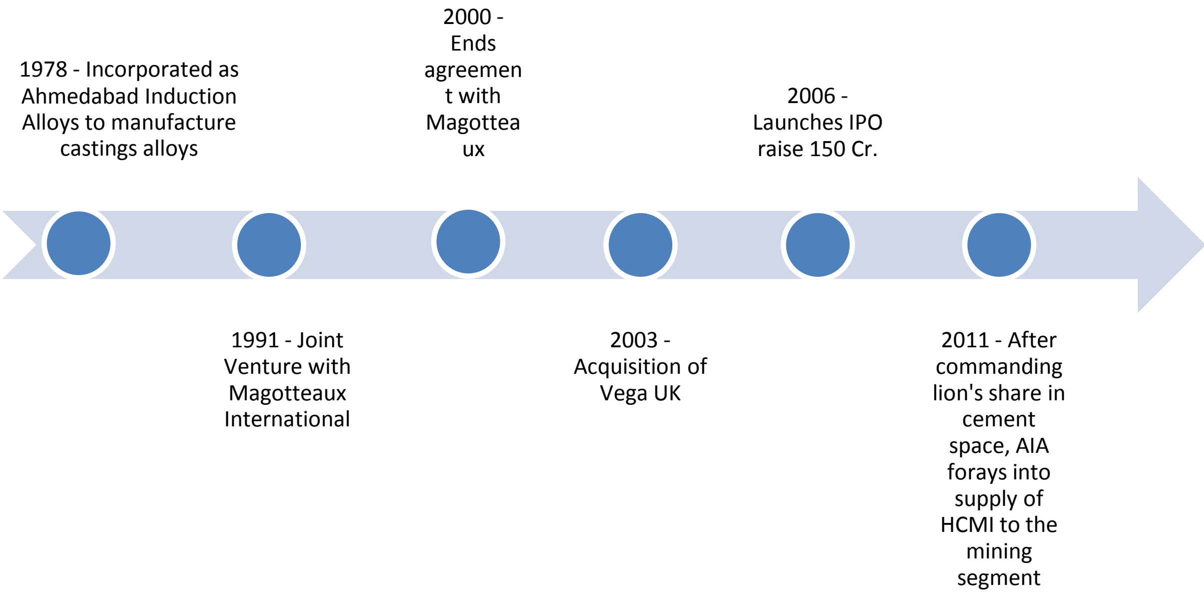
AIA is in the business of Chrome Metallurgy. Metallurgy is a domain of materials science and engineering that studies the physical and chemical behavior of metallic elements, their inter-metallic compounds, and their mixtures, which are called alloys. In this case, the company is in charge of manufacturing products that are chrome and steel based.

AIA business lies in manufacturing high-end, robust material for mining and grinding of earth. Following are the tasks completed by the company;

1. Design, develop, manufacture and service impact, abrasion and corrosion resistant castings.
2. Metallurgy of the products, New Product Development and improved Grinding Process Technology.
3. Products: Grinding media, mill liners, diaphragms, vertical mill parts and crusher parts.

Two types of mills are used for the grinding operation in the above mentioned industries – tube mills (which are horizontal) and vertical mills. AIA is involved in designing, manufacturing, supplying and servicing of various parts in these mills, collectively called as mill internals. The purpose of these mills is to grind the raw materials/inputs. It plays a crucial role in the production process as it has a direct influence on the cost and quality of the final output.

AIA Engineering is a Gujarat based firm, present in a very niche market, with product used only during grinding of raw materials. With its niche product, the company holds the position of a global duopoly and a monopoly in the Indian market. AIA Engineering (AIA), established in 1979, is India's only manufacturer and supplier of corrosion and abrasion resistant high chrome mill internals (HCMIs), which are used as wear parts in crushing (or grinding) operations in cement, mining and thermal power plants (or mills) – known as grinding media. The firm has been increasing their sales on an annual basis at a CAGR of 13.5% for past 10 years.



Source: Company, Keynote

Porter's 5 forces

Rivalry among existing firms (Low)

- The firm is present in an oligopoly business
- AIA controls 25% of the market share.
- The majority of the share is controlled by Magotteaux (35%).
- The rest of the market is controlled by unorganized Chinese players.

Bargaining Power of Suppliers (Low)

- Not dependent on any individual suppliers
- Raw material is vastly available in the market.
- The raw materials such as scrap metal and Chromium can be bought directly from the market but means that they are highly exposed towards fluctuations in the market prices of the raw materials.

Bargaining Power of Consumers (Low)

- Manufacturers several critical components for their clients
- Very small cost in comparison to their overall business operations, especially when it ensures the machines for longer.
- With customized goods, one can expect better loyalty from the customers and hence customers have low bargaining power.

Threat of Substitutes (Low)

- AIA is one of the few global companies that has the technological know-how of the grinding media.
- It's a capex intensive industry and hence using substitutes which could bear lower operating expense could lead to higher capex due to wear and tear.

Threat of new Entrant (Low)

- New entrant would need to acquire the appropriate patent or create a new process.
- AIA has long standing relationships with clients leading to customer retention.
- Large capex is needed to achieve sufficient production capacity and to deliver to the clients on time.

Customers

Mining

- Rio Tinto
- Anglo American
- BHP Billiton
- Vale
- Arcelor Mittal
- Newmont Mining Corporation

Cement Plants

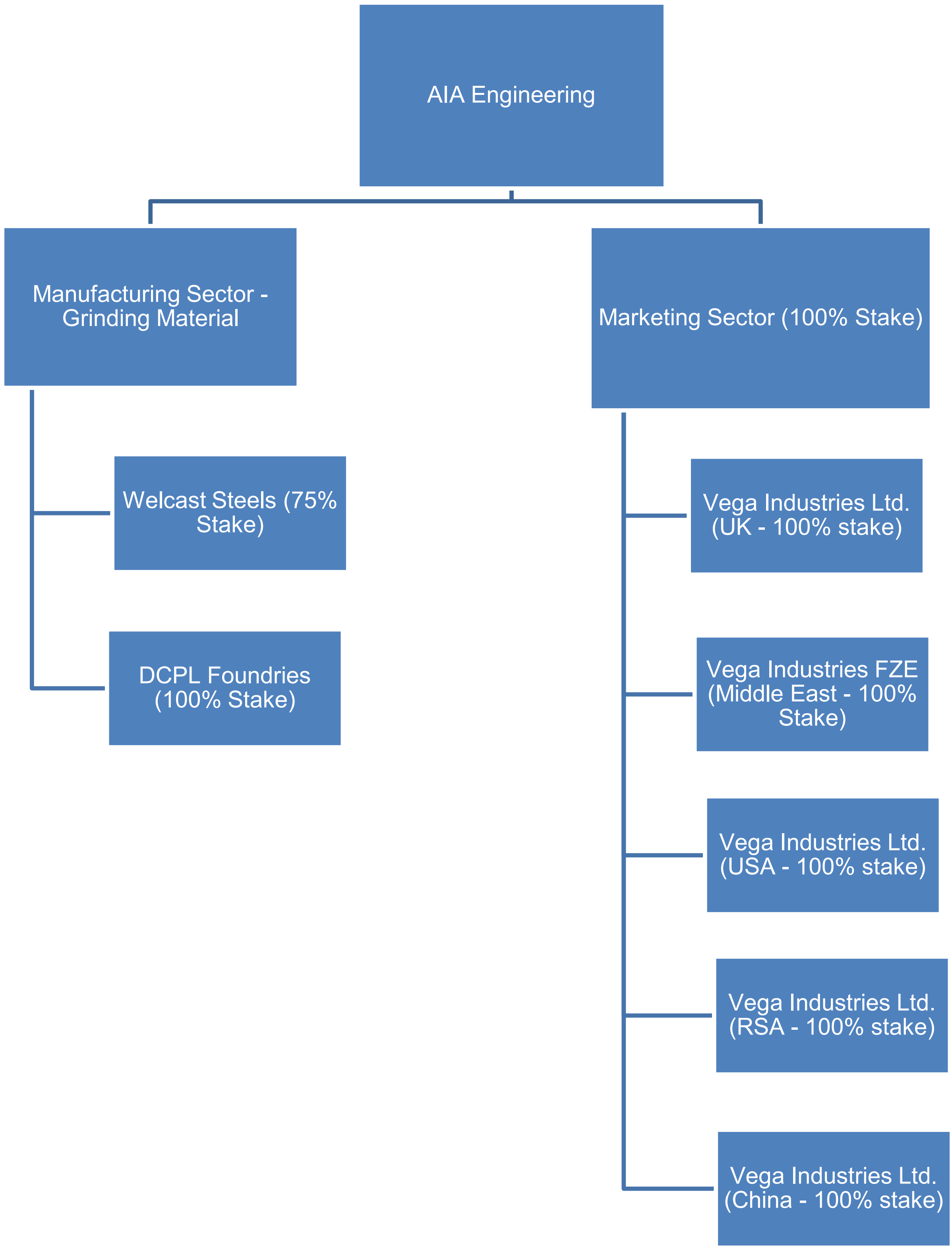
- Lafarge
- Holcim
- Heidelberg
- Cemex
- Italicementi
- Polysius
- Votorantim

Thermal Power

- National Thermal Power Corporation
- All State Electricity Boards in India
- Bharat Heavy Electricals
- Doosan Corp
- L&T
- Hitachi and Alstom

Source: Company, Keynote

Company Structure



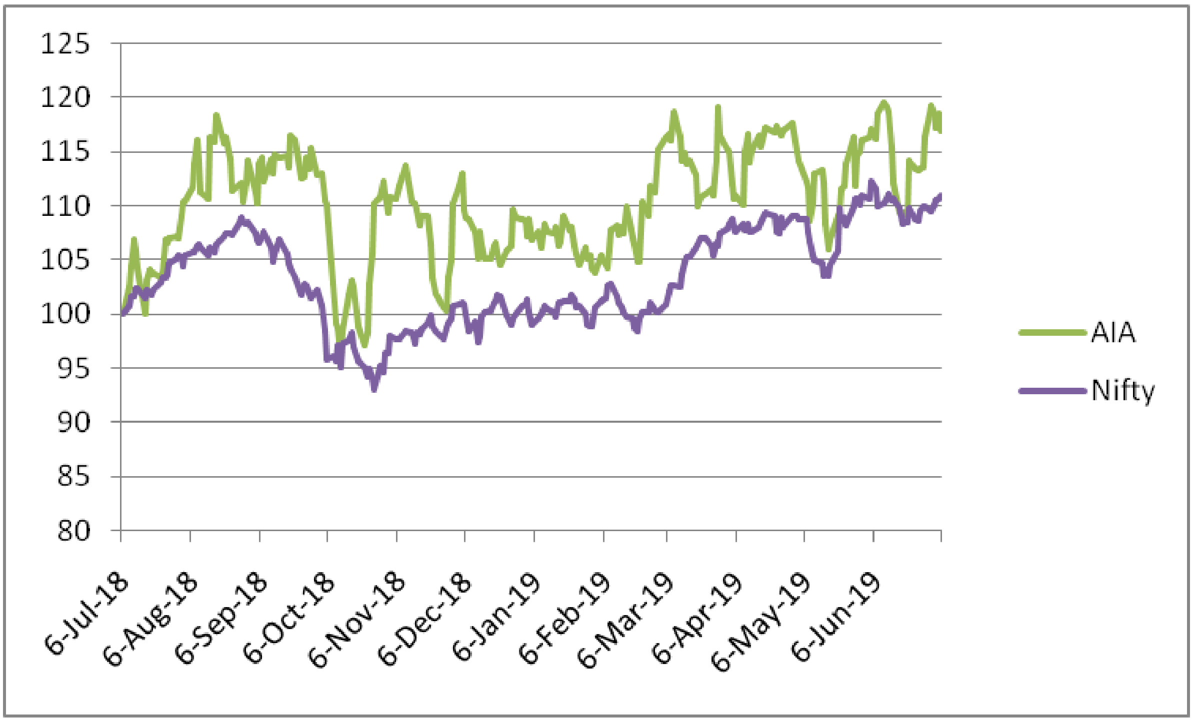
Source: Company, Keynote

Management Team

Name	Position	Information
Rajendra S. Shah	Chairman	Mechanical engineer, with experience in finance, administration and running an engineering business. Chairman and MD of Harsha Engineers (manufacturers of bearing Cages)
Bhadresh K Shah	Managing Director	B. Tech from IIT Kanpur. Over 47 years of experience with HCMI products. Well versed in aspects of production, finance cost and technical Administration. Keen on manufacturing process improvement, product development and improved quality standards
Sanjay S. Majumdar	Independent Director	B.Com, FCA & ACS. Practicing CA.
S. Srikumar	Non Independent – Non-executive Director	M. Tech (Industrial Engg.) Ph.D and PGDM from AIMA. Experienced in the Industry, project management, technical evaluation, engineering coordination and administration.
Yashwant M. Patel	Whole-time Director	BSc Chemistry. Experience in production, administration, HR and accounts
Dileep C. Choksi	Independent Director	B.Com, LLB, FCA and Grad. CWA. Qualified lawyer and cost accountant.

Share holding pattern	
Prom holding	58.47%
Bandresh Shah	58.47%
Institutional	25.03%
Nalanda India	9.68%
HDFC Trustee	2.94%
L&T Mutual Fund	1.92%
SBI Equity Hybrid Fund	1.90%
Pinebridge Investment GF Mauritus	1.50%
Kotak Standard Multicap Fund	1.43%
Matthews India	1.26%
DSP Midcap Fund	0.90%
IDFC Multicap Fund	0.83%
Goldman Sachs	1.45%
ICICI Prudential Midcap Fund	0.57%
Burgandy Emerging market Fund	0.65%
Others	16.5%

Price Comparison



Balance sheet (INR Cr.)				
Year ended March 31	**FY16**	**FY17**	**FY18**	**FY19**
Net fixed assets	708.46	692.96	748.23	884.69
Investments	0.01	1.00	0.86	0.85
Other noncurrent assets	26.82	86.98	112.34	90.36
Total Noncurrent assets	**735.29**	**780.93**	**861.43**	**975.90**
Inventory	389.29	534.06	553.39	785.92
Debtors	430.45	494.83	600.20	706.38
Cash & Bank balance & CI	1014.99	1200.22	1272.16	1352.03
Loans & advances & others	-225.47	180.09	271.35	212.54
Current assets, Loans & adv.	**1609.26**	**2409.20**	**2697.10**	**3056.86**
Total assets	**2344.54**	**3190.13**	**3558.52**	**4032.76**
Share Capital	18.86	18.86	18.86	18.86
Reserves & Surplus	2263.48	2706.41	2999.36	3504.14
Net Worth	**2282.34**	**2725.27**	**3018.22**	**3523.00**
Debt	150.55	115.79	123.14	127.89
Deferred tax liabilities	32.91	80.22	86.33	87.10
Liabilities	2483.21	2954.17	3324.03	3789.92
Provisions	59.52	39.95	25.02	27.86
Total Liabilities	2726.20	3190.13	3558.52	4032.78

Past Performance ratios	**FY16**	**FY17**	**FY18**	**FY19**
ROE	0.20	0.17	0.13	0.15
ROCE	0.28	0.20	0.15	0.16
ROA	0.20	0.14	0.11	0.13

Profit & Loss account (INR Cr.)				
Year ended March 31	**FY16**	**FY17**	**FY18**	**FY19**
Revenue from operations	**2172.39**	**2320.34**	**2466.69**	**3069.50**
Total Expenses	1563.08	1685.69	1930.99	2409.60
Operating Profit	609.31	634.65	535.70	659.90
Other income	101.94	104.36	121.81	120.89
Interest expense	4.87	4.49	6.93	7.55
Depreciation	65.52	72.48	65.58	78.85
Profit before tax	**640.86**	**662.04**	**585.01**	**694.40**
Tax expense	174.50	204.83	141.39	182.96
Profit after tax	466.36	457.21	443.62	511.44

Growth	**FY16**	**FY17**	**FY18**	**FY19**
Sales	0%	7%	7%	23%
EBITDA		4%	-16%	23%
PAT		-2%	-3%	15%

Efficiency Ratios	**FY16**	**FY17**	**FY18**	**FY19**
Asset Turnover	3.34	3.58	3.80	3.73
Receivable Days	52.51	56.51	64.48	60.98
Inventory Days	211.27	230.05	204.61	200.28
Payable Days	53.39	59.21	60.39	44.24
Cash conversion cycle	210.39	227.35	208.70	217.02

Leverage ratios	**FY16**	**FY17**	**FY18**	**FY19**
Debt/Equity	0.07	0.04	0.04	0.04
Current Ratio	4.27	6.25	5.89	7.67
Interest Coverage Ratio	111.60	125.15	67.86	76.99

Valuation Ratios	**FY16**	**FY17**	**FY18**	**FY19**
EPS	49.4	48.5	47.0	54.2
EPS Growth		20.3	21.3	44.8
PE	20.3	31.6	30.4	33.3
PEG		1.6	1.4	0.7
P/B	4.15	5.30	4.48	4.83
Dividend Yield	0.00%	0.52%	0.56%	
EV/EBITDA	15.60	22.54	25.10	25.66
EV/EBIT	17.48	25.45	28.61	29.15

Cash Flow Statement (INR Cr.)				
Year ended March 31	**FY16**	**FY17**	**FY18**	**FY19**
PBT	**598.64**	**662.04**	**585.01**	**694.40**
Depreciation	66.99	72.48	65.58	78.85
Interest Expense	4.87	4.49	6.93	7.55
(Inc)/Dec in Working Capital	78.14	-242.65	-105.29	-299.22
Tax Paid	-174.25	-161.93	-160.94	-180.53
Less:Int/Div income received	0.17	-5.23	-6.56	-16.34
Other operating cash flow	68.58	305.95	175.67	394.64
CF from operating activities	**643.13**	**635.15**	**560.40**	**679.36**
Capital Expenditure	-75.21	-79.84	-137.08	-206.44
Inc/(Dec) in investments	47.45	57.99	-74.01	18.81
Add: Int/Div received	5.23	5.71	6.05	16.19
CF from investing activities	**-401.34**	**-16.14**	**-205.04**	**-171.44**
Inc/(Dec) in debt	-43.60	-41.63	-18.11	6.00
Others	-164.79	-49.31	-140.15	-7.54
CF from financing activities	**-208.39**	**-90.94**	**-158.26**	**-1.54**
Net Cash Flow	**33.39**	**528.08**	**197.11**	**506.38**
Opening balance	186.79	118.09	241.60	181.16
Closing balance	**124.07**	**241.60**	**181.16**	**208.31**

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