

## Warming up to recovery in China

- Commentary from global ferrous majors continues to point to demand stabilisation in China
- Stock markets warming up to recovery in China, but we expect margins to revive only to mid-cycle levels through FY24
- Indian ferrous players should benefit from brownfield expansion-led earnings growth, while margins remain mid-cycle; prefer TATA

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**Market sentiment perks up:** Indian and global ferrous stocks have rallied over the past week on firmer sentiments of a Chinese recovery. In addition to more decisive growth commitments in mid-July, China has announced a raft of measures to stimulate auto and housing consumption and revive private sector investment. To stabilise real estate, the government has extended a 16-point reform package for the long-term, instructed financial institutions to transmit the same, and begun to relax restrictions and offer incentives (lower interest rate and down payments) to resuscitate house sales.

**China – recovery drivers:** We expect near-term support for the steel sector from seasonal demand recovery in China during September-October, followed by potential production cuts in the country during Q4CY23 (to hold output at CY22 levels), as flagged by Baosteel. Stimulus benefits are more likely from Q2CY24 after the Lunar holidays, according to MT, as measures percolate down to the economy. Most observers maintain steel demand growth forecasts at -1% to +1% for CY23.

**Housing starts in China near a bottom....:** Revival of fund flow to private developers is the key to a bottoming out of housing starts in China. With the inventory of universal housing at a decadal low of 2.3bn sqm, BHP believes it is only a matter of time before a housing shortage sets in. Green shoots are visible in 'non-commodity' real estate where housing starts dipped 3.2% vs. a 24% drop in the 'commodity' segment in H1CY23.

**...but local government debt looms large:** Though private developer funding could aid recovery in government land sale revenue, structural changes are needed to address the systemic risk of local government debt (85% of GDP) that is constraining investment.

**China recovery key to mid-cycle margins:** We believe a China recovery will relieve pressure on steel prices and support a return to mid-cycle margin levels. Structural surplus in China and a softer outlook for the US/EU will remain a drag.

**Read-across for Indian ferrous sector:** We are constructive on Indian ferrous players given earnings prospects from ongoing expansion projects but continue to see margins at only mid-cycle levels over the medium term. We have a BUY on TATA (TP Rs 145).

### Recommendation snapshot

Ticker	Price	Target	Rating
JSTL IN	815	840	HOLD
SAIL IN	99	90	HOLD
TATA IN	130	145	BUY

Price & Target in Rupees | Price as of 6 Sep 2023



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## Global market roundup

We have studied the earnings and market outlook commentary from global ferrous majors to gauge market expectations for H2CY24 and also covered demand-supply indicators across the three key regional markets of China (and other Asia), the US and Europe. Our review spans releases from ArcelorMittal (MT NA) on 27 July, Baosteel (600019 CH) on 31 August, BHP (BHP LN) on 22 August, Nucor (NUE US) on 25 July, Rio Tinto (RIO LN) on 26 July, Teck Resources (TECK/B CN) on 27 July, and Vale (VALE3 BZ) on 28 July.

## Price and margin outlook

We believe global steel margins will recover to mid-cycle levels through FY24 based on a range of supportive factors, as highlighted by ferrous majors in their recent market commentaries.

- **Recovery to mid-cycle margins at best in FY24:** We expect steel margins to recover to mid-cycle levels through FY24 as a gradual improvement in China's market balance relieves pressure on steel prices and allows steel players to enjoy the benefit of lower raw material costs. We do not expect margins to move materially above mid-cycle levels as the structural surplus in China and a softer demand outlook for the US and Europe likely remain a drag on steel prices.
- **China – Seasonal demand to support prices near term....:** For the China market, we expect initial support to come from a seasonal demand recovery in September-October which could help shrink the market surplus. Proxy inventories for the marketplace and steel mills are not putting pressure on the domestic market as China was able to export its surplus in CY23 YTD. Looking ahead, exports are likely to moderate as the arbitrage spread between China and western markets has fallen below US\$ 200/t post June from US\$ 300-350/t levels over April-May.
- **...followed by production caps and stimulus benefits:** The next support driver for the Chinese market could be the announcement of potential production cuts towards the end of October to limit annual output below CY22 levels. This could help calibrate the market balance through the winter months during H2FY24. Lastly, if China is able to arrest the demand decline in housing markets as stimulus measures percolate through its economy, this could shore up steel demand after the Lunar holidays, i.e. towards Q4FY24 or the beginning of Q1FY25.
- **Ex-China – Spreads to decline QoQ in Q3CY23:** Outside China, demand in the US has softened further owing to weakness in long products, and the outlook for Europe has dimmed as higher interest rates handicap construction activity. Though real demand is moderating, apparent demand is likely to show resilience due to the low inventories in these markets.

Given heavy destocking last year in H2CY22, MT believes that apparent demand could rise YoY in H2CY23. Also, the developed market has self-balanced following a sharp decrease in Europe's production since Q2CY23. MT is guiding for a QoQ decline in steel spreads for western developed markets during Q3 as price weakness is being only partially offset by reduced coking coal prices. For steel

prices to move above mid-cycle levels, it is essential that market demand growth ex-China also turns positive.

- **India margins to stay flattish QoQ:** Within India, Q2FY24 steel margins are likely to be flattish QoQ and linger below mid-cycle levels. Indian companies have guided for a US\$ 40-50/t reduction in coking coal costs for Q2, and domestic steel prices have remained Rs 2k-3k/t below the Q1 average in July-August. Indian prices have been at a premium to landed imports during Q2 thus far. However, the recent rise in Chinese export prices is narrowing the premium to imports, thereby improving the near-term sustainability of Indian prices.

**Fig 1 – BOBCAPS forecasts**

Parameter	FY23P	FY24E	FY25E	FY26E
USDINR exchange rate	80.4	82.1	82.0	83.7
<b>Steel prices</b>				
China HRC Export (US\$/t)	644	572	552	552
India HRC (US\$/t equ)	751	642	599	599
YoY Change (%)	(15.7)	(14.6)	(6.7)	0.0
India HRC (Rs'000/t)	60.3	52.7	49.1	50.1
YoY Change (%)	(9.2)	(12.6)	(6.7)	2.0
India Rrebar (Rs'000/t)	56.3	50.0	46.7	47.6
YoY Change (%)	0.0	(11.1)	(6.6)	2.0
<b>Raw material prices</b>				
Iron ore CFR China (US\$/t)	110	104	95	95
Iron ore India indicator (Rs'000/t)	4.6	4.9	4.1	4.2
Coking Coal Australia FOB (US\$/t)	330	238	225	225
<b>Gross margin indicator (spot)</b>				
China (US\$/t)	207	214	225	225
India (US\$/t equ)	370	325	308	309
India (Rs'000/t)	29.7	26.7	25.3	25.9

Source: BOBCAPS Research

## China outlook – Recovery delayed but likely

### Overview

- **Flat demand outlook for CY23:** MT expects steel demand in China to remain flat this year, maintaining its growth forecast in the range of -1% to +1%. Baosteel has also acknowledged the absence of clear signs of recovery.
- **Demand recovery more likely by mid-CY24:** Baosteel expects the scale of China's stimulus to be modest. Near-term, it expects some demand recovery given the seasonal peak season in September. MT believes demand recovery from stimulus measures is more likely by Q2CY24, allowing time for measures to percolate to the economy.
- **Flat steel better placed than long steel:** With the manufacturing industry outperforming construction, demand for flat steel is relatively resilient.
- **Production cuts still expected in CY23:** Most steel majors continue to expect production discipline measures. Baosteel asserted that the domestic production

control policy will not waver this year and expects the caps to remain at or marginally below CY22 levels. The company expects the controls to come in place sometime in Q4CY23. In contrast, BHP remains uncertain about the breadth, severity and timing of mandatory steel cuts in China.

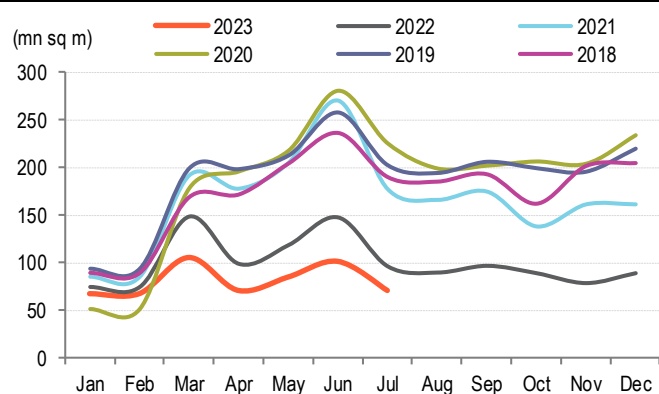
- **Revival of export focus negative for ROW:** While China's exports had picked up sharply in H1, Baosteel believes they are likely to trend down in the near term due to a reduced spread between China and international prices. The company is aiming to structurally increase exports to 6mt in CY23 from 5mt in CY22 and to 8-10mt over the medium term. It is looking to expand its overseas market through 38 branches and a focus on the Belt and Road regions.

### Bottoming out of housing starts not far away: BHP

BHP's analysis of the prevailing climate in China highlights reasons for slower transmission of stimulus and key steps for revival ([Economic and commodity outlook](#), Dr McKay).

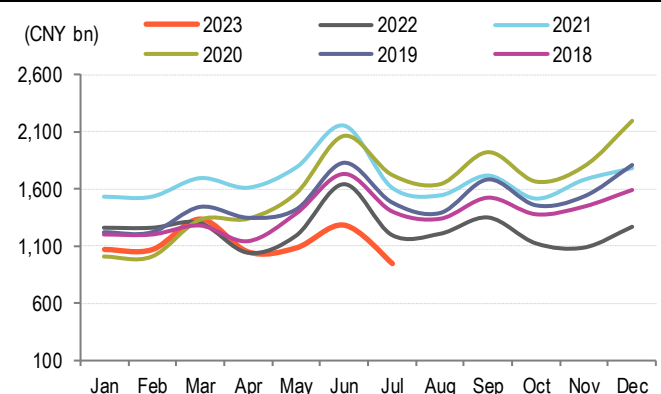
Per BHP, the July Politburo meeting set a positive, pro-growth tone, though it remains uncertain how quickly and effectively these policies will be implemented. If policy is implemented well, 2023 should end with solid momentum moving into 2024. If not, growth will continue to disappoint. However, BHP believes it is worth recognising what's going well in China. Low-carbon technology sectors are booming, infrastructure investment is strong, housing completions are growing 19% YoY (H1CY23), and autos and consumer durable sales are healthy.

**Fig 2 – China real estate – floor space newly started**



Source: Bloomberg, National Bureau of Statistics, BOBCAPS Research

**Fig 3 – China real estate – total funds monthly**



Source: Bloomberg, National Bureau of Statistics, BOBCAPS Research

- **Politburo shifts tone toward more decisive growth support:** In July, the Politburo acknowledged slower recovery in China's economy and confirmed the need for countercyclical measures, such as readjusting real estate policy, stabilising local government debt, and improving consumption across automobiles, electronics, household durables and tourism.
- **Private developer funding holds key to real estate stabilisation:** Per BHP, a renewed policy push is required to address the weak confidence in private developers amongst buyers and financiers. Reversing home buyers' distrust could have a higher multiplier effect in the context of the excess savings accumulated

over the pandemic and the insipid uplift in household credit impulse observed since the end of zero-Covid.

■ **New steps to support transmission of measures:**

- Extension of policy support for real estate (16-point package announced in Nov'22) for a "long time" to reduce uncertainty for financiers
- Firm direction to financial institutions for real estate reform policy implementation by PBoC (People's Bank of China) and NFRA (National Administration of Financial Regulation)
- Reduction in interest rate on existing mortgages for first-home buyers
- Reduction in down payments by making them uniform across the country at 20% and 30% for first-home and second-home purchases, which can release pent-up demand. Many cities were not classifying buyers as first-home purchasers if the individual had sold houses and paid off a mortgage. The incremental down-payment ratio was at 70-80% for second-home purchase vs. 30-35% for first-time buyers in China's four tier-1 cities previously.
- Targeting 1.5x more units of social housing for CY23 at 3.6mn units, which is significant as it accounts for 20% of all housing starts by floor area

■ **Additional measures under consideration:**

- Lifting of home purchase restrictions in non-core districts of major cities such as Beijing, Shanghai and Shenzhen which had previously restricted the number of properties that an individual or unqualified non-residents can purchase
- Gradual removal of price caps on new homes that are currently instituted by local governments

■ **Risk of a real estate meltdown receding:** Housing delivery has performed well with completions expanding 19% YoY in H1CY23, according to data from China's National Bureau of Statistics.

■ **Green shoots visible in 'non-commodity' housing segment:** As against the 24% decline in volumes of 'commodity' housing starts (commercially available for sale as a commodity), housing starts for the non-commodity segment have contracted only 3.2% in H1CY23 after growing 8.4% in CY22, as per BHP estimates. The non-commodity segment is larger in terms of total floor space than the commodity segment as it includes non-residential as well as non-market residential activity.

■ **Housing starts nearing a bottom:** Inventory of unsold universal housing is at a decade low of 2.3bn sq metres (the last low was 2.4bn sqm). BHP believes that a shortage of housing in tier-1 and tier-2 markets will definitely emerge in coming years after 2.5 years of weak starts, and is now only a question of timing.

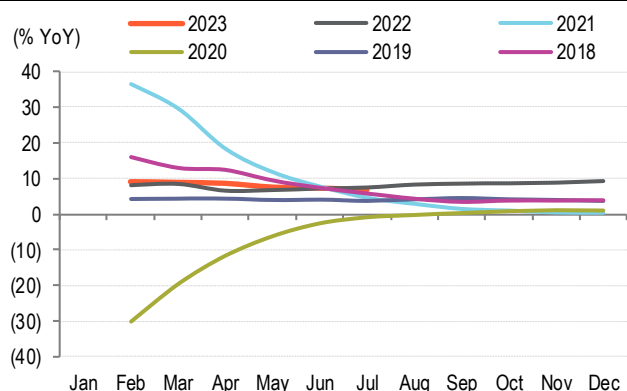
■ **Steel consumption pickup from housing some time away:** Policy transmission takes time and, in the interim, fund shortages faced by real estate developers will restrict investment and construction. Baosteel believes steel demand from China's real estate sector is unlikely to improve during H2CY23.

### Infrastructure, auto and appliances exhibiting resilient demand

- **Infrastructure investment resilient with central support:** China's fixed investment in infrastructure has been resilient, rising 10% YoY in H1CY23 despite a slowdown in local government support.

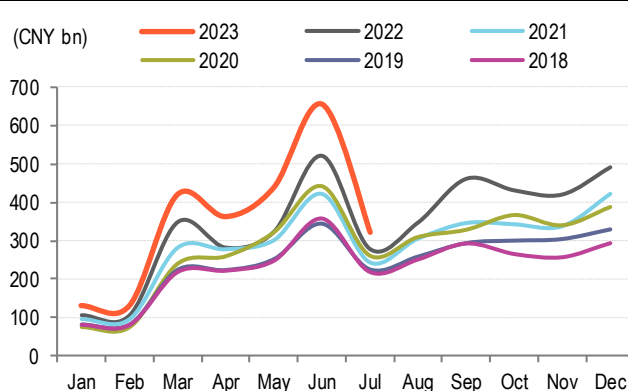
While water conservancy investments (~40% of infrastructure investment) slackened to 3% due to lower availability of local government financing, this has been offset by a 27% YoY increase in power infrastructure investment, led by renewables and a jump in other transport categories which include sea and river ports and airports (up 30% in H1CY23 on top of 32% growth in CY22), per BHP. However, lower availability of land sale revenue for local governments could test this resilience.

**Fig 4 – China infrastructure FAI excluding electric power, heat power, gas and water, YTD growth**



Source: Bloomberg, National Bureau of Statistics, BOBCAPS Research

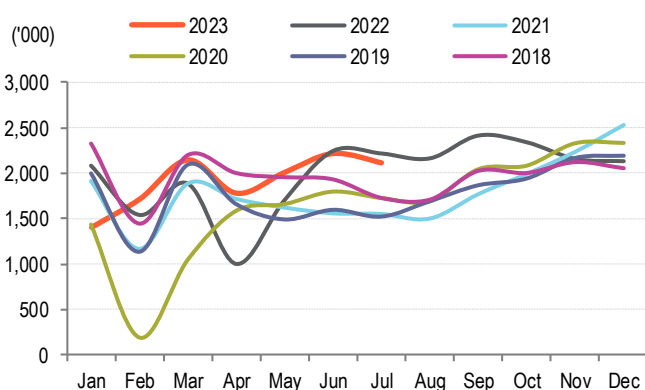
**Fig 5 – China power, gas and water FAI**



Source: Bloomberg, National Bureau of Statistics, BOBCAPS Research

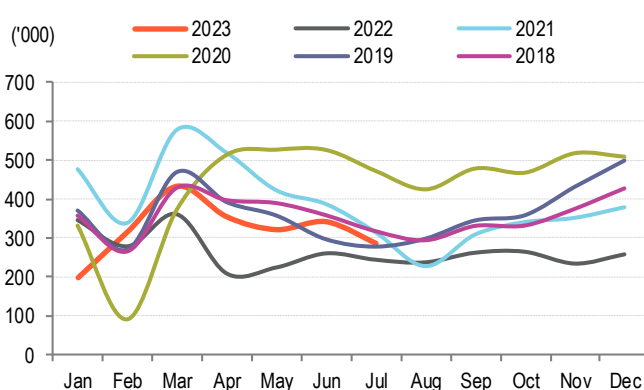
- **Auto sees a rebound:** Auto production increased 9% in H1CY23 with a bounce-back in commercial vehicles and 8% growth in passenger vehicles amid a 42.3% surge in new energy vehicles (NEV), as per data from National Bureau of Statistics. However, the clearing of NEV stocks has involved significant price discounts and a jump in exports. Baosteel expects the high level of auto and steel production to continue in H2CY23.

**Fig 6 – China automobiles: Passenger vehicle production**



Source: Bloomberg, China Automotive Information Net, BOBCAPS Research

**Fig 7 – China automobiles: Commercial vehicle production**



Source: Bloomberg, China Automotive Information Net, BOBCAPS Research

- **White goods strong:** Within consumer electronics, white goods production exhibited strong growth of 17% YoY in H1CY23 as domestic demand offset lower exports of semiconductors and other electronics (-14% YoY), as per BHP. Baosteel believes demand for washing machines and air conditioners will continue to grow in H2.
- **Machinery remains soft:** The diverse machinery category grew 1.5% YoY in H1CY23 as continuing weakness in construction machinery was set off by a recovery in transport and agriculture machinery and sustained strength in power equipment.
- **Shipbuilding faring well:** Baosteel expects shipbuilding demand to continue to rise in H2CY23.
- **Strength in decarbonisation tech mitigates slowdown in traditional exports:** Sales of NEVs, lithium-ion batteries and solar panels collectively grew 62% YoY in H1CY23. In NEVs, China climbed to the #2 position globally, exporting 3.1mn units in CY22, and is likely to be #1 this year, with H1CY23 exports rising 76% YoY to 2.1mn units.

### Measures to encourage private investment underway

We summarise below the measures taken by China to encourage private participation (Source: Xinhua):

- **Uplifting the private economy:** In mid-July, China's Politburo directed the administration to improve the business environment, enhance policy support, and strengthen legal guarantees for development of the private economy.
- **Measures released in Jul-Aug:** In late July, the National Development and Reform Commission (NDRC) unveiled 17 measures to encourage private investment and another 28 joint measures with multiple departments to improve market access, factor support (i.e. support for various inputs used by business), legal guarantees, enterprise service and the business environment. In early August, several preferential policies were released in terms of tax and fee cuts.
- **Financial support enabled:** NDRC has enabled the investment-lending linkage mechanism with seven banks and referred the first batch of 715 private investment projects to relevant banks. It has also recommended the first privately-invested clean energy real estate investment trust (REIT) project to the China Securities Regulatory Commission.

### Risk of local government debt still looms large

- **Scale of debt significant:** The collective debt of China's local governments amounts to CNY 66tn on the balance sheet and another CNY 40tn in financing vehicles. While the former is equivalent to 32% of GDP, combined debt is at 53% of GDP.
- **Structural adjustments necessary:** BHP believes the Chinese government needs to take more structural steps to recognise off-balance sheet debt and then lower collective borrowings at the local government level to reduce default risk. Cyclical improvement in land sales in itself will not resolve this risk. While likely steps are



unclear, the company reckons that any measures which mobilise the central government balance sheet at scale would be beneficial.

- **Private developer revival will help cyclical recovery in local government finances:** Revival of the land sales market (1.5% of GDP in CY23 YTD vs. 2.5% pre-pandemic) can help in the near term.

### Industry focused on cost reduction and product innovation

We have followed Baosteel's commentary to get a sense of the direction in which the Chinese industry is headed, as the company is one of the largest state owned enterprises implementing government strategy for the sector. We interpret Baosteel's focus on cost reduction and product innovation instead of volume growth as a clear sign of the government discouraging capacity growth in the industry.

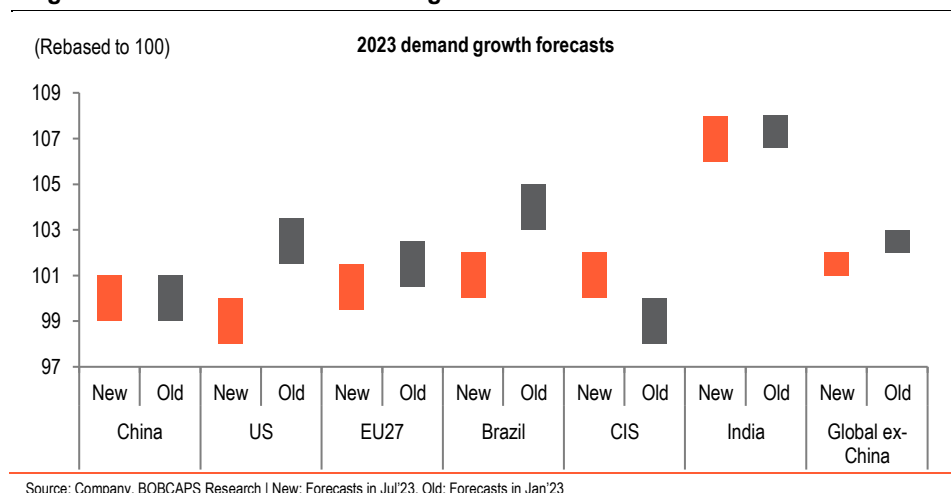
- **Deepening cost reduction to preserve margins:** Baosteel reduced process cost by ~US\$ 15/t in H1CY23 and is looking at another ~US\$ 4/t reduction in H2 by way of cuts in energy consumption and other variable costs.
- **Pursuing product innovation to improve profitability:** Baosteel launched seven products in H1, including extra-strength auto steel 1500MPaDP and weather-resistant cold-heading steel BNH8. Further, the company supplied silicon steel for offshore wind plants, heavy plates for the world's longest and widest steel-shell concrete immersed tube tunnel, and steel pipes for a deep oil and gas well.
- **Expanding silicon steel capacity:** The steel major operationalised 0.5mtpa of silicon steel production at the Baoshan base in Q1CY23 and has started construction of a 0.55mtpa capacity at the Qingshan base in Q2CY23.

### Medium-term consolidation remains on the agenda

- **Capacity optimisation on the cards:** Baosteel feels comfortable with its target of raising production to 80mt in CY24 (from ~50mt in CY23E). This confirms that the government is looking to promote consolidation within the industry to optimise capacity.

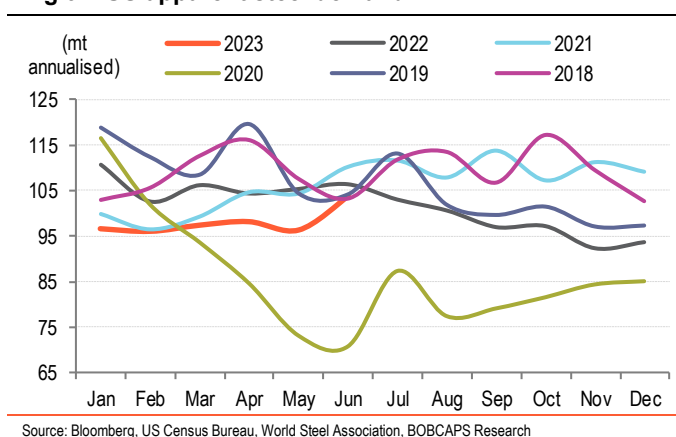
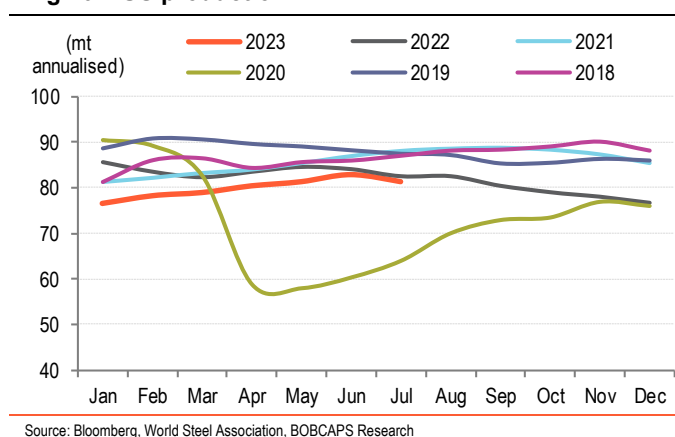
### Ex-China demand outlook – Softer but positive

- **Ex-China – Demand to inch up:** MT expects global steel demand growth ex-China to turn positive at 1-2% YoY in CY23, albeit softer than its prior forecast of 2-3% as it factors in weakened demand sentiment and anticipated moderation in real demand in the EU and US during H2CY23. While the outlook is dim for long products, growth is expected to continue for flat products. MT's volume guidance cut to flat from 5% organic growth also echoes this weakness.

**Fig 8 – ArcelorMittal CY23 demand growth forecasts – Jul'23 vs. Jan'23**

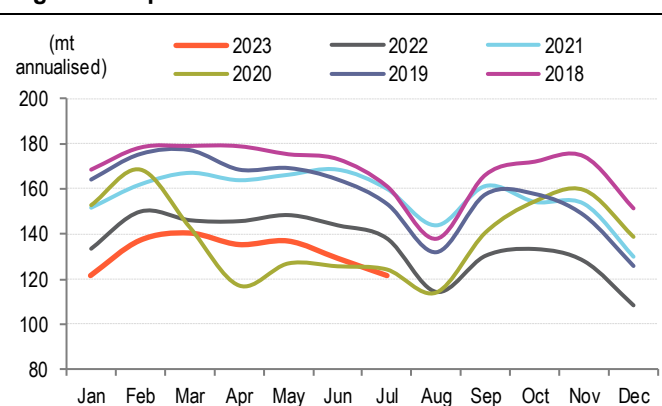
- US – Softness in long products, growth in flat products:** MT has lowered its CY23 US demand growth forecast to a range of -2% to 0% from +1.5% to +3.5% at the start of the year, reflecting sluggish sales of long products, pipes and tubes. The company still expects demand for flat products to grow in CY23. US steel producer Nucor highlighted that non-residential construction remains elevated with strong activity from infrastructure spending, data centres and manufacturing. It is also seeing positive trends in the automotive and energy segments.

Projects supported by the CHIPS Act have been initiated and tendered to steel companies. Those supported by the Infrastructure Bill are still at the early stage of design and costing, with purchase orders yet to be placed. This could translate into orders for steel companies from CY24.

**Fig 9 – US apparent steel demand****Fig 10 – US production**

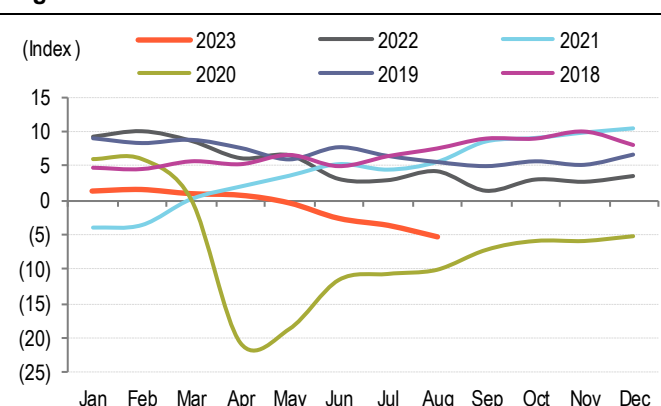
- Europe – Outlook dips:** MT has marginally lowered its demand growth forecast for the year to a band of -0.5% to +1.5% from -0.5% to +2.5%, reflecting slower construction activity and a resultant decline in long products demand. However, MT continues to expect apparent demand (including channel inventory replenishment) for flat products to increase. For Q3CY23, the company expects seasonal weakness this year as well.

**Fig 11 – EU production**



Source: Bloomberg, World Steel Association, BOBCAPS Research

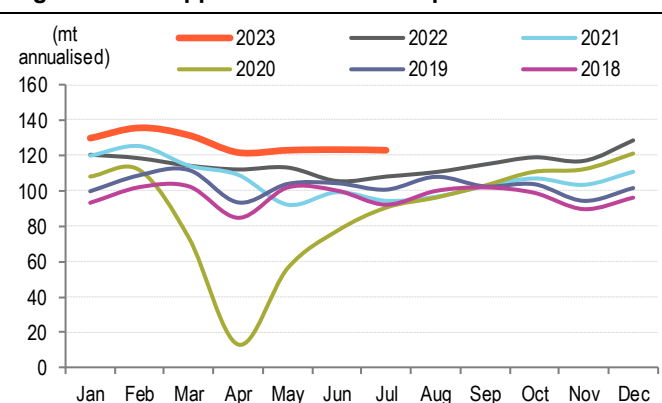
**Fig 12 – Eurozone construction confidence indicator SA**



Source: Bloomberg, European Commission, BOBCAPS Research | SA – Seasonally Adjusted

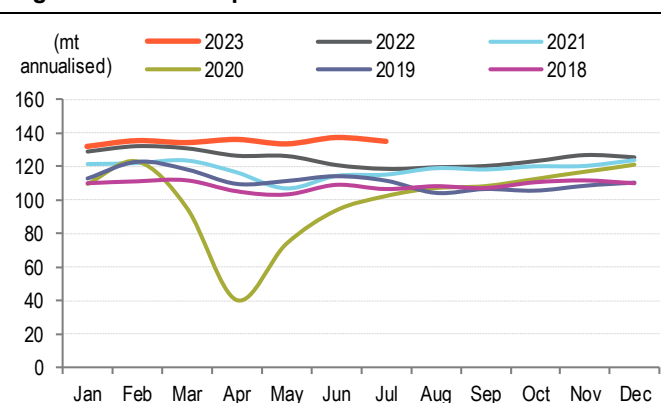
- **India – Resilient demand through the monsoon:** India's demand has remained resilient through the monsoon months at ~123mt annualised, translating to growth of 16.7%/13.6% YoY in June/July. The demand outlook remains resilient with support from elevated levels of infrastructure spending and buoyant housing demand in urban markets.

**Fig 13 – India apparent steel consumption**



Source: BOBCAPS Research

**Fig 14 – India steel production**



Source: BOBCAPS Research

## Steel supply balancing with demand outside China

Whereas steel production in China (+1% YoY, 1.08bn tpa run rate) and India (+7%) increased in H1CY23, the rest of the world contracted 5% following a sharp downside in Europe (-12%).

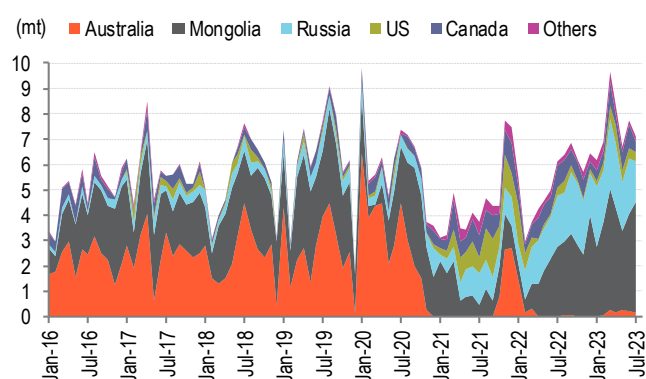
Within India, steel production has been resilient thus far in CY23, within the range of 134-137mt annualised, with stabilisation of the expansion at JSTL's Dolvi plant in Maharashtra. Production will rise further upon declaration of commercial operations at NMDC's 3mt Nagarnar (Chhattisgarh) steel plant. With Indian steel prices at a premium to landed import prices, imports have also increased from 0.43mt in April to 0.59mt in July.

## Steel raw materials outlook

### Coking coal tightness has eased

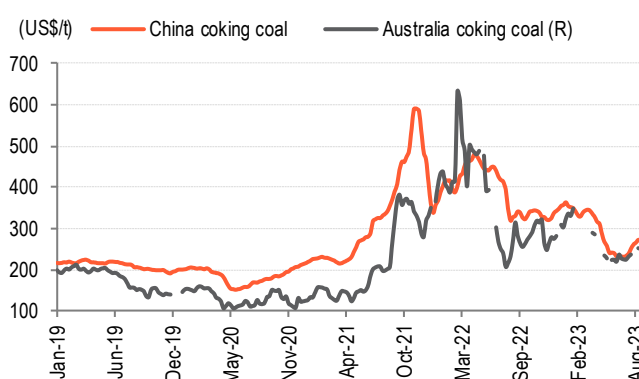
BHP believes seaborne supply of coking coal is likely to rise 4-5% YoY in CY23 to within touching distance of CY19 levels. Including increased Mongolian imports into China, ROW seaborne trade is likely to be just a few tonnes short of pre-pandemic levels. Baosteel also highlighted that coking coal demand-supply was largely balanced in China during H1CY23. With increased Russian and Mongolian imports, China's dependence on the seaborne market has dropped off. India has now taken over as a key demand driver for the seaborne met coal market.

**Fig 15 – China coking coal imports**



Source Bloomberg, China Customs, BOBCAPS Research

**Fig 16 – Coking coal price**



Source: SteelMint, BOBCAPS Research

- **Mongolia has rebounded:** Mongolia is now on track to export 40mtpa to China in CY23 from a nadir of 14mt in the Covid phase, marking an increase of 6mt over CY19 levels. The planned start of trains between Mongolia and China in October will also ease logistical issues.
- **Australian shipments slowly improving:** Australian shipments could potentially close half the gap with CY19 levels at 170mt in CY23. If the production rebound sustains this year, the gap against CY19 could shrink to 10mt from the 20mt seen in CY22 as per BHP. However, any new production in Queensland remains constrained by lower returns for developers after the recent round of royalty increases, as highlighted by BHP.
- **North American supply to grow only modestly:** US coking coal supply posted flat YoY growth in CY22. Teck Resources has recently guided that its CY23 production will be at the lower end of the previously guided range of 24-26mt.
- **China domestic supply is not under pressure:** Hard coking coal production in China was up 2.7% YoY in CY23 YTD and 11% above pre-pandemic CY19 levels. Growth was supported by lower regulatory interventions and a 9% increase in capacity over CY15 when the country saw the initial supply reform era. The PLV (premium low volatile) proportion, though, was relatively flat between 25mt and 28mt.

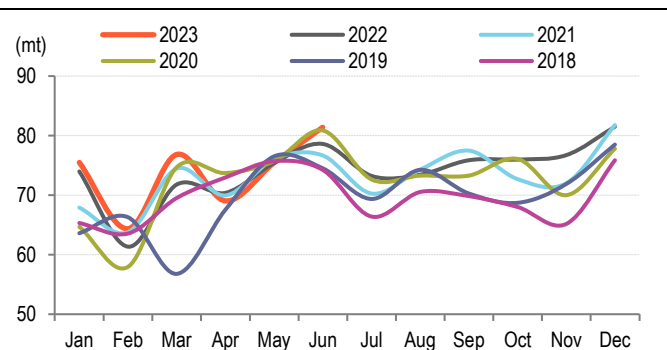
### Coking coal price to stay range-bound

- **Steady price outlook:** Baosteel believes that coking coal is unlikely to break either previous highs or lows in H2CY23.
- **Drop below US\$ 200 levels looks difficult:** Whereas hot metal production is 60mt above CY19 levels, coking coal output is only just approaching pre-pandemic levels, keeping the market tighter than in the past. Though blast furnace-based (BF) steel production in India is growing, coking coal supply to new projects is still struggling, per Teck Resources. We believe that a drop in price below US\$ 200/t looks difficult.
- **Longer-term scarcity premium to continue for true-PLV coal:** With most committed or prospective new coking coal supply being mid-to-lower quality and a less conducive regulatory environment for investment in the true-PLV region of Queensland, we believe PLV supply will remain tight over the longer term.

### Iron ore – Market likely to be broadly balanced in CY23

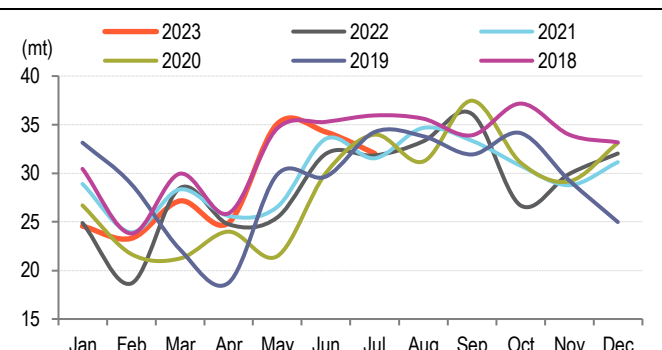
Given the seasonal recovery in shipments and a comfortable supply-demand balance, Baosteel expects the average price of iron ore to be lower in H2CY23 than H1.

**Fig 17 – Australia iron ore exports (monthly)**



Source: Bloomberg, Australian Bureau of Statistics, BOBCAPS Research

**Fig 18 – Brazil iron ore exports (monthly)**



Source: Bloomberg, Brazil Ministry of Commerce, BOBCAPS Research

- **Broadly balanced market:** BHP anticipates a broadly balanced iron ore market on average across CY23. However, uncertainty over the breadth, severity and timing of mandatory steel cuts in China remains a key overhang in view of BHP.
- **Seaborne supply improvements:** Global iron ore exports rose 5% YoY in H1CY23, with a 2.5% increase from the major producers, a more than 75% YoY rise in India's shipments, and a 10% YoY increase from Canada. June shipments from Australia and Brazil are estimated to be at or close to all-time highs. Following a successive five-quarter improvement in production performance and 7% YoY growth in H1, RIO upgraded its CY23 forecast to the upper end of the previously guided 320-335mt range. Vale also believes it is on track to deliver CY23 guidance following a 6% YoY increase in H1 production.
- **US\$ 100/t emerging as a near-term floor price:** BHP highlighted that several sources of supply came under pressure over Jan-Jun'23 as prices approached US\$ 100/t. The company believes several pockets of swing supplies are now driving the fundamental balance of the iron ore market, including higher-cost juniors in traditional basins, the shoulder of the Chinese domestic mine cost curve and lower-grade Indian exports.

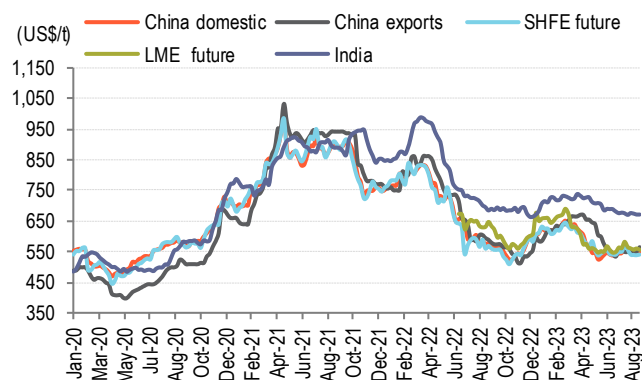
## Green steel developments

- **BF technology unlikely to be displaced at scale:** BHP believes that emerging technologies are unlikely to dislodge BF-based production for decades. The blast furnace-basic oxygen furnace (BF-BOF) route accounts for 70% of global capacity and has an average age of just 12 years in China and 18 years in India. Alternate electric arc furnace (EAF) technology could compete effectively at scale only to the extent of reliable availability of local scrap. Within BF, only PCI or pulverised coal injection can potentially be replaced by a lower carbon fuel. The steel industry is, thus, likely to remain a buyer of carbon credits for a considerable period.
- **EU funding coming through:** MT has been able to secure funding support from Spain, Belgium and France, besides initiating discussions for support for a competitive energy complex (hydrogen and renewable energy).
- **MT flags delay in decarbonisation plan:** MT has been working on three routes in parallel to decarbonise steel – (i) DRI-EAF (direct reduced iron-EAF), (ii) smart carbon reduction from the integrated route, and (iii) direct electrolysis to plates. The company indicated that it is moving forward on decarbonisation projects, but approvals have taken two years which will lead to some delay in implementation. Projects have been moved from a pre-FEED to FEED (front end engineering and design) stage to improve cost certainty to 90%.
- **Developed world lagging on renewables:** According to RIO, the western world isn't moving fast on renewable energy.
- **China evaluating green journey:** As per Baosteel, some Chinese steel players have embarked on positive return projects that improve process efficiency and use green energy, along the lines of Indian majors. We note that Baosteel has proved 21% carbon reduction in a smaller 400m<sup>3</sup> hydrogen-enriched carbon recycling BF and plans to test a 2500m<sup>3</sup> BF next.

## Ferrous Chartbook

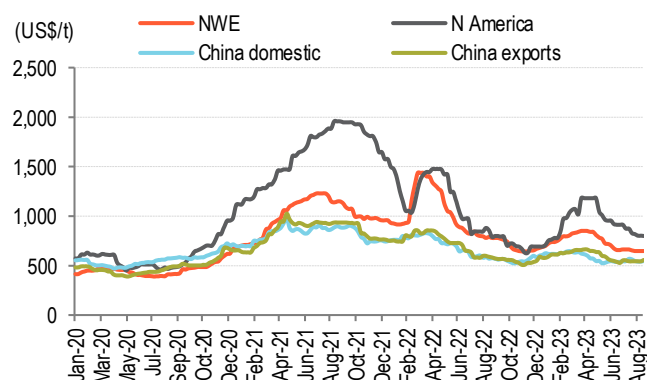
### Prices

**Fig 19 – HRC steel prices (China and India)**



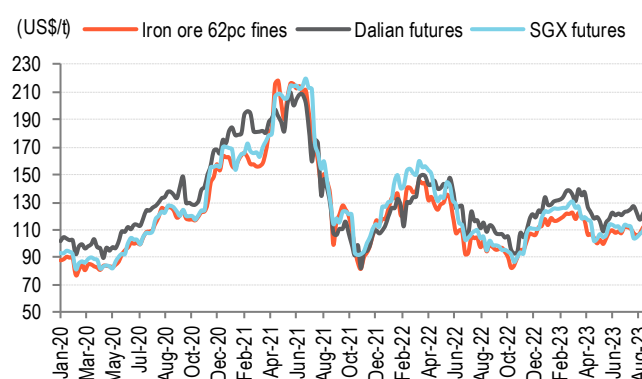
Source: Bloomberg, BOBCAPS Research | HRC: Hot Rolled Coil

**Fig 20 – Regional HRC steel prices**



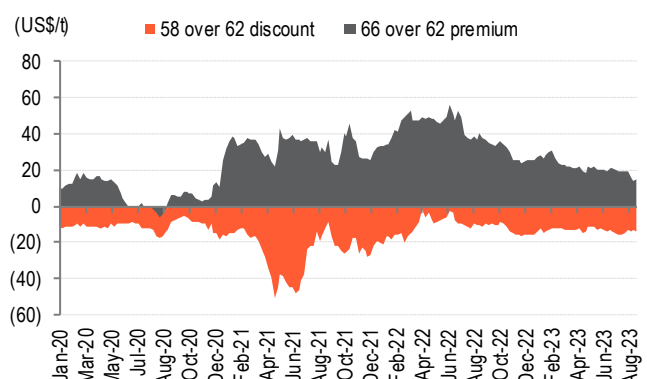
Source: Bloomberg, BOBCAPS Research

**Fig 21 – Iron ore prices**



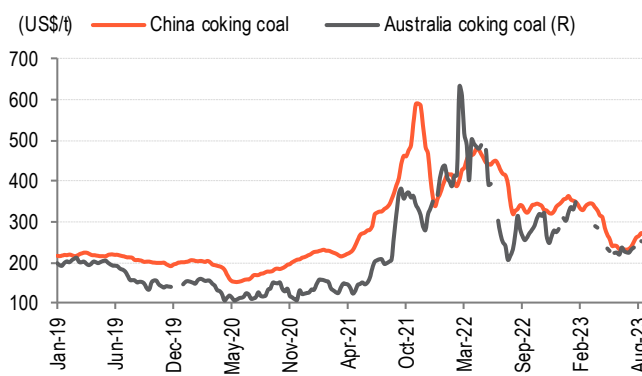
Source: Bloomberg, BOBCAPS Research

**Fig 22 – Iron ore grade premium/discount**



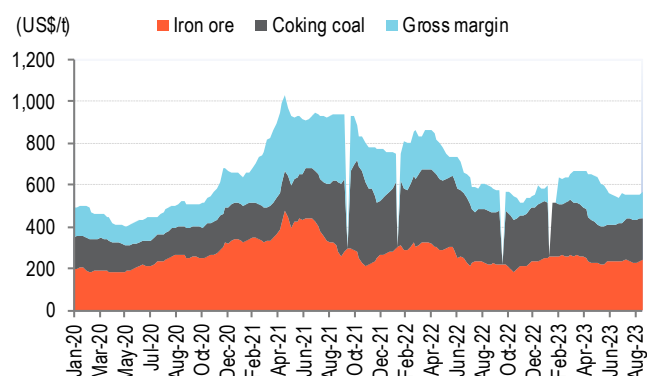
Source: Bloomberg, BOBCAPS Research

**Fig 23 – Coking coal prices**



Source: Bloomberg, BOBCAPS Research

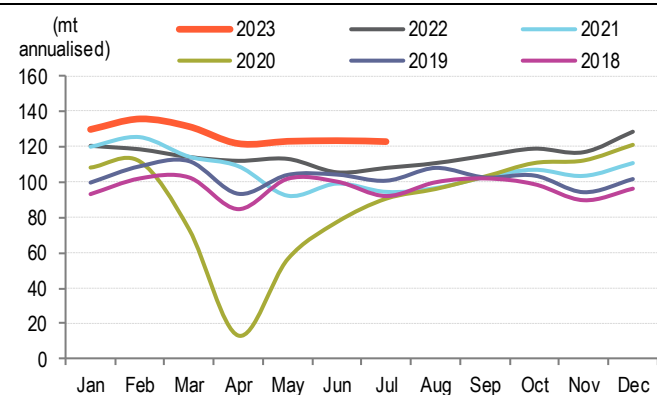
**Fig 24 – China HRC gross margin proxy (on export price)**



Source: Bloomberg, BOBCAPS Research

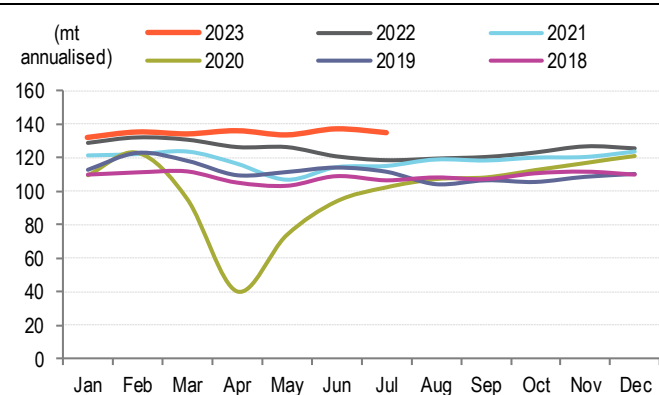
## India steel demand-supply and prices

**Fig 25 – India steel consumption**



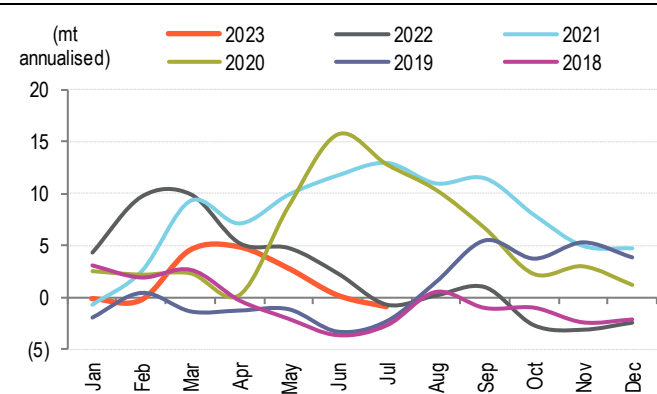
Source: CMIE, BOBCAPS Research

**Fig 26 – India steel production**



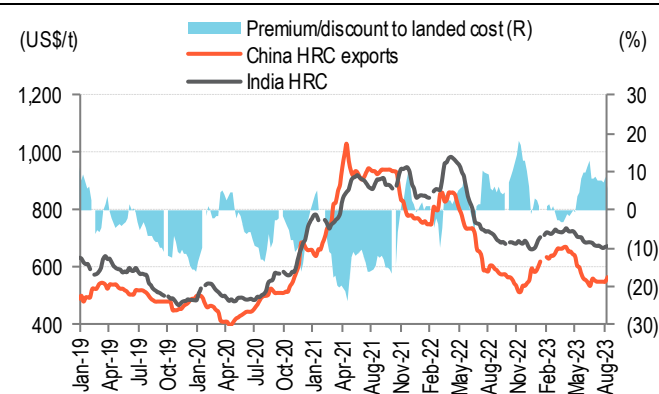
Source: CMIE, BOBCAPS Research

**Fig 27 – India steel net exports**



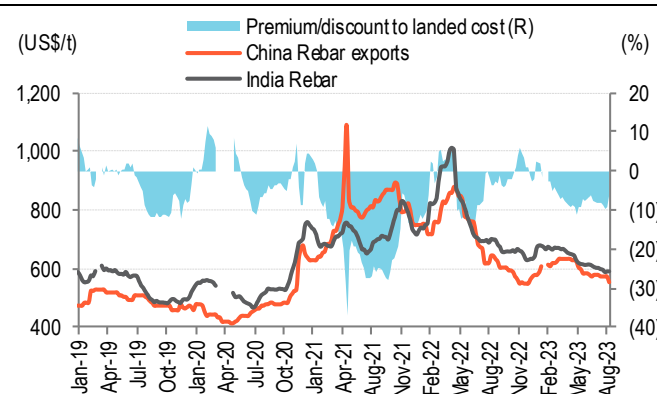
Source: CMIE, BOBCAPS Research

**Fig 28 – India HRC premium/discount**



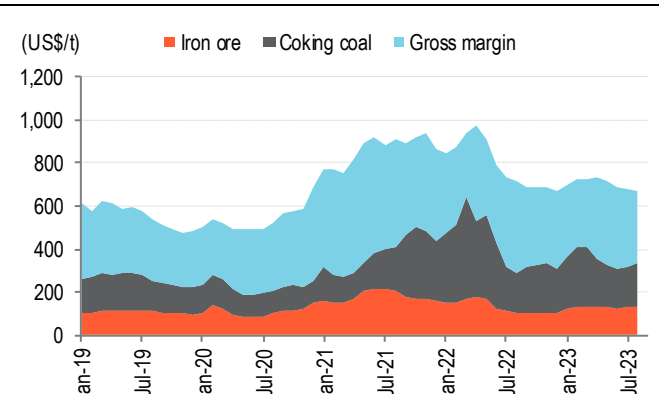
Source: Bloomberg, CMIE, BOBCAPS Research

**Fig 29 – India rebar premium/discount**



Source: Bloomberg, Steelmint, BOBCAPS Research

**Fig 30 – India HRC gross margin proxy (monthly)**

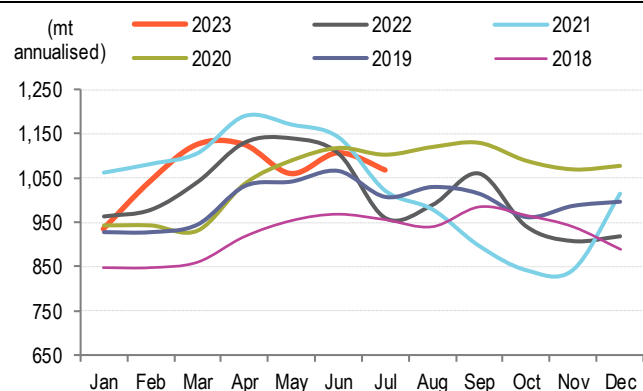


Source: Bloomberg, CMIE, Steelmint, BOBCAPS Research

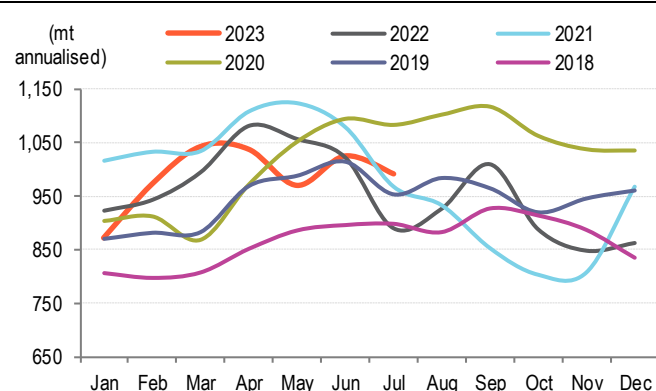


## China steel production and consumption

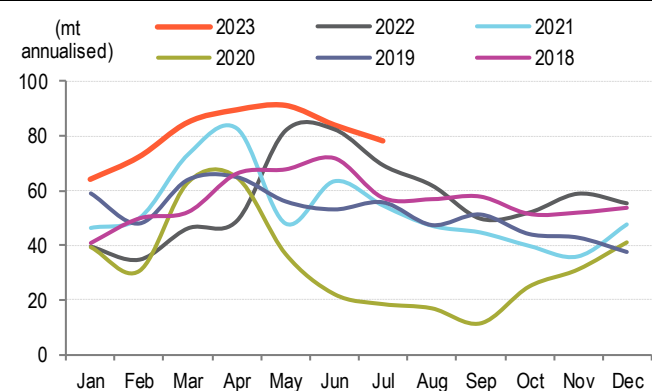
**Fig 31 – China steel production**



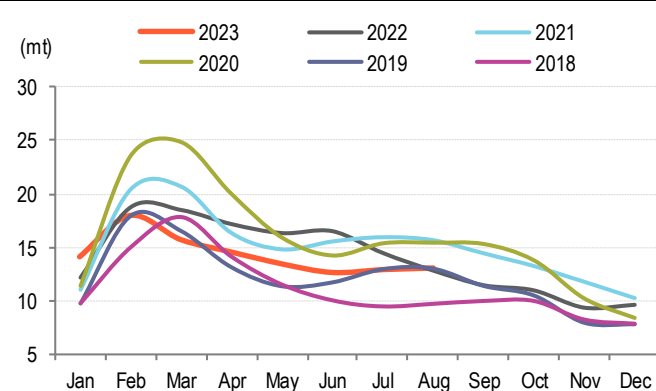
**Fig 32 – China apparent steel consumption**



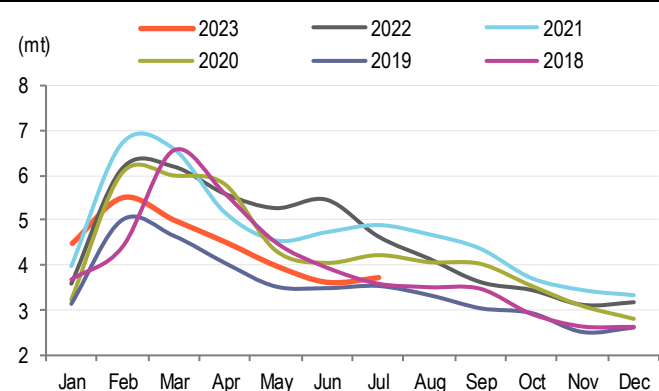
**Fig 33 – China net steel exports**



**Fig 34 – China steel inventory for marketplace**

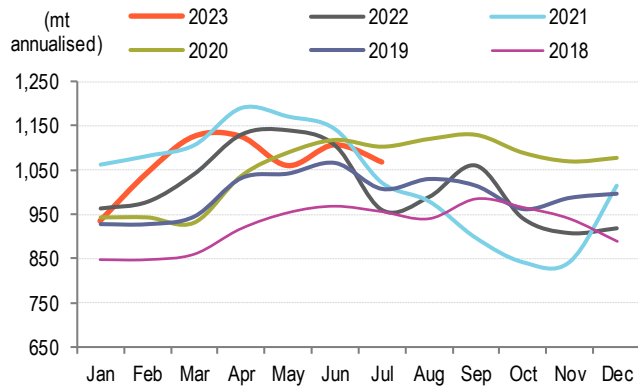


**Fig 35 – China steel inventory of traders**

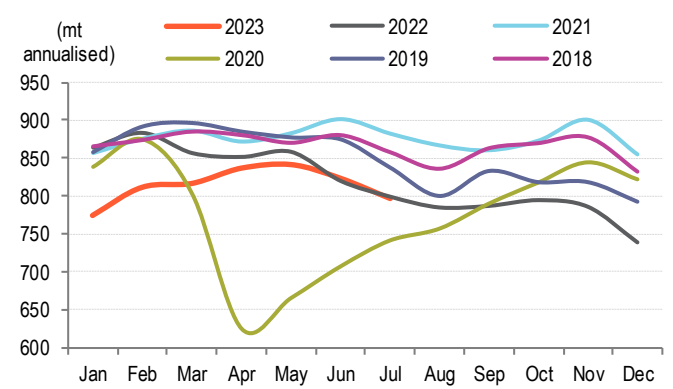


## World steel production

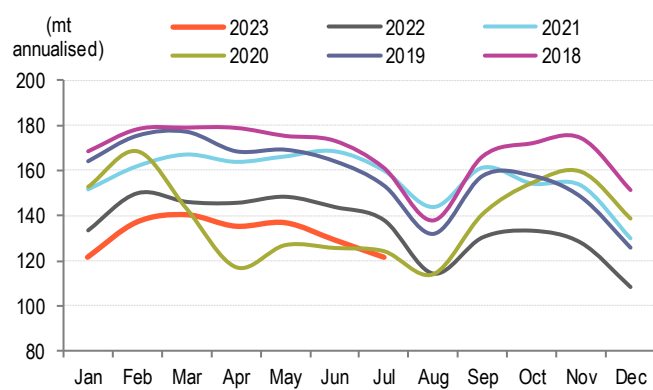
**Fig 36 – China production**



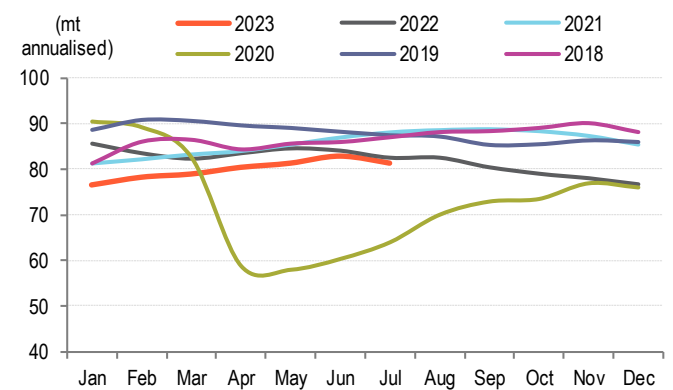
**Fig 37 – Ex-China production**



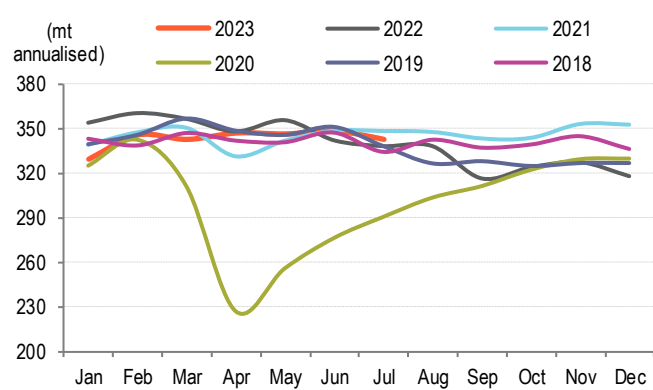
**Fig 38 – EU production**



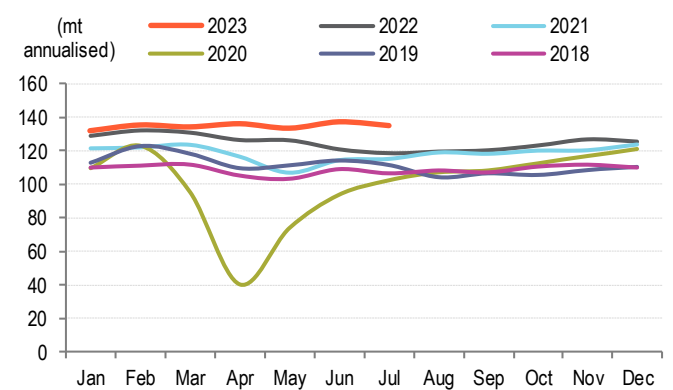
**Fig 39 – US production**



**Fig 40 – Asia ex-China production**

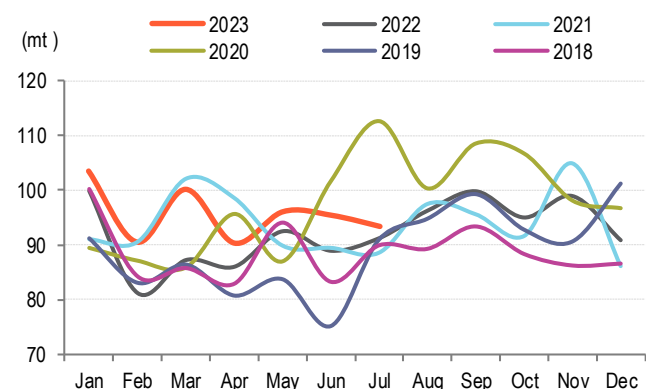


**Fig 41 – India production**



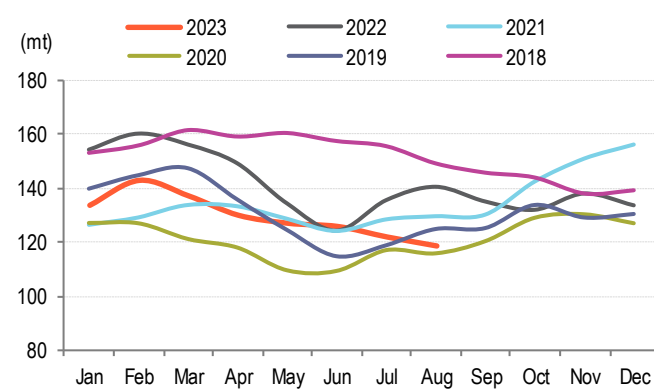
## Iron ore imports/exports

**Fig 42 – China iron ore imports**



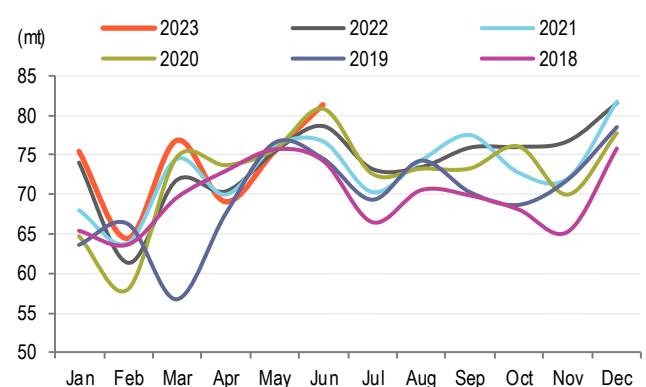
Source: Bloomberg, China Customs, BOBCAPS Research

**Fig 43 – China iron ore port inventory**



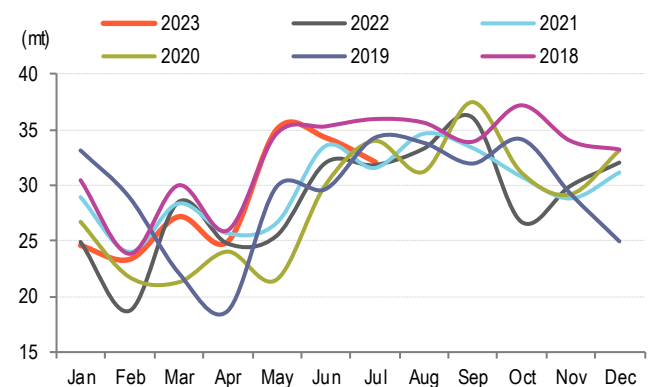
Source: Bloomberg, Steelhome, BOBCAPS Research

**Fig 44 – Australia iron ore exports (monthly)**



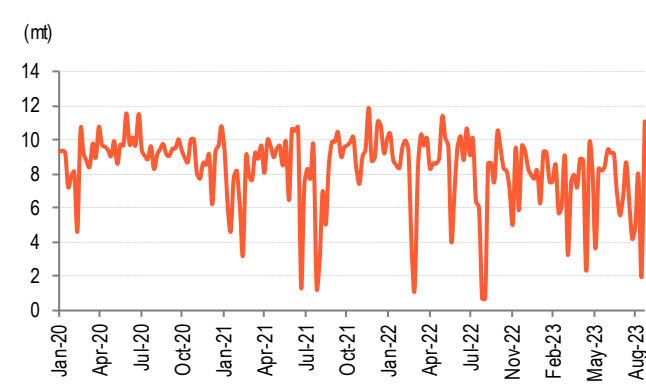
Source: Bloomberg, Australian Bureau of Statistics, BOBCAPS Research

**Fig 45 – Brazil iron ore exports (monthly)**



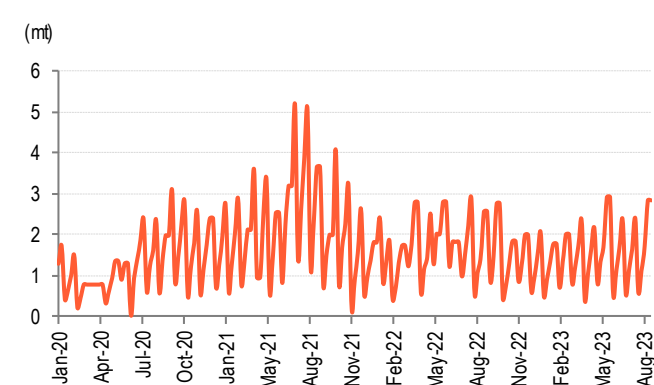
Source: Bloomberg, Brazil Ministry of Commerce, BOBCAPS Research

**Fig 46 – Australia Port Headland iron ore exports (weekly)**



Source: Bloomberg, Global Ports, BOBCAPS Research

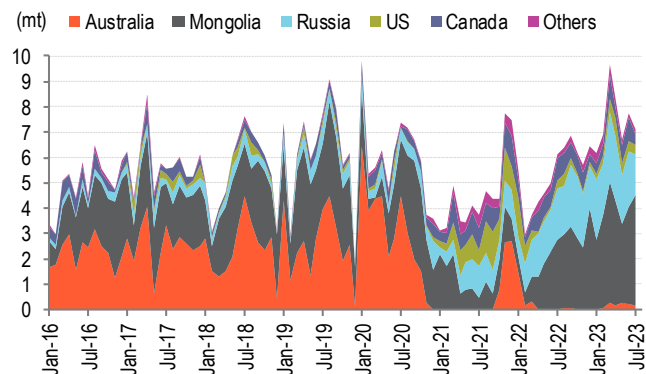
**Fig 47 – Brazil iron ore exports (weekly)**



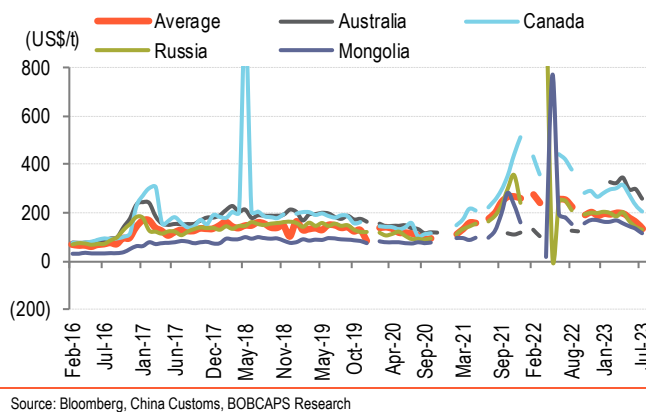
Source: Bloomberg, Brazil Ministry of Commerce, BOBCAPS Research

## Coking coal

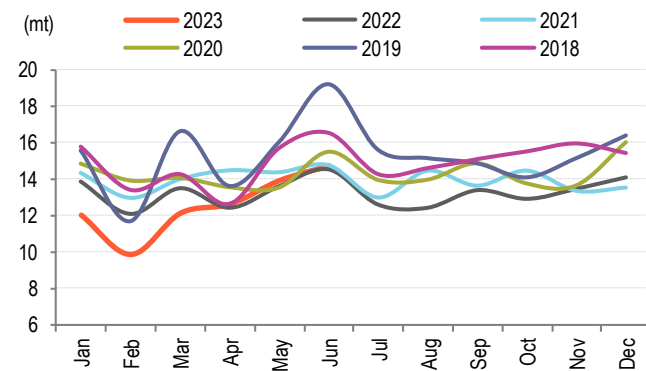
**Fig 48 – China coking coal imports**



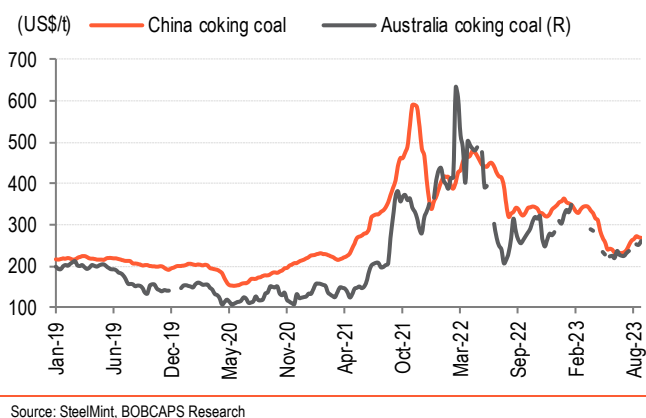
**Fig 49 – China coking coal import price**



**Fig 50 – Australia coking coal exports**

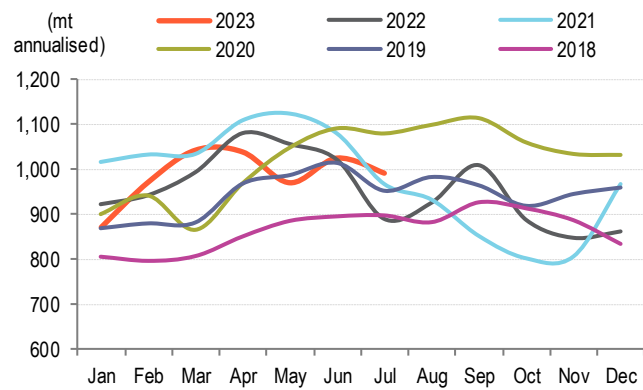


**Fig 51 – Coking coal price**



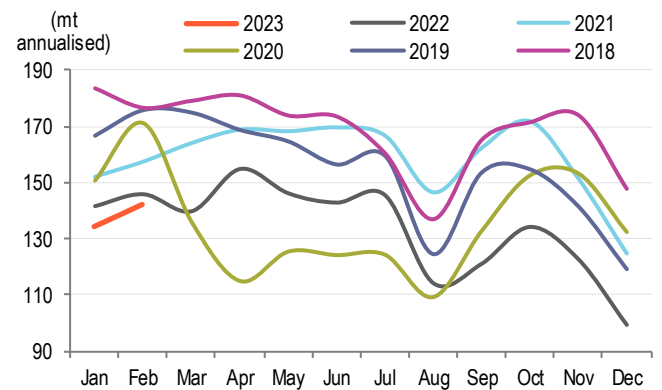
## Apparent steel demand

**Fig 52 – China**



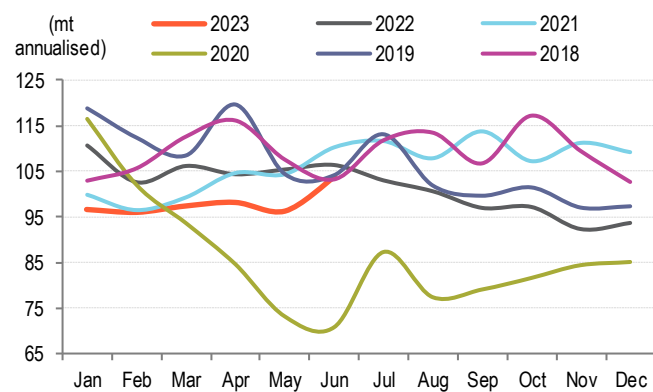
Source: Bloomberg, China Customs, National Bureau of Statistics, BOBCAPS Research

**Fig 53 – Europe**



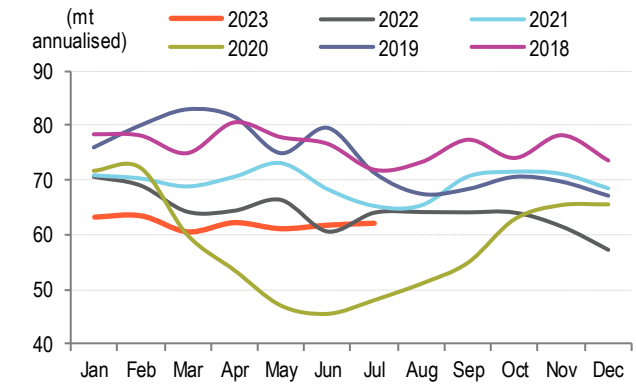
Source: Bloomberg, Eurofer, World Steel Association, BOBCAPS Research

**Fig 54 – US**



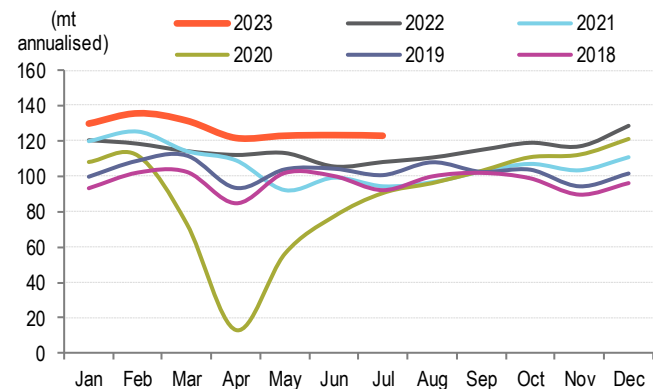
Source: Bloomberg, US Census Bureau, World Steel Association, BOBCAPS Research

**Fig 55 – Japan**



Source: Bloomberg, Ministry of Finance Japan, World Steel Association, BOBCAPS Research

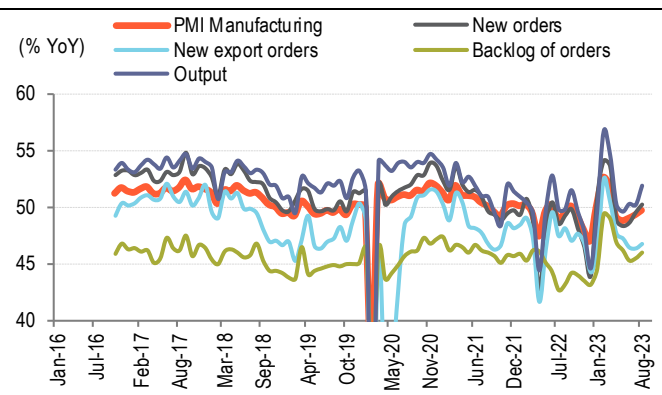
**Fig 56 – India**



Source: CMIE, BOBCAPS Research

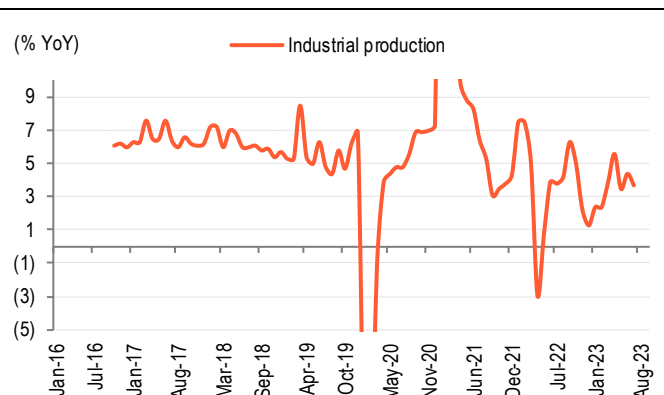
## China demand indicators

**Fig 57 – China manufacturing PMI**



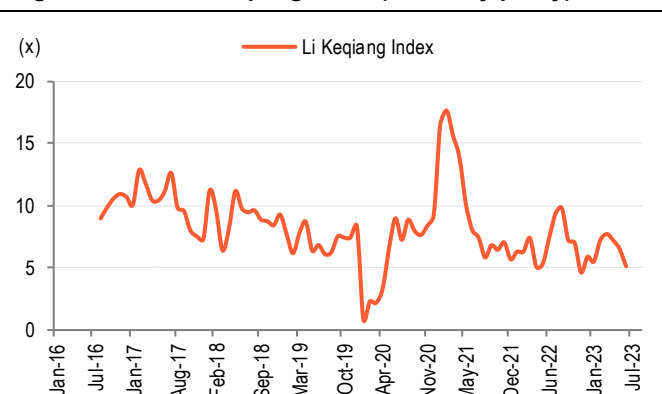
Source: Bloomberg, National Bureau of Statistics, BOBCAPS Research

**Fig 58 – China industrial production growth**



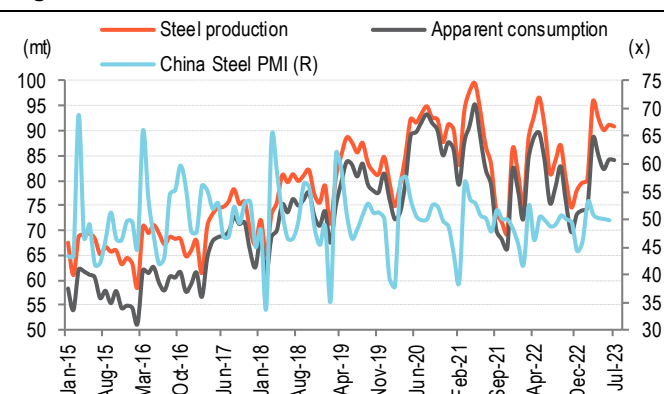
Source: Bloomberg, National Bureau of Statistics, BOBCAPS Research

**Fig 59 – China Li Keqiang Index (economy proxy)**



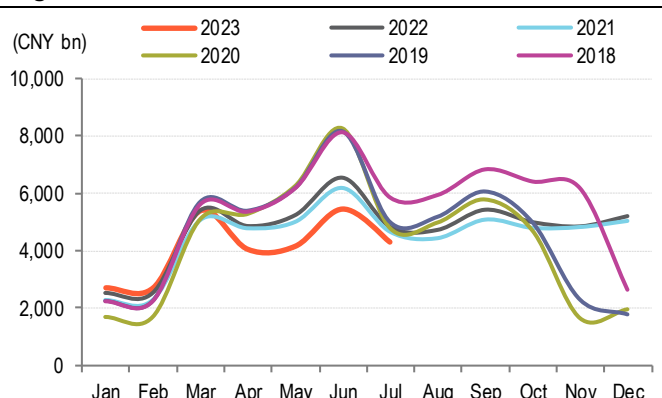
Source: Bloomberg, National Bureau of Statistics, BOBCAPS Research | FAI – Fixed Asset Investment

**Fig 60 – China steel PMI**



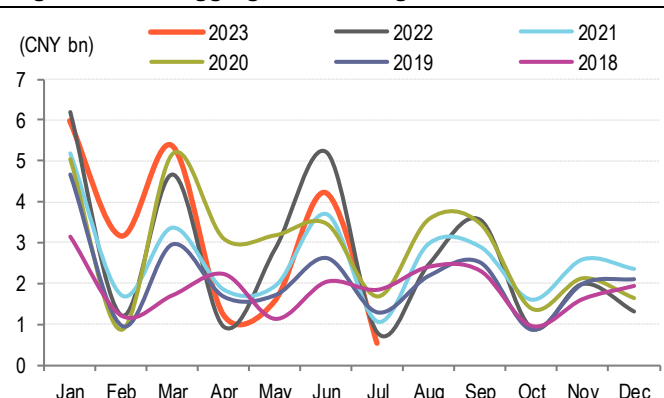
Source: Bloomberg, Steelhome, BOBCAPS Research

**Fig 61 – China FAI ex-rural households**



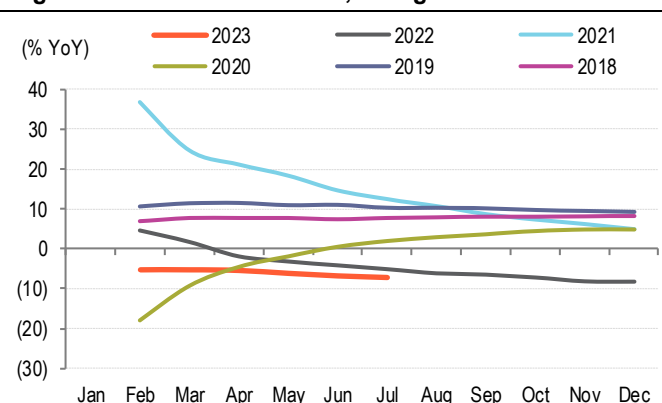
Source: Bloomberg, National Bureau of Statistics, BOBCAPS Research | FAI – Fixed Asset Investment

**Fig 62 – China aggregate financing**



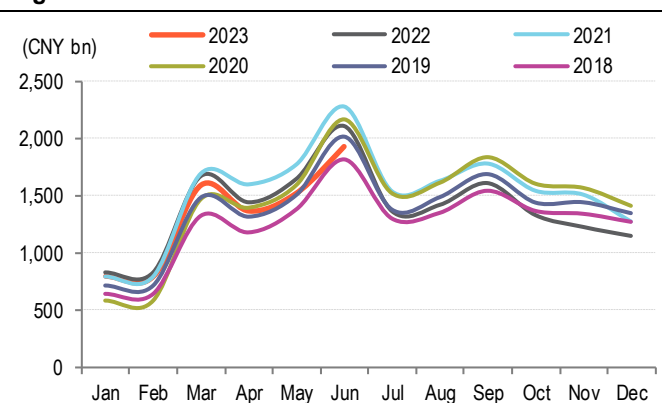
Source: Bloomberg, BOBCAPS Research

**Fig 63 – China real estate FAI, YTD growth**



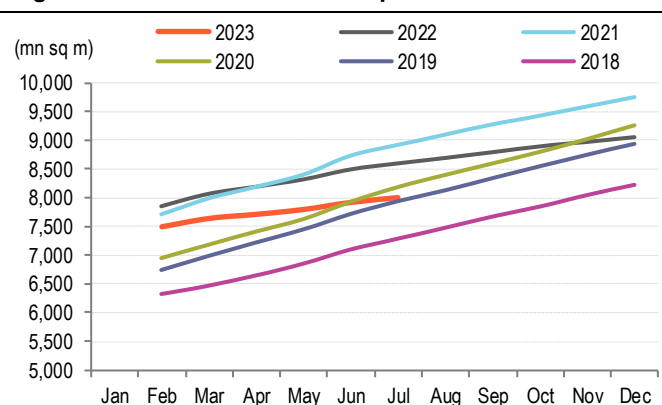
Source: Bloomberg, National Bureau of Statistics, BOBCAPS Research

**Fig 64 – China real estate FAI**



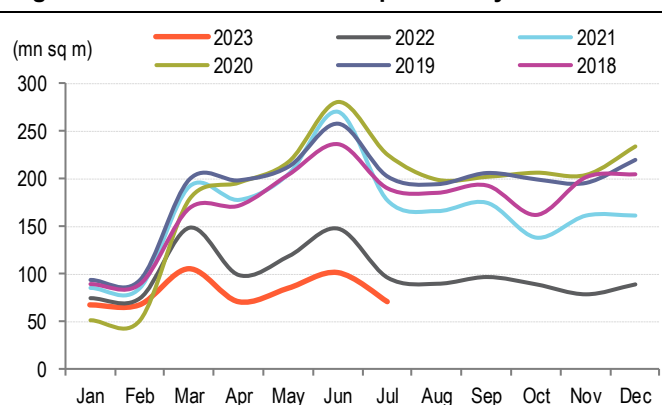
Source: Bloomberg, National Bureau of Statistics, BOBCAPS Research

**Fig 65 – China real estate floor space under construction**



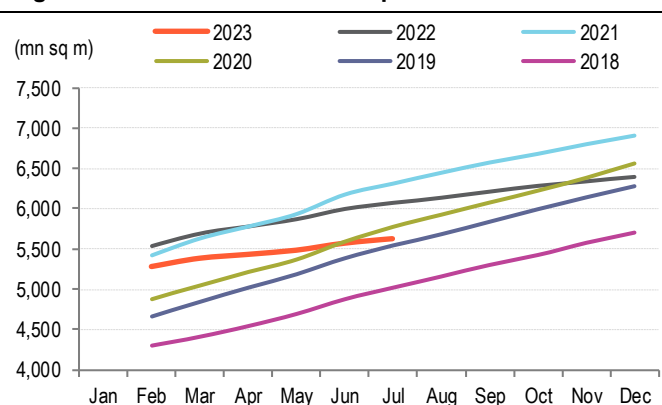
Source: Bloomberg, National Bureau of Statistics, BOBCAPS Research

**Fig 66 – China real estate floor space newly started**



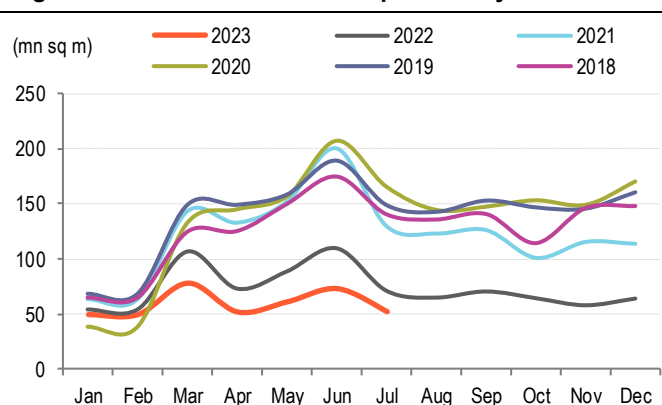
Source: Bloomberg, National Bureau of Statistics, BOBCAPS Research

**Fig 67 – China residential floor space under construction**



Source: Bloomberg, National Bureau of Statistics, BOBCAPS Research

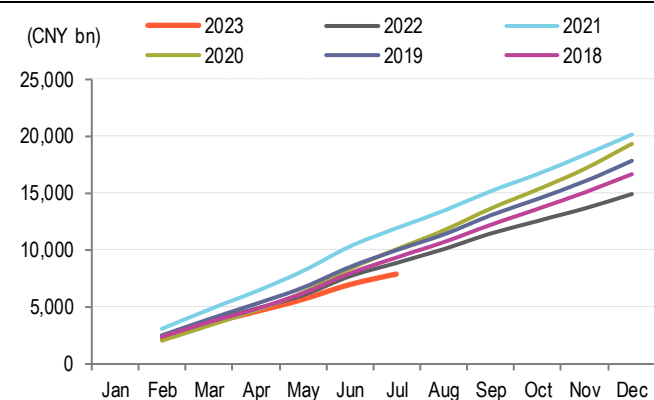
**Fig 68 – China residential floor space newly started**



Source: Bloomberg, National Bureau of Statistics, BOBCAPS Research

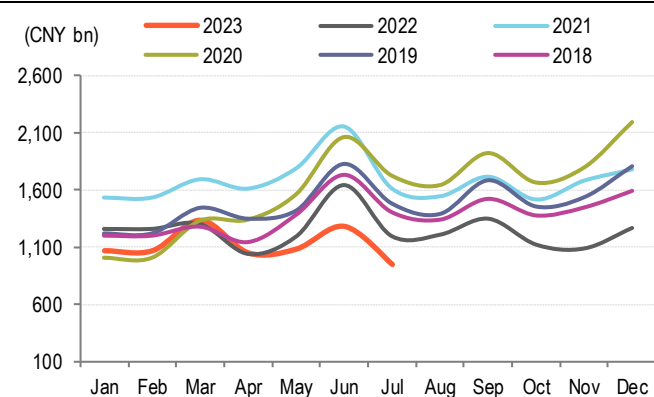
## China property sector indicators

**Fig 69 – China real estate – total funds cumulative**



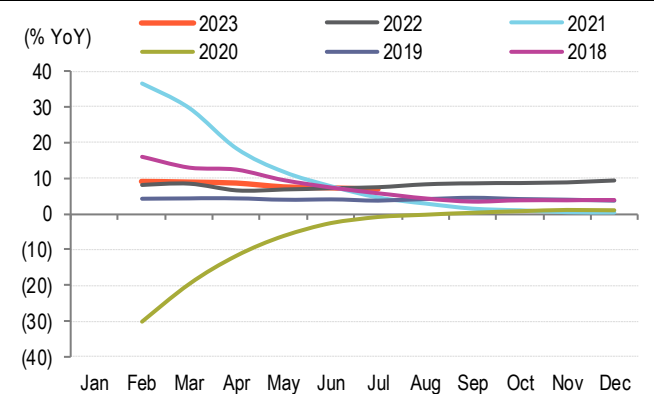
Source: Bloomberg, National Bureau of Statistics, BOBCAPS Research

**Fig 70 – China real estate – total funds monthly**



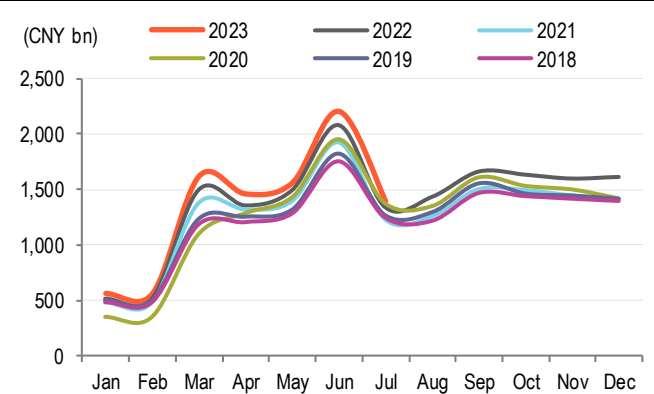
Source: Bloomberg, National Bureau of Statistics, BOBCAPS Research

**Fig 71 – China infrastructure FAI excluding electric power, heat power, gas and water, YTD growth**



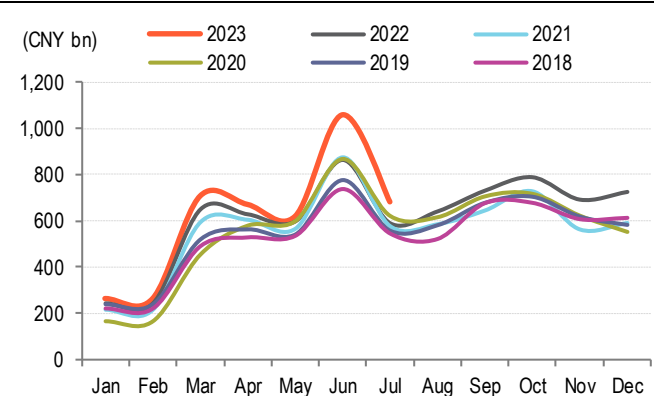
Source: Bloomberg, National Bureau of Statistics, BOBCAPS Research

**Fig 72 – China infrastructure FAI excluding electric power, heat power, gas and water**



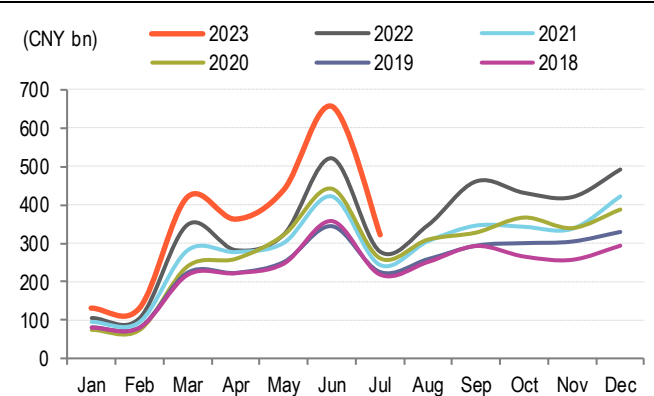
Source: Bloomberg, National Bureau of Statistics, BOBCAPS Research

**Fig 73 – China transport, storage, posts FAI**



Source: Bloomberg, National Bureau of Statistics, BOBCAPS Research

**Fig 74 – China power, gas and water FAI**

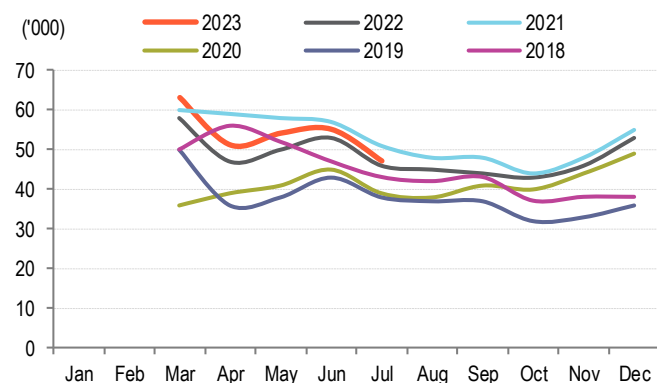


Source: Bloomberg, National Bureau of Statistics, BOBCAPS Research

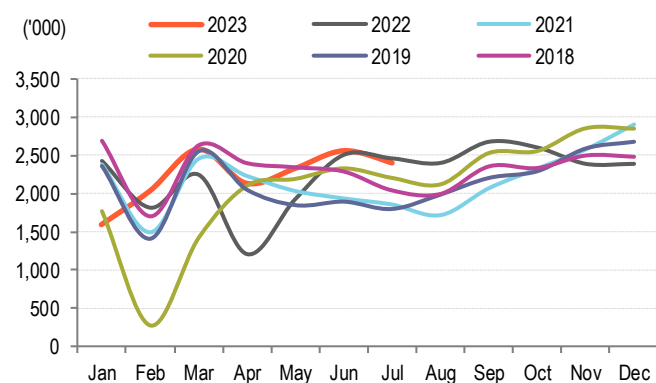


## China downstream demand indicators

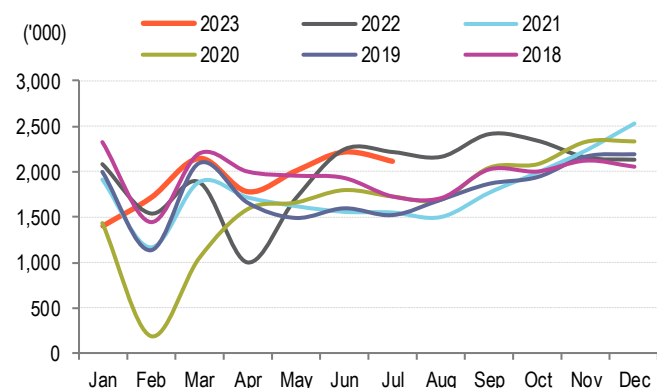
**Fig 75 – China machinery: Metal cutting machine production**



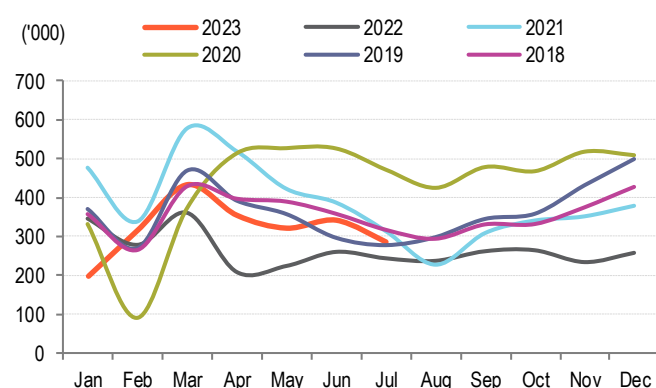
**Fig 76 – China automobiles: Vehicle production**



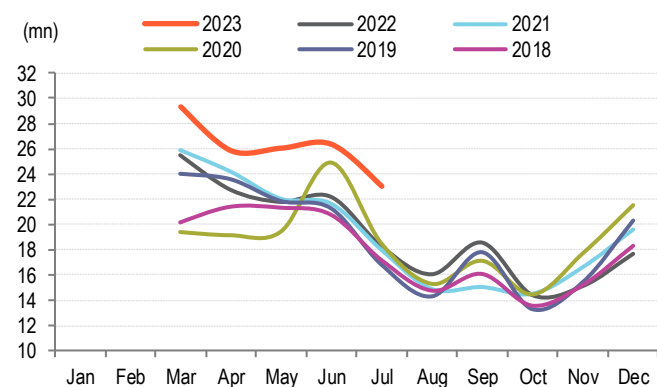
**Fig 77 – China automobiles: Passenger vehicle production**



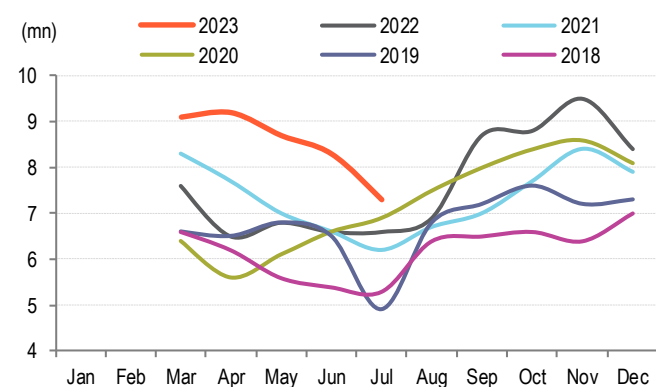
**Fig 78 – China automobiles: Commercial vehicle production**



**Fig 79 – China appliances: Air-conditioner production**

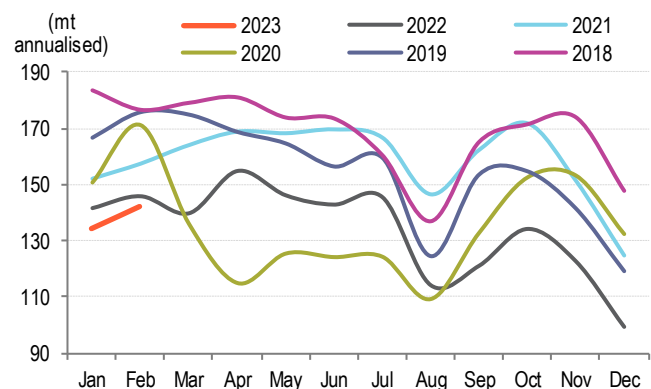


**Fig 80 – China appliances: Washing machine production**



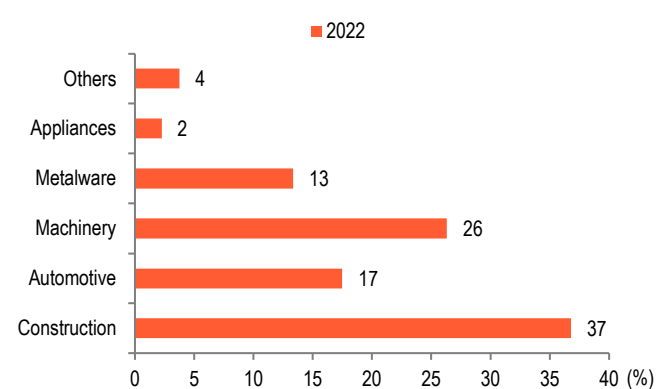
## Europe: Steel demand indicators

**Fig 81 – Europe apparent demand**



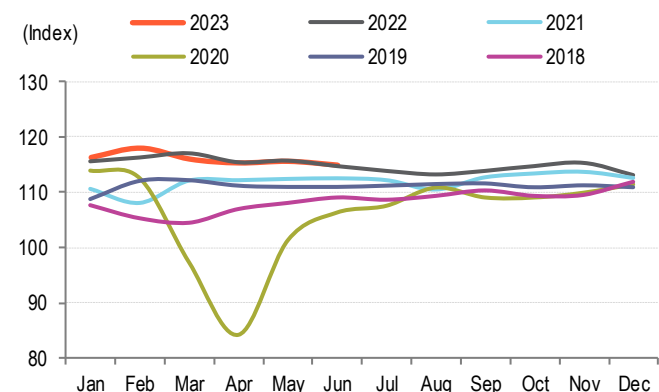
Source: Bloomberg, Eurofer, World Steel Association, BOBCAPS Research

**Fig 82 – Europe demand break-up**



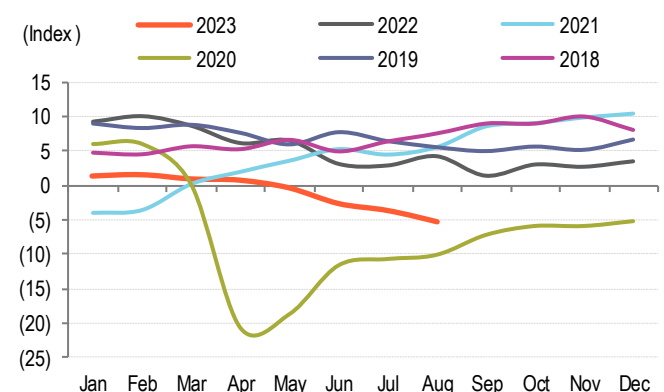
Source: Eurofer, BOBCAPS Research

**Fig 83 – Europe construction index seasonally adjusted**



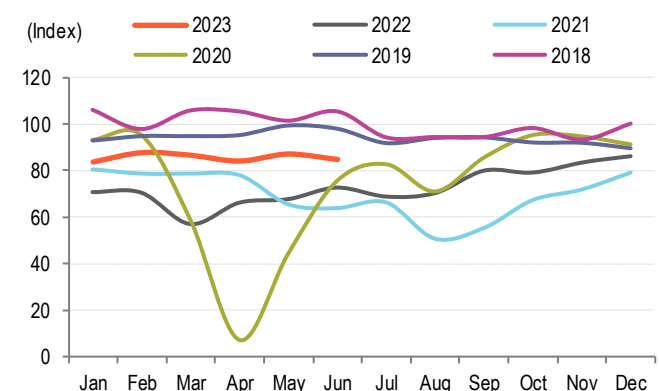
Source: Bloomberg, Eurostat, BOBCAPS Research | SA – Seasonally Adjusted

**Fig 84 – Eurozone construction confidence indicator SA**



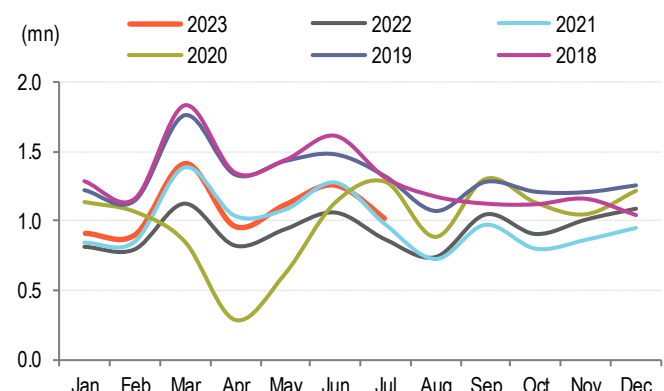
Source: Bloomberg, European Commission, BOBCAPS Research | SA – Seasonally Adjusted

**Fig 85 – EU motor vehicle production index**



Source: Bloomberg, Eurostat, BOBCAPS Research

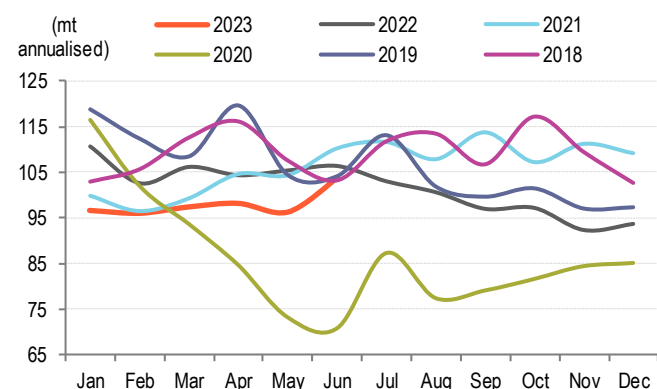
**Fig 86 – Europe vehicle registration**



Source: ACEA, Bloomberg, BOBCAPS Research

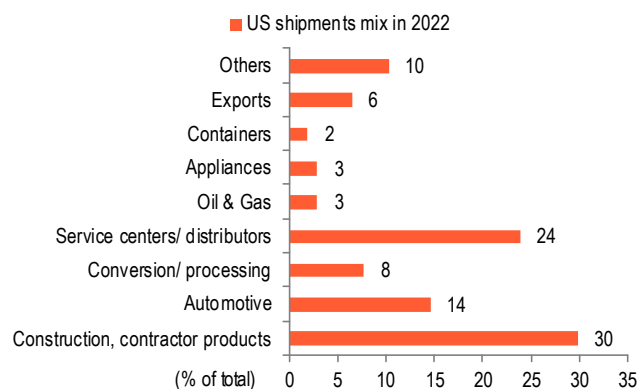
## US steel demand indicators

**Fig 87 – US apparent steel demand**



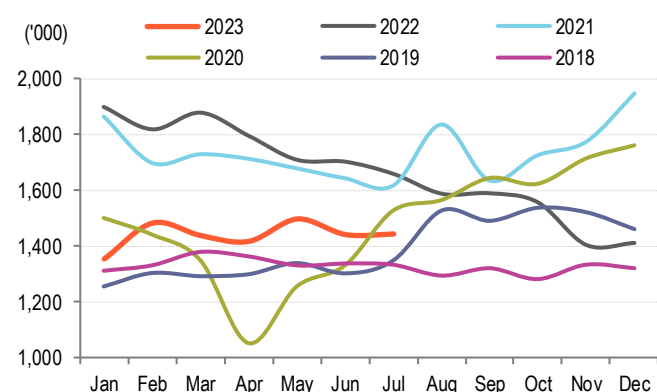
Source: Bloomberg, US Census Bureau, World Steel Association, BOBCAPS Research

**Fig 88 – US steel shipments break-up (2022)**



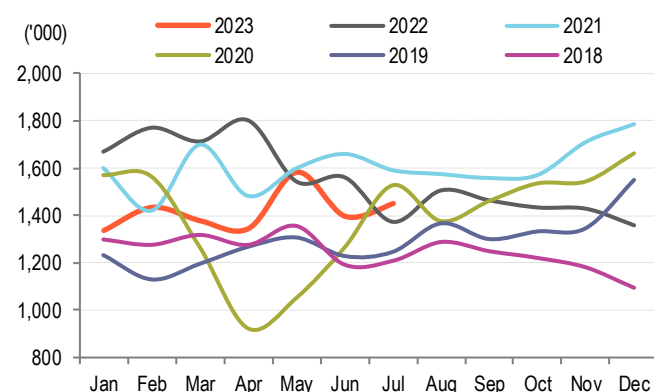
Source: AISI, BOBCAPS Research

**Fig 89 – US housing permits**



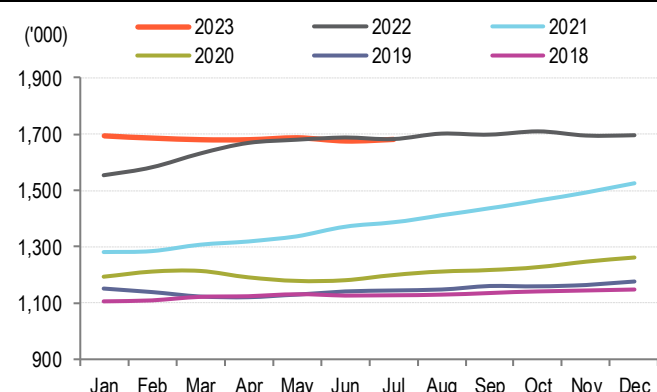
Source: Bloomberg, US Census Bureau, BOBCAPS Research

**Fig 90 – US housing starts**



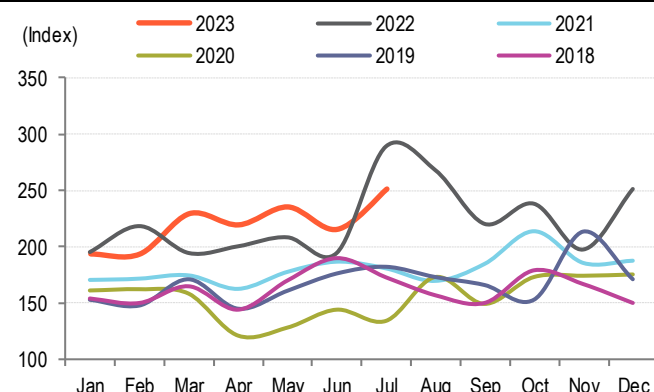
Source: Bloomberg, US Census Bureau, BOBCAPS Research

**Fig 91 – US new homes under construction**



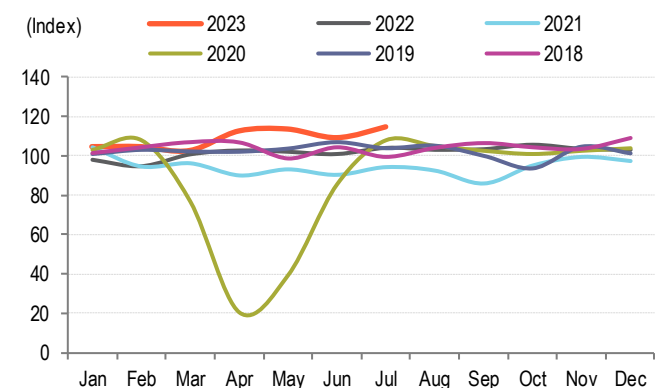
Source: Bloomberg, US Census Bureau, BOBCAPS Research

**Fig 92 – US FW Dodge Construction Index**



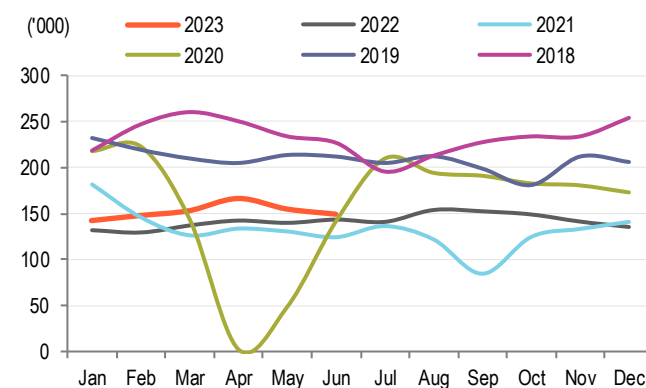
Source: Bloomberg, FW Dodge, BOBCAPS Research

**Fig 93 – US motor vehicle and parts production manufacturing SA index**



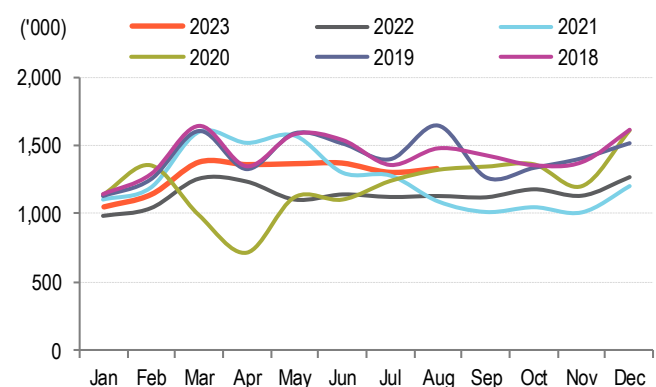
Source: Bloomberg, US Federal Reserve, BOBCAPS Research | SA – Seasonally Adjusted

**Fig 94 – US domestic auto production**



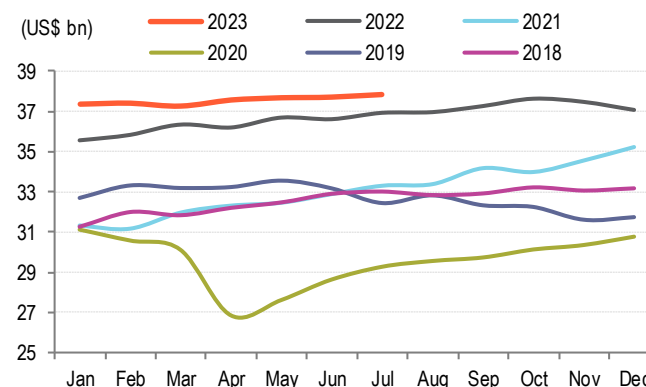
Source: Bloomberg, Bureau of Economics, BOBCAPS Research

**Fig 95 – US truck and car vehicle sales**



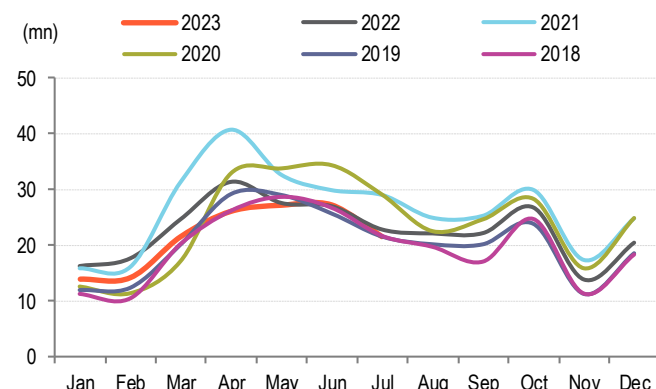
Source: Bloomberg, Bureau of Economics, BOBCAPS Research

**Fig 96 – US machinery shipments**



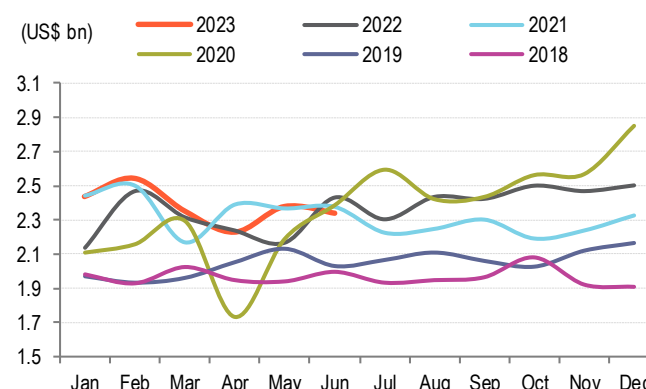
Source: Bloomberg, US Census Bureau, BOBCAPS Research

**Fig 97 – US farm wheel tractor retail sales**



Source: Association of Equipment Manufacturers, Bloomberg, BOBCAPS Research

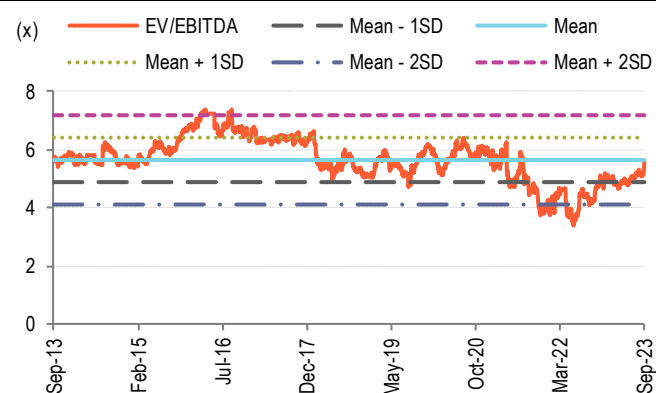
**Fig 98 – US appliances new orders**



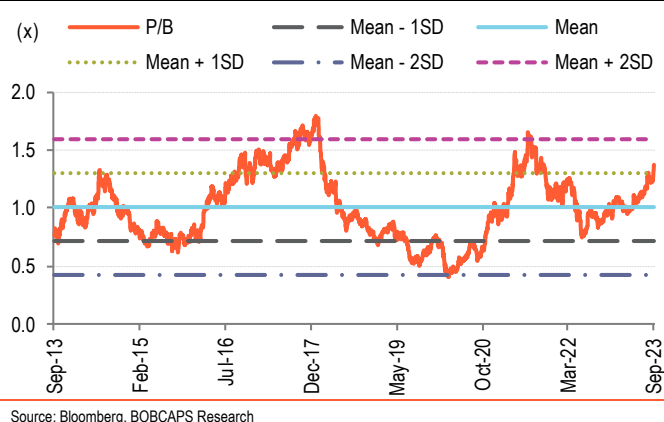
Source: Bloomberg, US Census Bureau, BOBCAPS Research

## India steel sector valuations

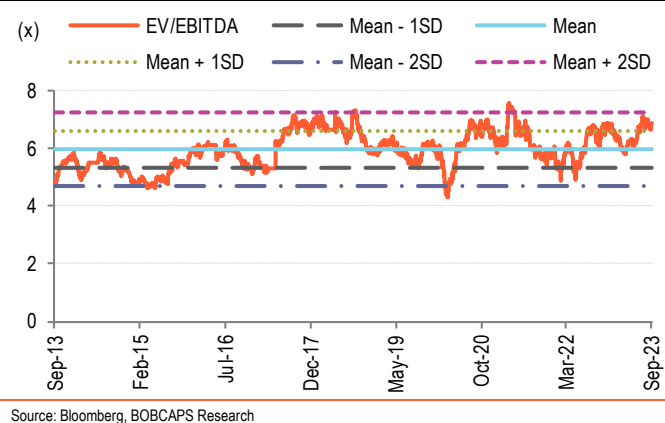
**Fig 99 – Tata Steel EV/EBITDA 2Y forward**



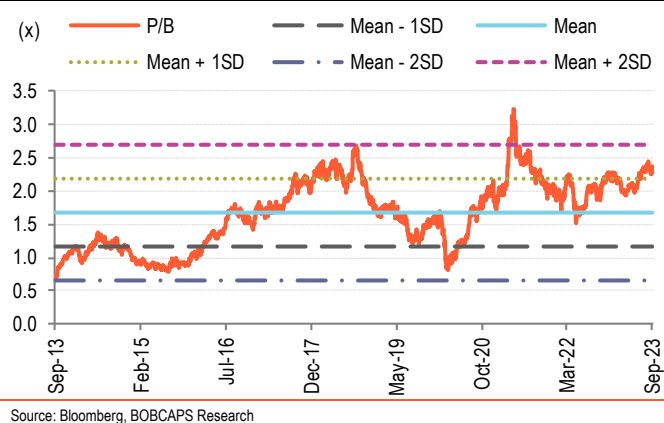
**Fig 100 – Tata Steel P/B 1Y forward**



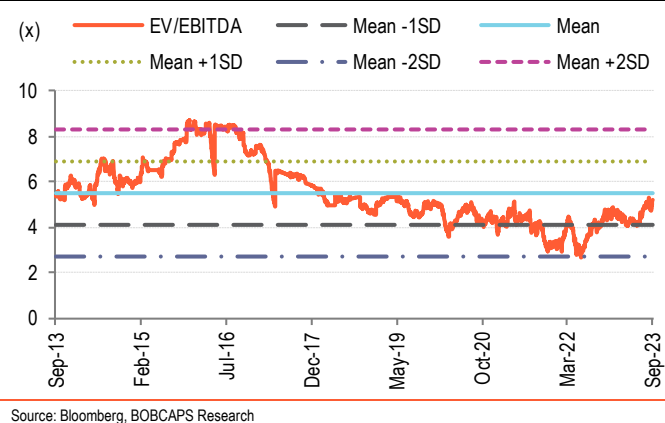
**Fig 101 – JSW Steel EV/EBITDA 2Y forward**



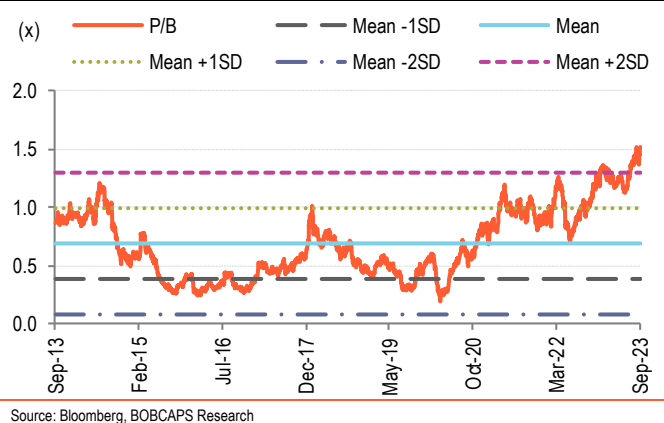
**Fig 102 – JSW Steel P/B 1Y forward**



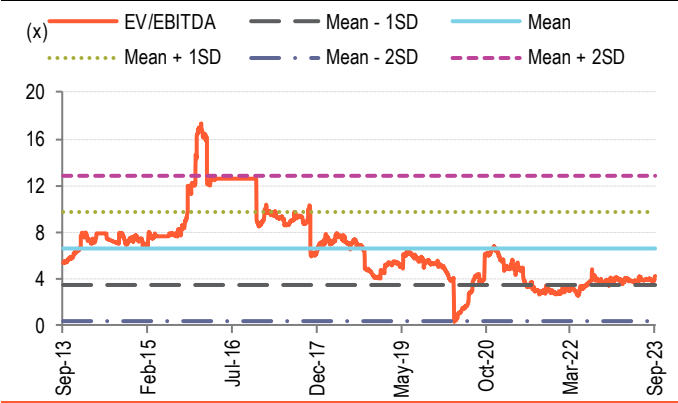
**Fig 103 – Jindal Steel & Power EV/EBITDA 2Y forward**



**Fig 104 – Jindal Steel & Power P/B 1Y forward**

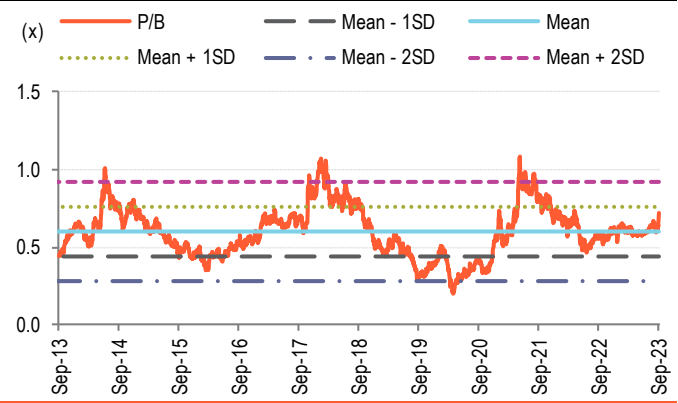


**Fig 105 – SAIL EV/EBITDA 2Y forward**



Source: Bloomberg, BOBCAPS Research

**Fig 106 – SAIL P/B 1Y forward**



Source: Bloomberg, BOBCAPS Research

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