

Sector Research

Building Materials Conference

Sector review

Theory of constraints - it's never late too late to re-invent

We hosted Mr. Kiran Kothekar, Founding Director of the Vector Consulting Group, and a proponent of the Theory of Constraints (TOC). As per Mr. Kothekar, several companies will face challenges in managing supplies, operations, demand, logistics and sales as a result of COVID. He highlighted strategies which cos could adopt to navigate the crisis and aid operational excellence in the long term. Most BM plays are yet to embrace the TOC concept; however, we can identify proposed strategies being implemented in parts e.g. SI's wider manufacturing/ distribution, ASTRA's push on technology adoption across the supply chain; PIDI (NR) demonstrating strong end-user engagement. JSP (BUY), having implemented TOC from 2015/16, is reaping the gains. ACEM is also currently implementing TOC. We find several levers with BM plays to grow stronger with time as they adopt outlaid strategies.

- **Status quo?** Most orgs follow a process of forecast and a 'push based' monthly planning system for manufacturing, procurement and distribution. Forecasting errors lead to stock-outs, and wrong placement of inventory. In a Covid like scenario: a) likely deterioration in inventory turns b) dealer/ distributors facing liquidity issues (impact future purchases) c) given the lock down, 'push' sales may not work and d) supply issues on the back of concentration risk in manufacturing.
- **Flexibility in planning:** Companies can shift into a process of 'daily planning' based on daily consumption signals from the recipient node in the system. TOC methodology of 'Pull-manufacturing', 'Pull-Procurement' and 'Pull-Distribution' can enable Management teams to react to daily variability without losing out on efficiencies. In this fashion, inventory in all nodes can be reduced, enabling transition to normalcy fast.
- **Flexibility in mfg. & supplies:** With daily dynamic planning systems, plants could offer higher flexibility. At the same time, Mr Kothekar highlighted the need to do away with concentration risk such as plants operating in a particular cluster or specific products dedicated to only a particular plant. Closing dedicated plants would help manufacturing maintain lower inventory and reduced working capital.
- **Flexibility in distribution:** Vector cites a single physical hub warehouse could be a risky idea if the area goes into a lockdown. Hence companies need to have multiple-hub locations with ability to behave as one single virtual hub.
- **Flexibility in sales:** Instead of the traditional practice of physical meetings with customers, vector highlights how it is imperative to set up a 'system of central – yet distributed order taking' on phone calls. This not only enables greater reach of sales force but also de-risks the model of the regular ordering business. In this way, sales team can focus on solving specific obstacles in the market.
- **Increase pull from customers:** In BM, product category sales are influenced by influencers like electricians, plumbers, carpenters, masons, and contractors. Companies need to work on creating a long term pull. A long-term loyalty program to ensure that the smaller influencers can get their aspirations depending on their consumption, i.e. by time bound programs. The focus and spend of the cos have to shift to the end consumer rather than on the entities that are just stocking points.
- **Where do BM plays stand?** We highlight BM plays have a long run ahead and with the adoption of the right strategies, organized plays will only emerge stronger. Amongst our coverage, JSP alone, to our knowledge has implemented TOC and ACEM is implanting it. PIDI (NR) has demonstrated skill in the ability to increase pull from customers and ASTRA and Supreme have been doing it in parts.

Company	Rec	Target
ACC	Buy	INR1361
Ambuja Cements	Buy	INR238
Astral Polytechnik	Buy	INR890
Jindal Steel & Power	Buy	INR185
Supreme Industries	Buy	INR1240

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We highlight the case study of Jindal Steel & Power (JSPL), wherein its WC has improved sharply over last couple of years (vs. its peer set). Excerpts from their FY15/16 annual reports are presented.

Figure 1: WC days trend

WC days	FY15	FY16	FY17	FY18	FY19
Tata Steel (SA)	24	20	12	10	9
JSW Steel (SA)	-2	-2	0	-8	-5
SAIL	139	130	110	85	91
JSPL (SA)	104	35	7	7	9

Source: Company, Investec Securities research

Figure 2: OCF / EBITDA conversion

OCF / EBITDA	FY15	FY16	FY17	FY18	FY19
Tata Steel	0.61	1.05	1.12	0.89	1.02
JSW Steel	1.13	0.74	0.86	1.24	1.24
JSPL	0.38	1.82	1.41	1.22	1.16
SAIL	0.57	107.98	1.05	1.26	0.85

Source: Company, Investec Securities research

Process Efficiency by Theory of Constraints: JSPL's business process efficiency turnaround during 2015-16 was anchored in the Theory of Constraints (ToC). ToC focuses on identifying, focusing, and improving a few parts in the production process that are assessed as not adequately performing at the desired levels. The TOC is a thinking process that enables people to invent simple solutions to complex problems.

It consists of five steps:

1. Identify the system's constraint Identify the operation that is limiting the productivity of the system. This may be a physical or policy constraint.
2. Decide how to leverage the system's constraints Exploit the constraint to achieve the best possible outcome from the constraint. Remove limitations that limit/check the flow, and reduce non-productive time, so that the constraint is used in the most effective way possible.
3. Subordinate/ synchronize everything else to the above decision. Subordinate other activities to the constraint: link the output of other operations to suit the constraint. Smooth work flow and avoid build-up of work-in process inventory. Avoid making the constraint wait for work.
4. Elevate the system's constraint in situations where the system constraint still does not have sufficient output invest in new equipment or increase staff numbers to increase output.
5. If in the previous steps a constraint has been broken then goes back to Step 1 If anything has changed in the previous steps or a constraint has been broken, go back to step one i.e. Assess to see if another operation or policy has become the system constraint.

All through FY 2015-16 at JSPL, the roll out of ToC was implemented via several consultations, workshops, and projects on site and at the corporate level. The plans enabled each part of the company's operations to know not only what it must start doing to increase efficiency of the whole organization, but also what each part must stop doing that is not contributing to efficiency. JSPL's objective in deploying the management philosophy of Theory of Constraints (TOC) was to achieve a quantum jump in performance efficiency, increase gross contribution, and improve working capital.

A dedicated 'Theory of Constraints' teams were established on plant sites. These teams had the mandate to conduct a data backed study of where the weakest link in the production efficiency on their site operations lies, then propose a solution to improve efficiency of that link. The two teams would increase sales through:

- Identification of a decisive competitive edge for each customer segment
- Build the operations to deliver the competitive edge
- Build sale processes to capitalize on the competitive edge built
- Alongside increase output of the plants while decreasing inventory and receivables.

The results of this yearlong exercise provided solutions for different sectors at JSPL. The solutions can be summarised as follows:

a) TMT

- ✓ Competitive edge was developed to provide distributors a Return on Investment (ROI) of at least double the industry norm.
- ✓ Capitalize on it to motivate distributors to increase retailers in the market.
- ✓ Deploy a long term Loyalty Program with market influencers such as Masons and Contractors to increase market pull.

b) Wire rods

- ✓ Competitive edge was developed that guaranteed daily availability from stock yards to customers, so that they can operate with much less raw material inventory than with other suppliers.

c) MLSM

- ✓ A planning tool was developed and implemented to reduce idle and set up time.

d) RUBM

- ✓ The current process was evaluated to reduce cycle time and opportunity areas were identified for increasing output by 50%. New processes would bring down the cycle time from 111 minutes to 71 minutes. In other words, the production would go up from 13 units to 20 units a day.
- ✓ The time taken for the process from Welding to USFD was analysed, and the variations around the processing times, primary causes of variations and inter-dependencies of various operations (what can run in parallel and which ones are completely sequential) were studied. A simulator was developed to illustrate the whole process.

e) Structural Steel Division Punjipatra

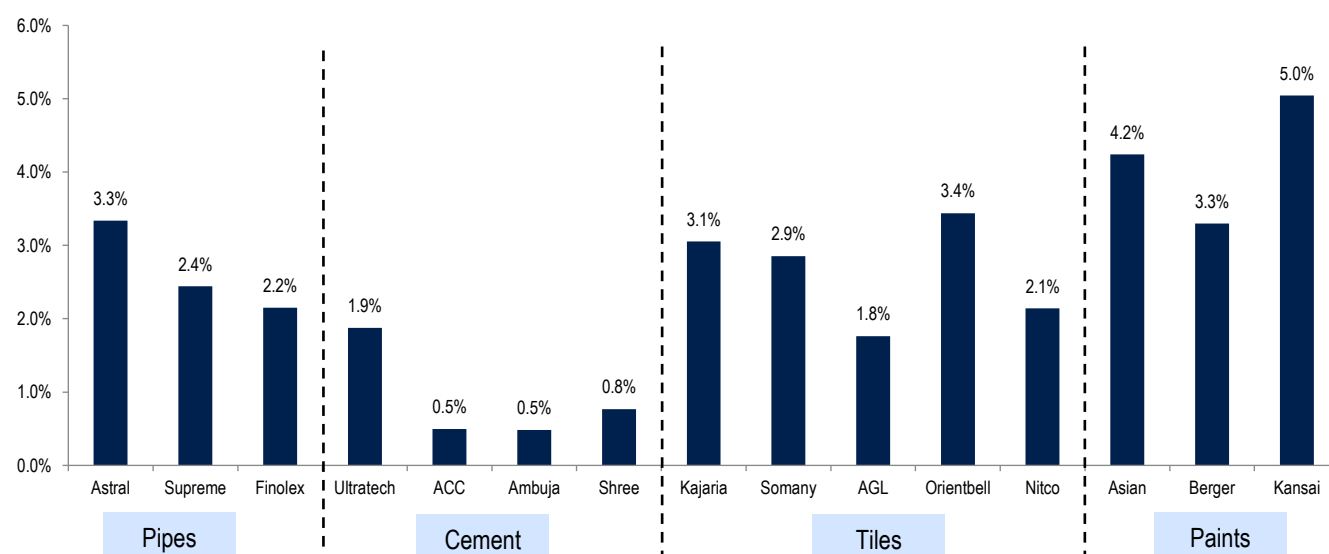
- ✓ A prioritization plan of projects and execution was set up, along with allocation of maximum constrained resources starting with top priority project.
- ✓ A system of controlled release of Drawings & RM was established, and DUs that were work in progress for more than 30 days were monitored.
- ✓ A Dynamic Buffer management (DBM) was deployed to reduce inventory and increase availability receivables.

f) Machinery Division Raipur

- ✓ Inventory management was improved.
- ✓ On Time In Full delivery of products was improved with drastic reduction in production lead times.
- ✓ Operational expense was reduced.
- ✓ The product portfolio was developed with a strong external order focus

Building materials – Key comparative metrics

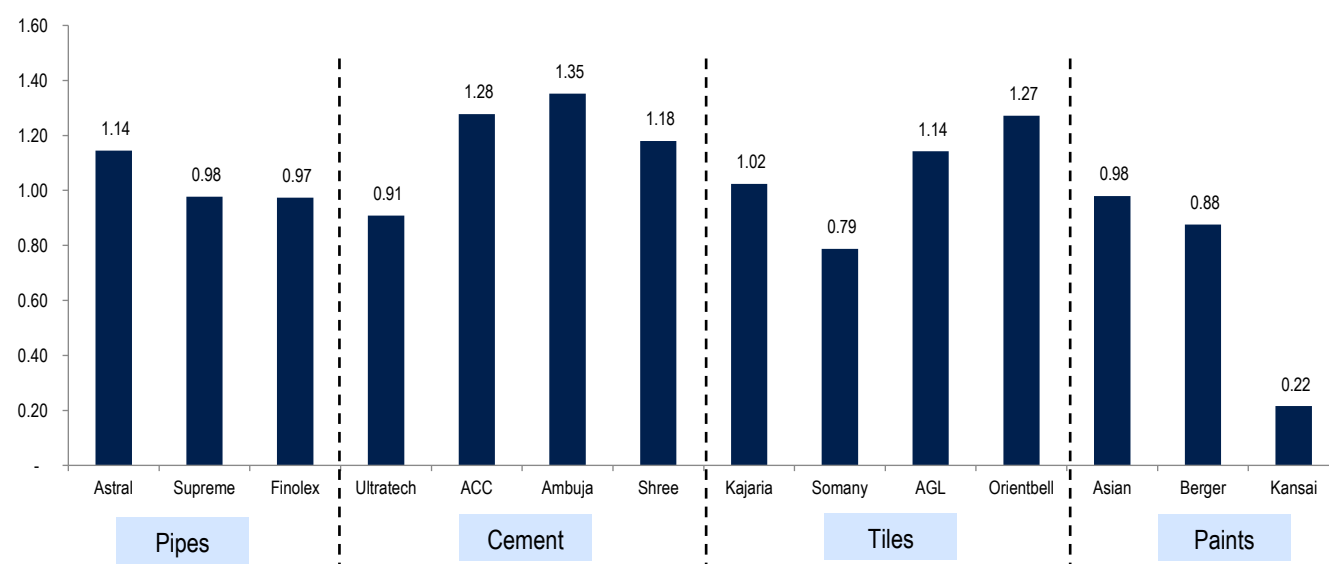
Figure 3: Ad spend as % of sales comparison (FY19)*



*CY18 for ACC and ACEM

Source: Company, Investec Securities research

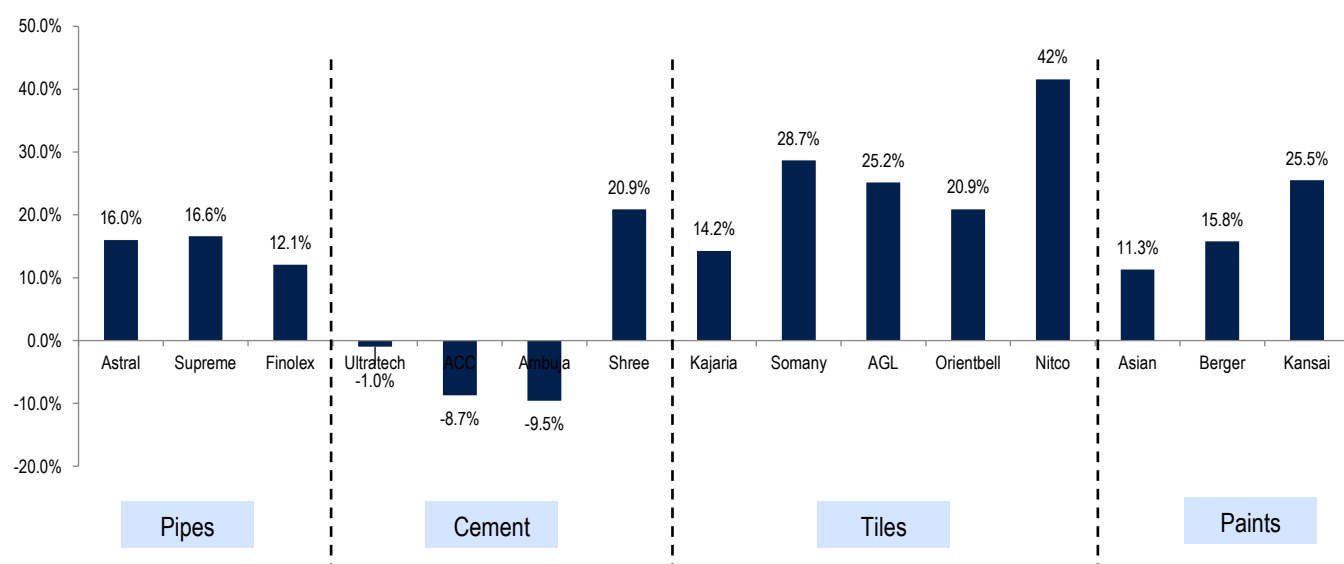
Figure 4: OCF / EBITDA ratio comparison (FY19)*



*CY18 for ACC and ACEM

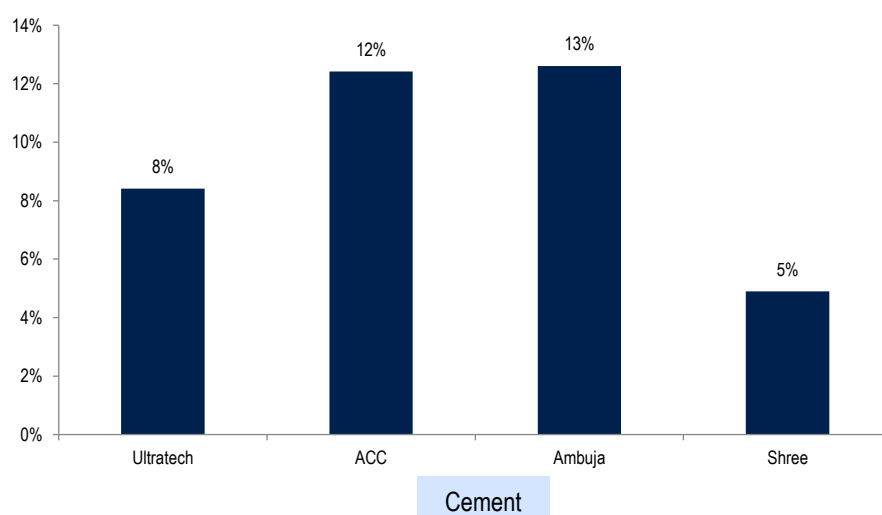
Source: Company, Investec Securities research

Figure 5: Working capital as % of sales comparison (FY19)*



*CY18 for ACC and ACEM; SRCM's working capital is high on back of higher inventory and lower payable days vs peerset Source: Company, Investec Securities research

Figure 6: Discounts and incentives as % of sales (FY19)*



*CY19 for ACC and Ambuja

Source: Company, Investec Securities research

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	Expected total return	Count	All stocks	Corporate stocks	
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Buy	greater than 10%	239	71%	102	43%
Hold	0% to 10%	72	21%	7	10%
Sell	less than 0%	26	8%	0	0%

Source: Investec Securities estimates

Stock ratings for Indian stocks

Stock ratings for research produced by Investec Bank plc

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	12m performance		% of total	Count	% of total
Buy	greater than 15%	97	66%	1	1%
Hold	5% to 15%	38	26%	0	0%
Sell	less than 5%	12	8%	0	0%

Source: Investec Securities estimates

Stock ratings for African* stocks

Stock ratings for research produced by Investec Securities Limited

	Expected total return	Count	All stocks	Corporate stocks	
	12m performance		% of total	Count	% of total
Buy	greater than 15%	50	66%	6	12%
Hold	5% to 15%	9	12%	4	44%
Sell	less than 5%	17	22%	4	24%

Source: Investec Securities estimates

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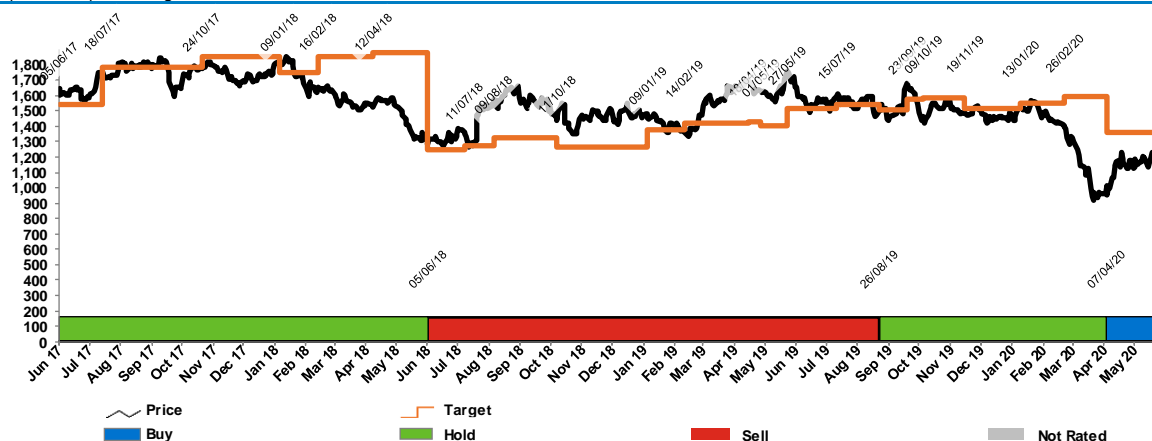
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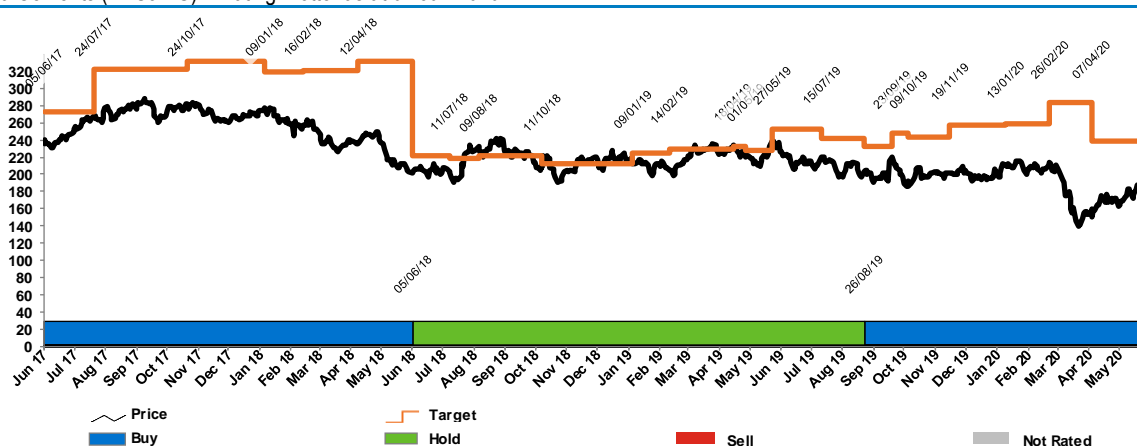
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ACC (ACC.BO) – Rating Plotter as at 04 Jun 2020



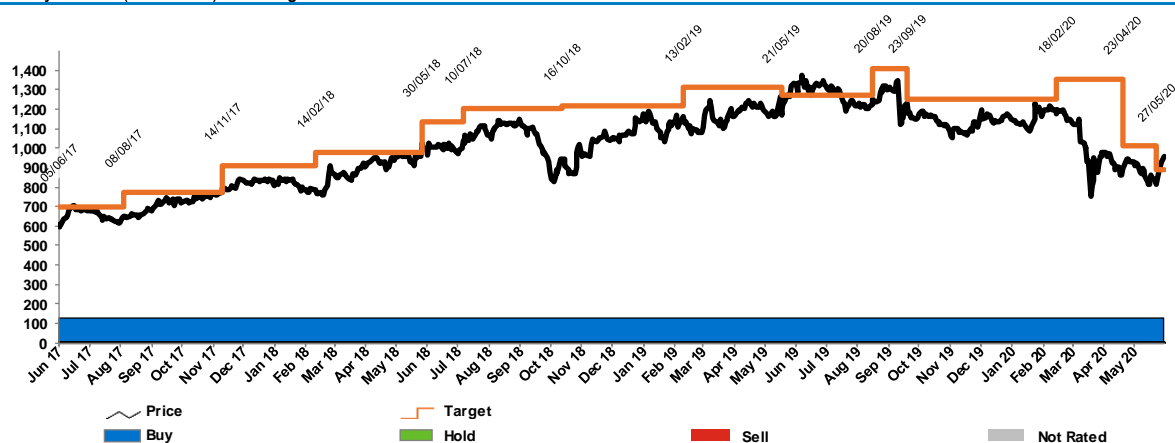
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Ambuja Cements (ABUJ.NS) – Rating Plotter as at 04 Jun 2020



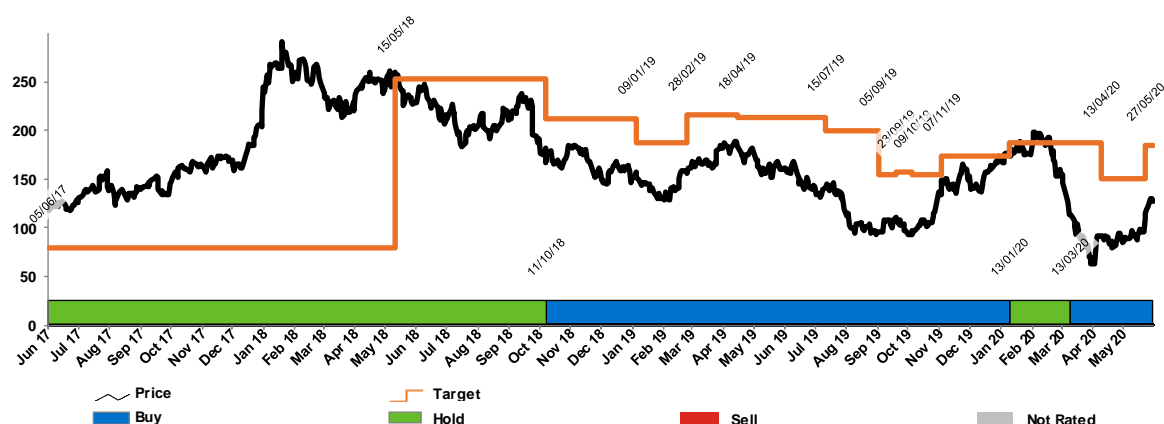
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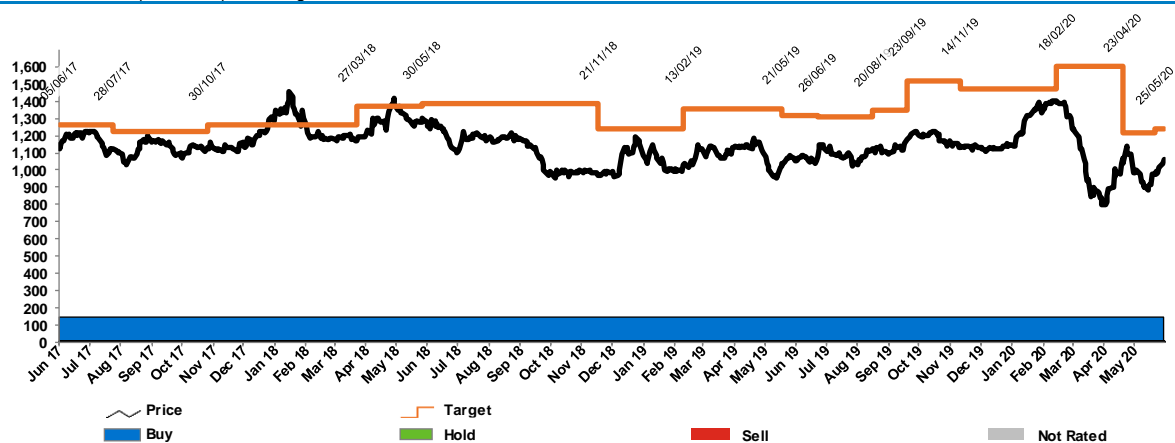
Source: Investec Securities / FactSet

Jindal Steel & Power (JNSP.NS) – Rating Plotter as at 04 Jun 2020



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