

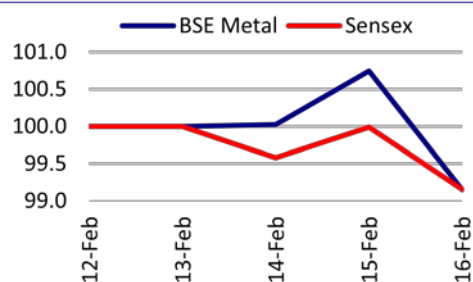
Valuations: Indian companies

Company	Price (INR)	EV/EBITDA (x)		P/B (x) FY19E
		FY19E	FY20E	
Steel				
Tata Steel	713	6.2	7.4	1.6
JSW Steel	311	7.9	7.9	2.3
JSPL	274	7.3	6.5	0.9
SAIL	95	10.6	7.9	1.0
Non-Ferrous				
Hindalco	243	5.9	5.3	1.4
Nalco	75	7.2	7.0	1.4
Vedanta	314	4.8	4.3	1.6
Rain Ind.	393	6.4	5.6	2.6
Mining				
Coal India	300	6.1	5.4	6.8
HZL	307	5.4	5.2	3.5
NMDC	137	6.1	5.7	1.6

Valuations: Global companies

	Price	EV/EBITDA (x) P/B (x)		
		CY17	CY18	CY17
Mining				
BHP	AUD 31.52	6.2	6.8	nm
FMG	AUD 5.35	4.3	4.8	nm
Rio Tinto	AUD 82.48	6.5	6.8	nm
Vale	USD 46.03	6.5	6.7	1.7
Teck Res.	USD 29.75	4.8	5.6	1.0
Steel				
A. Mittal	EUR 28.435	5.4	5.6	0.9
Posco	KRW 363.5	5.7	5.5	0.7
US Steel	USD 44.75	6.1	5.8	2.3
Nucor	USD 68.54	8.1	7.9	2.4
JFE	JPY 2500	7.4	6.7	nm
Gerdau	BRL 15.93	9.4	7.7	1.1
Angang	CNY 7.21	7.2	6.8	0.8
Non Ferrous				
Alcoa	USD 47.36	4.3	4.6	1.8
Hydro	NOK 57.64	5.8	5.7	1.3
Rusal	HKD 5.65	8.9	8.0	2.7

BSE Metals Index v/s Sensex



Source: Bloomberg

Note: Indexed to 100 on 12 Feb 2017

Stock performance table on pg 26

Investors are advised to refer through important disclosures made at the last page of the Research Report.

Metal Prices

	CMP	change since					
		16-Feb	%	9-Feb	%	1-Apr	%
STEEL							
TMT- Mumbai (INR/ton)	39,400	1	38,900	17	33,600	29	30,600
HRC- Mumbai (INR/ton)	44,000	0	44,000	18	37,333	15	38,222
HRC (USD/ton) fob CIS	583	3	565	21	483	18	495
METALLICS							
Sponge iron - Raipur (INR/ton)	21,400	3	20,800	16	18,500	34	15,950
Pig iron - Raipur (INR/ton)	28,367	0	28,250	19	23,850	26	22,550
Iron ore spot (USD/ton) cfr China	75	0	74	-1	75	-6	79
Coking coal (USD/ton) fob Aus.	233	2	228	-18	283	-3	240
Shred. scrap (USD/ton) Rotterdam	328	0	328	26	260	18	278
ALUM.							
LME Spot (USD/ton)	2,190	2	2,142	13	1,930	21	1,814
Indian prices (INR '000/ton)	140	1	138	13	124	21	116
LME inventories ('000 ton)	1,296	18	1,097	-29	1,818	-41	2,202
ZINC							
LME Spot (USD/ton)	3,618	5	3,436	36	2,665	41	2,563
Indian prices (INR '000/ton)	231	5	221	34	172	33	174
LME inventories ('000 ton)	152	-5	160	-59	367	-65	428
COPPER							
LME Spot (USD/ton)	7,159	6	6,755	24	5,770	30	5,501
Indian prices (INR '000/ton)	457	5	436	20	381	22	374
LME inventories ('000 ton)	333	-1	336	26	265	7	312
OTHERS							
Gold (INR/10gms)	30,693	2	30,063	6	28,845	10	27,812
Sliver (INR/1kg)	38,709	2	37,859	-8	41,896	-1	38,921
Lead Spot LME (USD/ton)	2,640	4	2,530	17	2,260	33	1,985
Brent crude (USD/bbl)	64.8	3	62.8	17	55.2	14	56.8
MISC.							
INR/USD	64.4	0	64.2	0	64.3	-5	68.0
BDI	1,084	-3	1,123	-11	1,223	13	961

Indian steel prices are firm; Base metals higher

- **Indian steel:** Long product (TMT Mumbai) prices were up ~1% WoW. Sponge iron prices were up ~3% WoW, while domestic scrap prices were up ~3% WoW. Pellet prices were unchanged. Domestic iron ore prices were also unchanged. Domestic HRC prices were unchanged, but export price offers were higher. Import HRC prices were unchanged.
- **Raw materials:** Iron ore prices (China cfr) were unchanged amid thin trading ahead of Chinese holidays. Thermal coal prices were down ~2% WoW. Coking coal prices were up another ~2% WoW amid risk of weather disruption in Australia and logistics issues in China. China's pellet import prices were unchanged.
- **Europe:** HRC prices were up ~2% WoW. Resultantly, steel spreads improved. CIS HRC export prices were up ~3% WoW. Rotterdam scrap prices were unchanged.
- **China:** Local and export steel rebar and HRC prices were unchanged, as trading was thin due to Chinese holidays.
- **Base metals:** Aluminum (cash LME) rose ~2% WoW, while inventories were also higher. Alumina was lower by ~2% WoW. Copper (cash LME) was up ~6% WoW. Zinc was up ~5% WoW, while lead was up ~4% WoW. Brent crude prices were up ~3% WoW.

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Ferrous

Domestic HRC prices were unchanged at INR44,000/t.

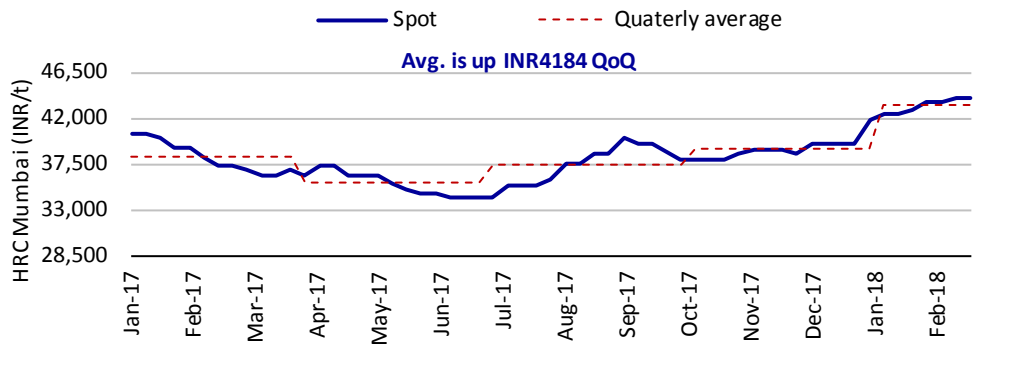
Long products (TMT Mumbai) prices were up 1.3% WoW to INR39,400/t.

Sponge iron prices were up 2.9% WoW to INR21,400/t.

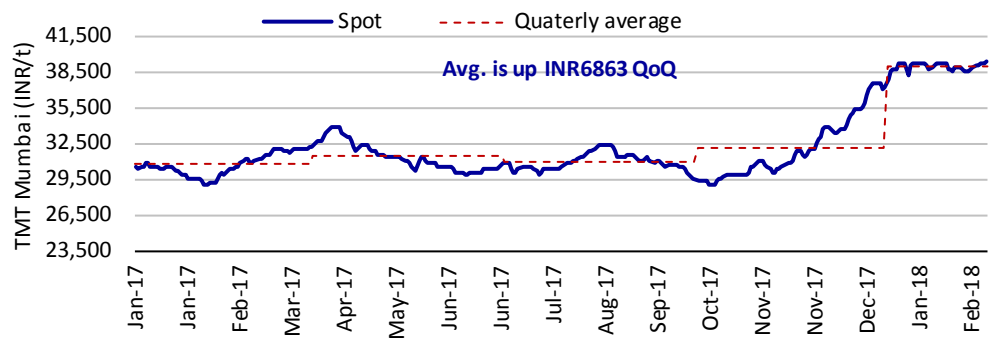
Ferrous

INDIAN DOMESTIC MARKET

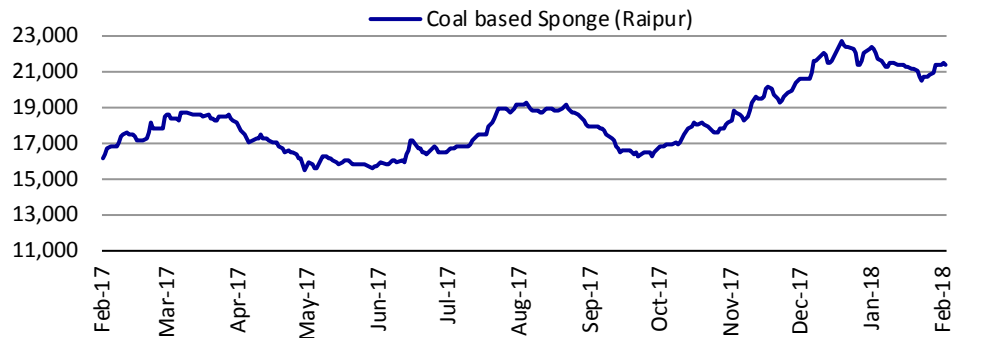
HRC prices (INR/T, excl. GST)



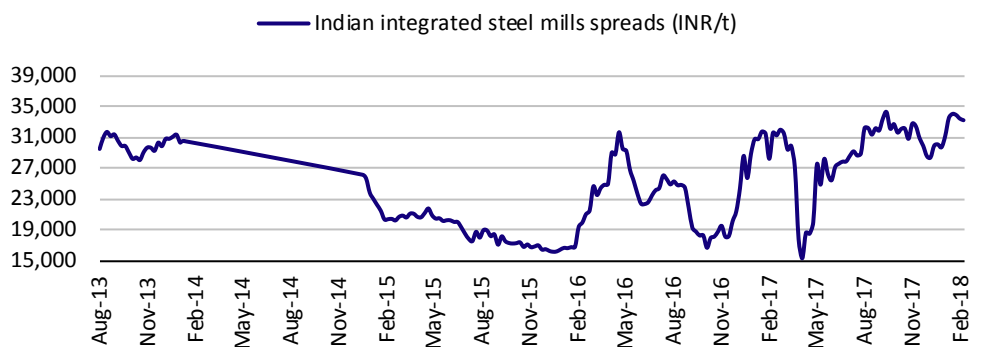
Rebar prices (INR/T, excl. GST)



Sponge iron (made from lumps) prices (INR/T, excl. GST)



India: Integrated steel mills spreads (Import parity HRC – 1xcoking coal)



Source: SteelMint, WSA, MOSL

Ferrous

Domestic scrap prices were up 3.3% WoW to INR25,500/t.

Domestic iron ore lump prices were unchanged WoW.

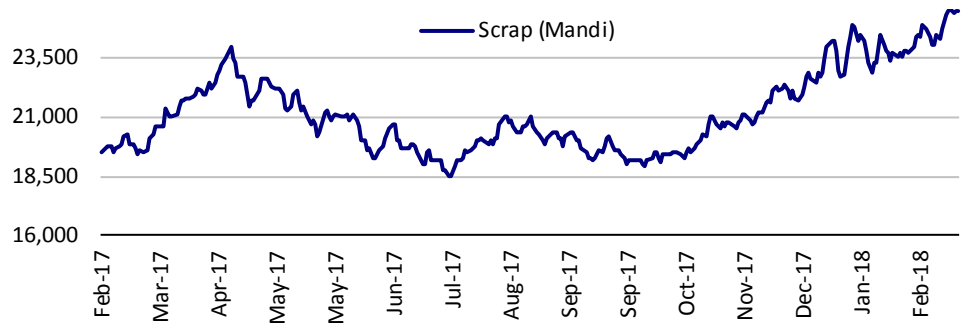
Domestic iron ore fines prices were unchanged WoW.

Pellet prices were at INR5,800/t.

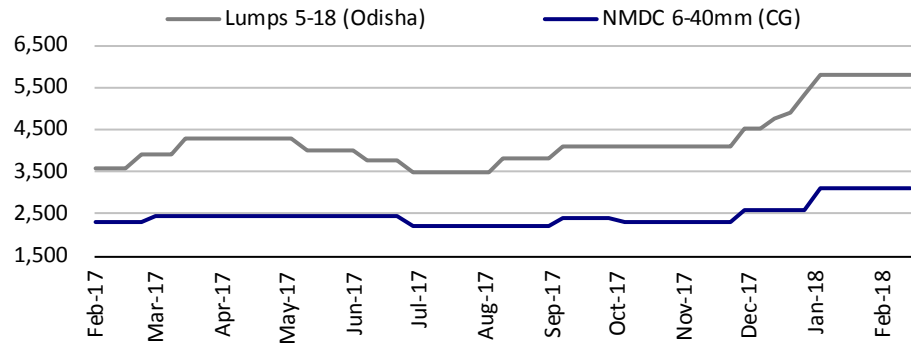
Ferrous

INDIA

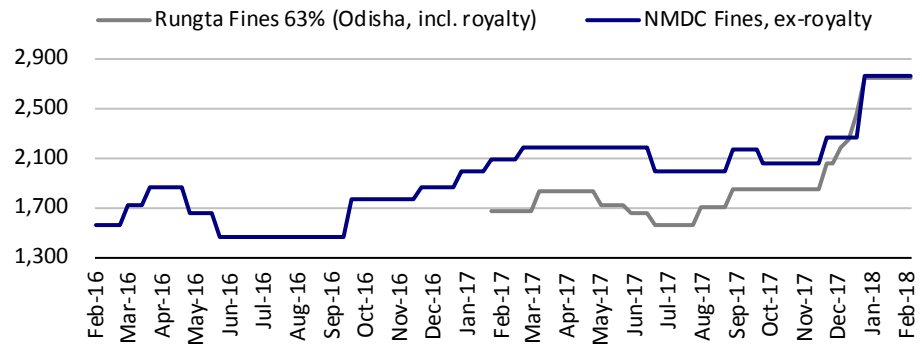
Scrap Mandi (INR/t)



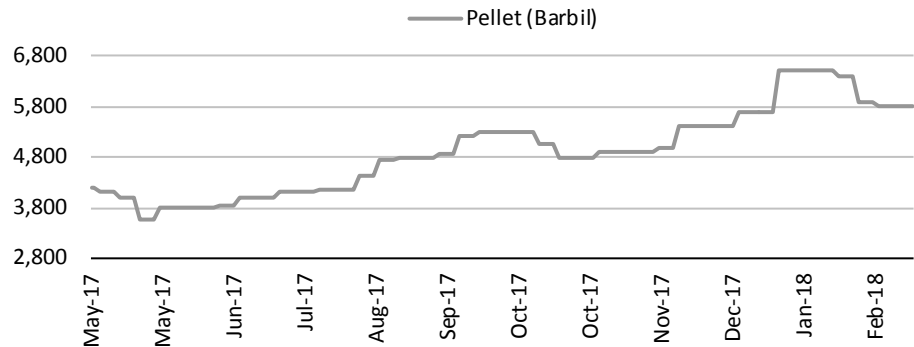
Iron ore lumps (INR/t)



Iron ore fines (INR/t) ex mine



Pellet (Barbil) INR/t

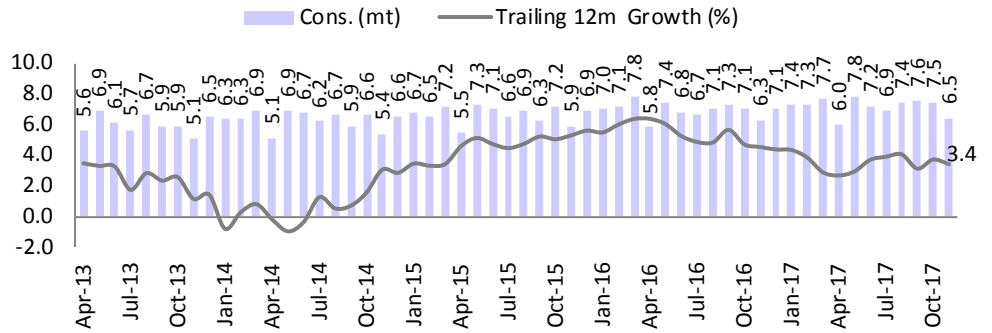


Source: SteelMint, WSA, MOSL

India Monthly steel trends

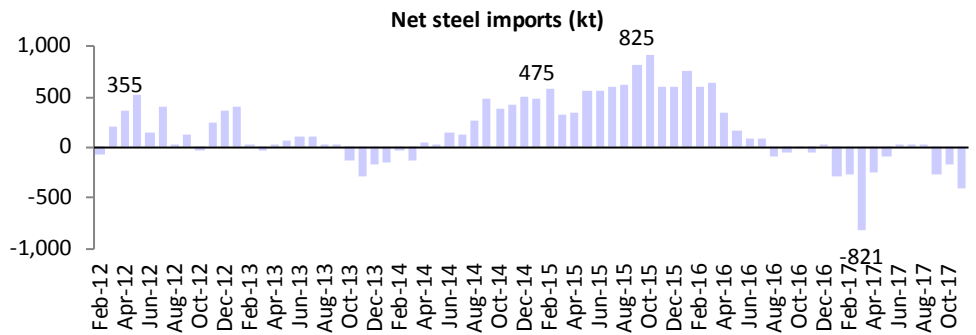
Steel consumption (mt) and growth (trailing 12-month) YoY %

India steel demand grew 2.5% YoY to 6.4mt in November 2017.



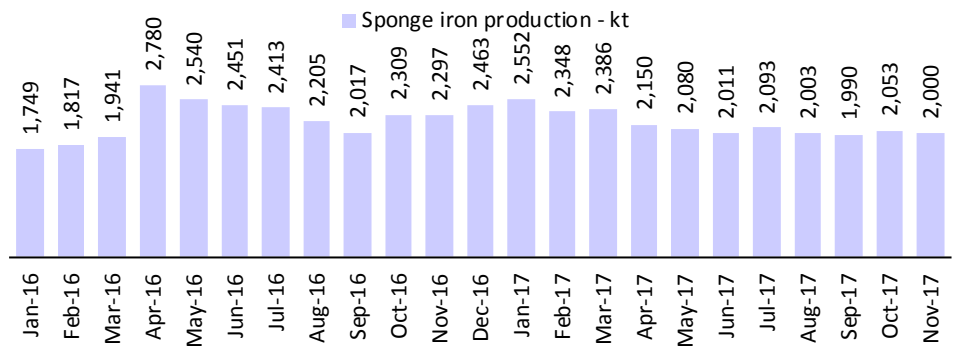
Steel imports and exports - kt

India was a net exporter of 395kt in November.



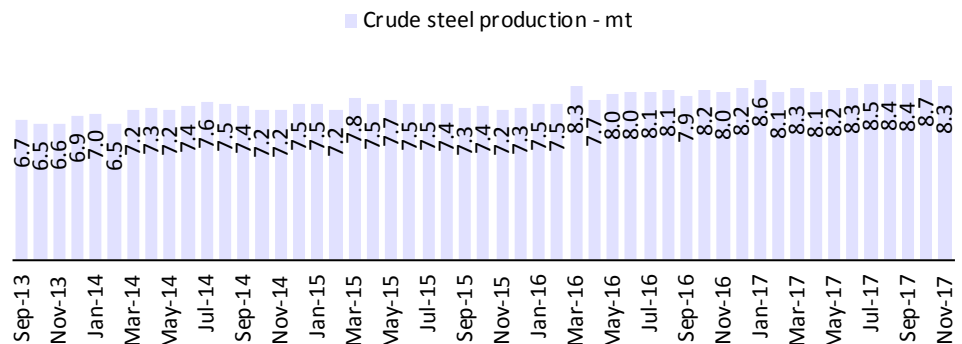
Sponge iron production - kt

Sponge iron production was down 13% YoY to ~2kt in November 2017.



Crude steel production - kt

Crude steel production was up 3.6% YoY to 8.3mt in November.

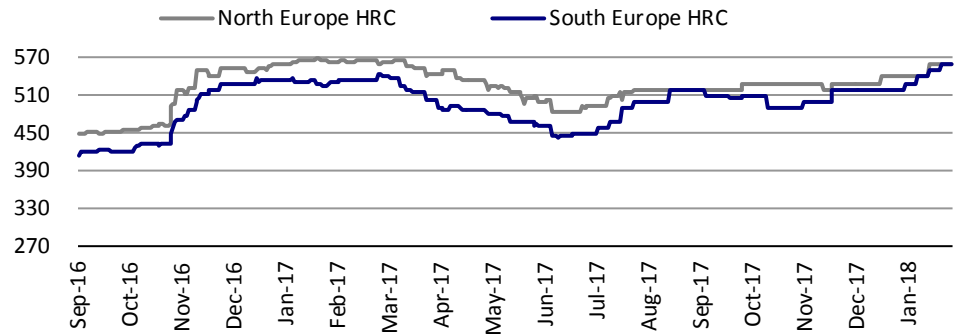


Source: JPC

European Union

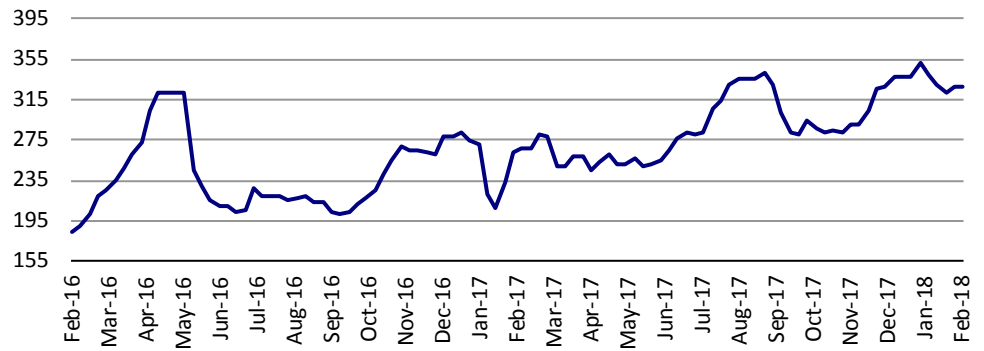
EU HRC steel prices were up 1.8% WoW to EUR560/t.

European HRC prices (EUR/ton)



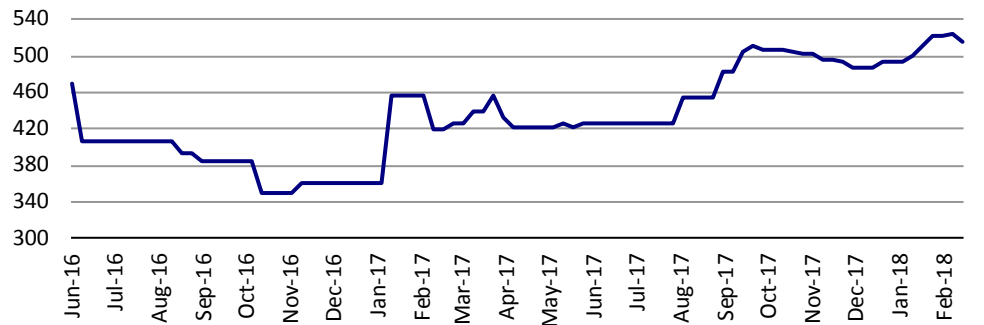
Shredded scrap prices (USD/t) fob Rotterdam

Rotterdam scrap prices were unchanged at USD328/t.



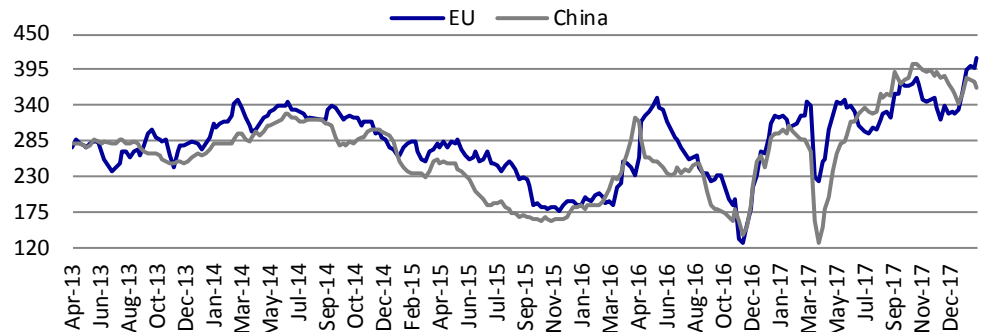
European wire rods southern region (Euro/t)

South Europe wire rod prices were higher.



Spreads (HRC-1.6xiron ore-0.7xcoking coal) – (USD/t)

EU steel product spreads were higher.

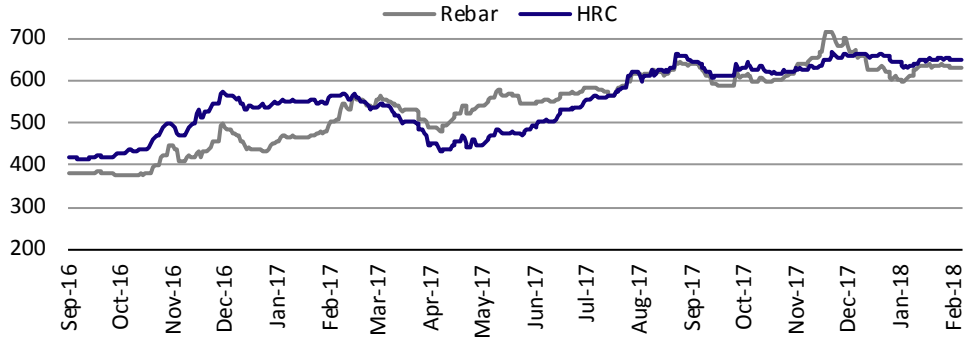


Source: Metal Bulletin, Bloomberg, WSA, MOSL

Chinese steel HRC and rebar prices were unchanged at USD647 and USD630 per ton, respectively.

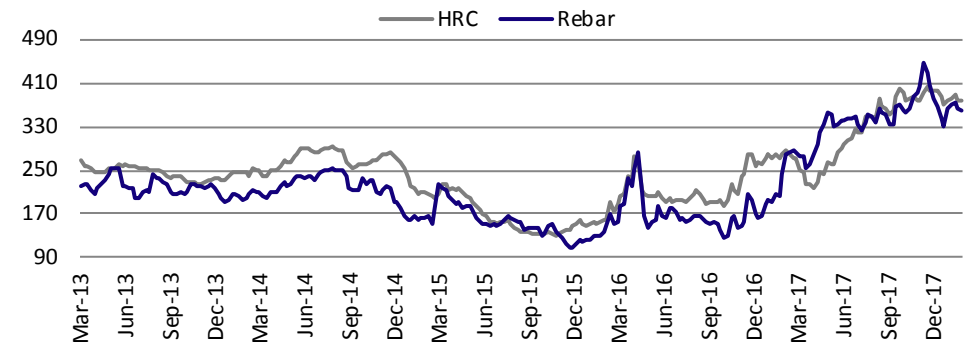
China

China domestic prices (USD/ton)



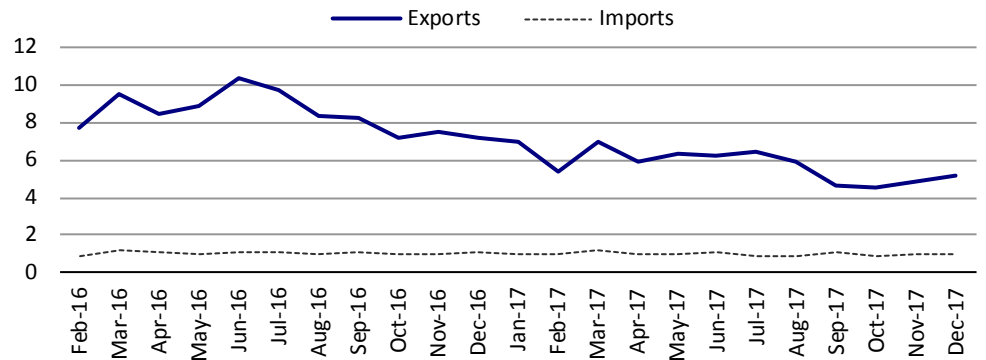
Chinese steel product spreads were marginally lower.

Steel spreads (Steel price – 1.6x iron ore – 0.55x coke) for Chinese producers



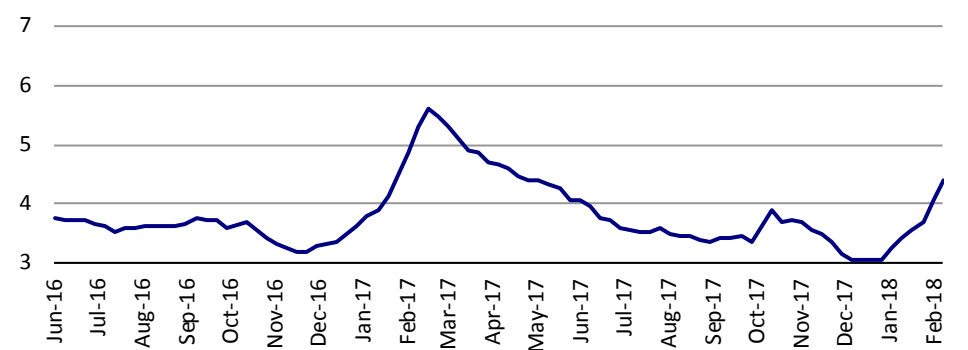
Chinese steel exports were down 29% YoY to 5.1mt in December 2017.

Steel trade (m ton)



Steel inventories in China were higher WoW.

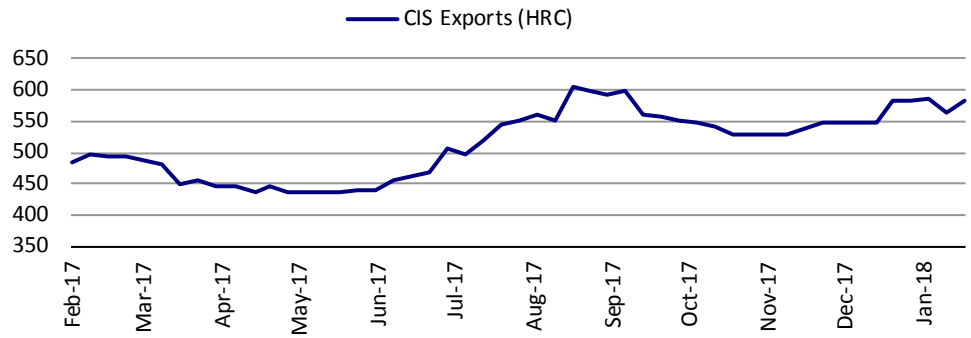
Steel inventories in main China cities (m tons)



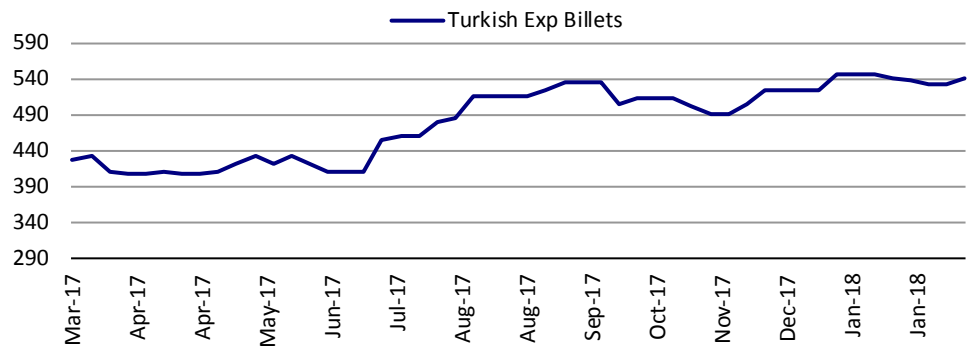
CIS export HRC prices were up 3.1% WoW to USD583/t.

Other regions

CIS HRC export prices (USD/ton) fob basis

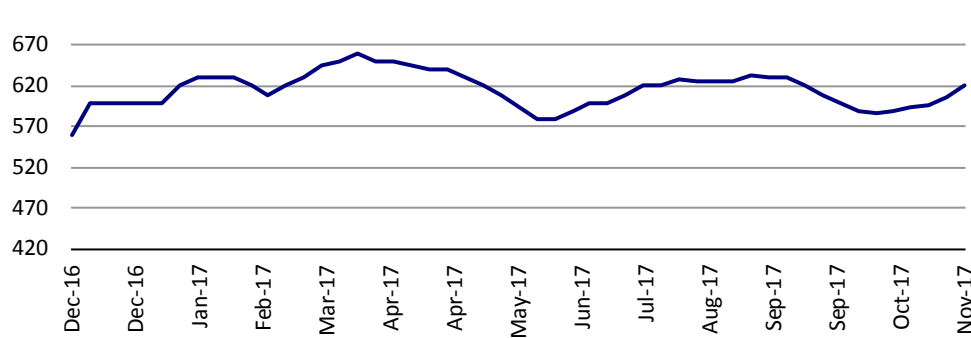


Turkish export billets (USD/ton)



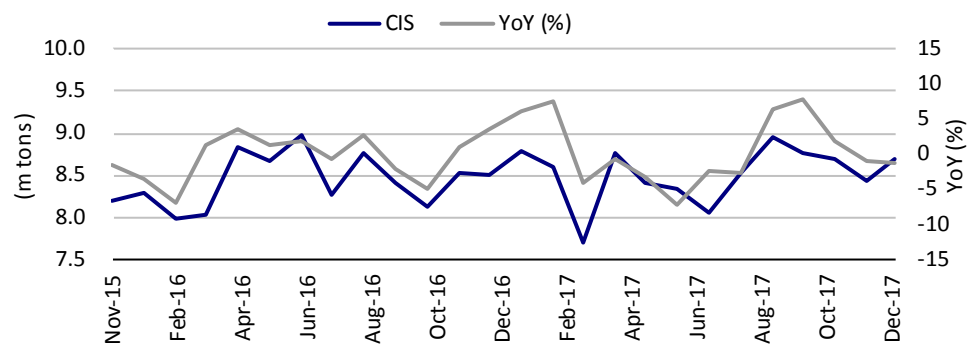
North America HRC prices (USD/ton)

US HRC prices were higher.



CIS: Monthly crude steel production

CIS countries crude steel production declined 1.1% YoY to 8.7mt in December 2017.

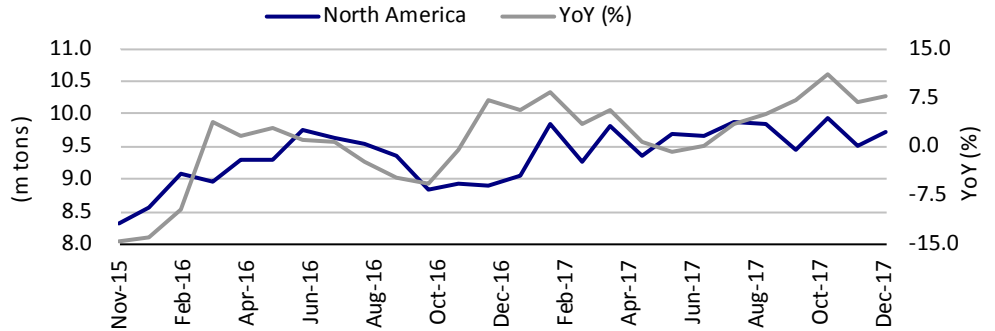


Source: WSA, Bloomberg, MOSL

Other regions

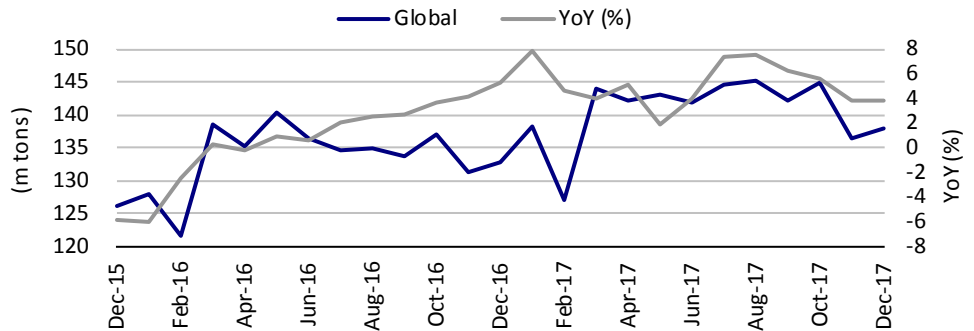
North America: Monthly crude steel production

US steel production grew 7.6% YoY to 9.7mt in December 2017.



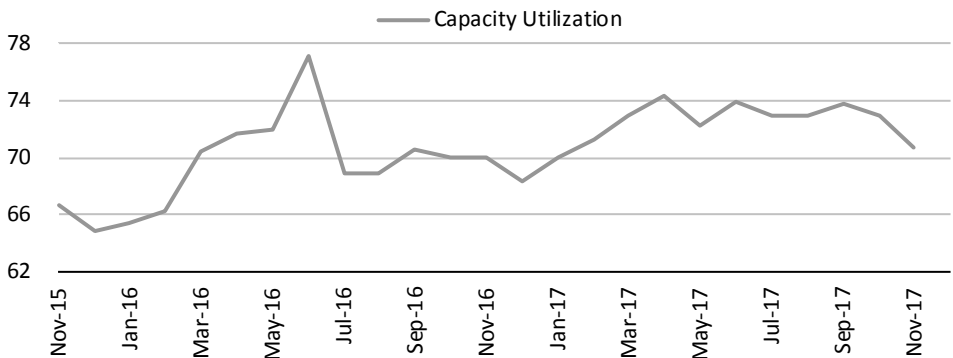
Global: Monthly crude steel production

Global crude steel production increased 3.9% YoY to 138.1mt in December 2017.



Global: Monthly crude steel capacity utilization

Capacity utilization improved 70bps YoY to 70.7% in November 2017.

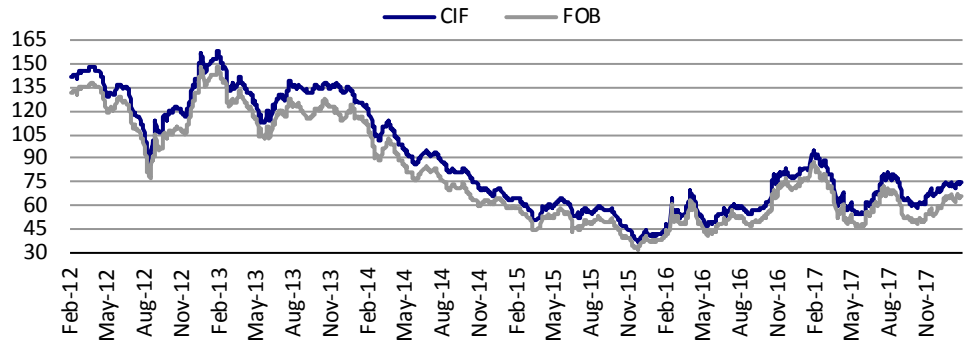


Source: Bloomberg, WSA, MOSL

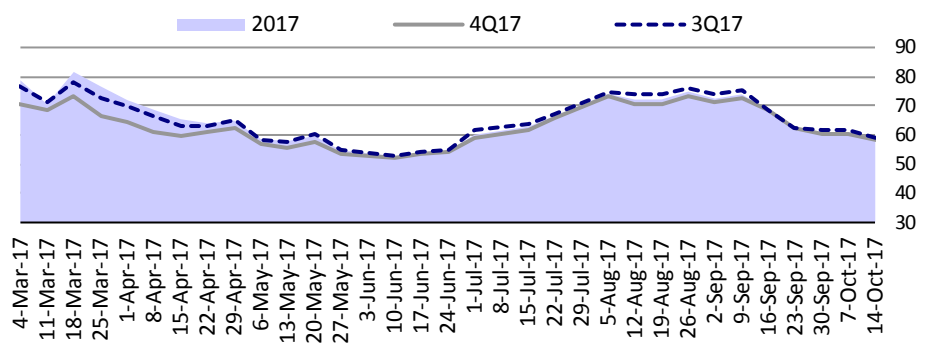
Iron ore (China cfr) prices were unchanged at USD75/t.

Steel raw materials

Import price of 62% grade iron-ore fines in China (USD/ton)

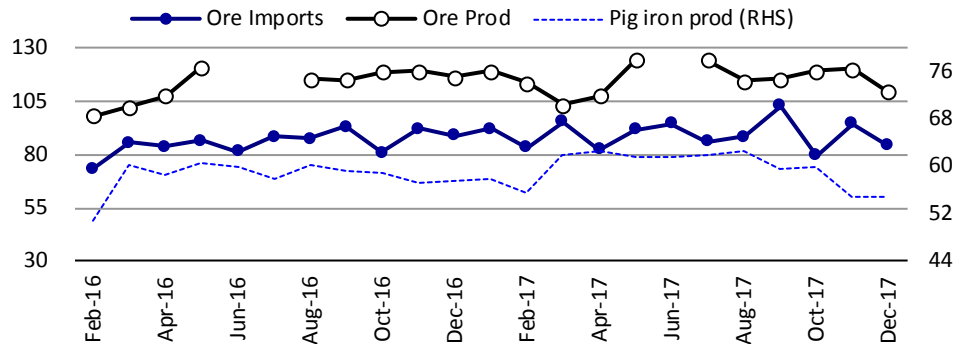


OTC iron-ore swaps (USD/ton)



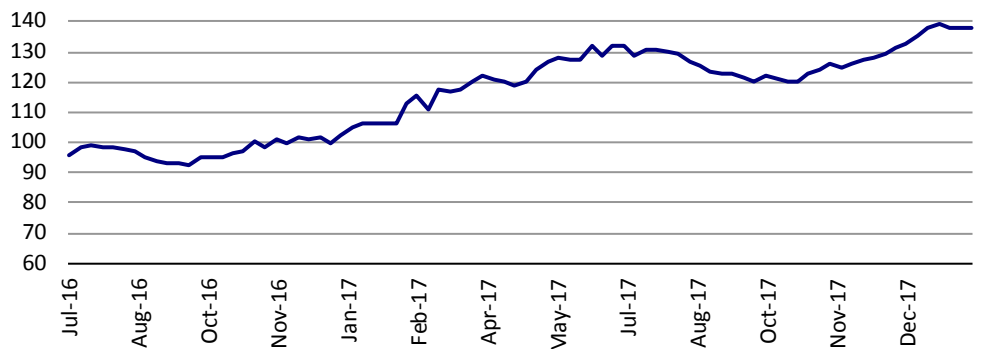
China iron ore imports declined ~5% YoY to 84mt in December 2017.

China iron-ore production and imports (m tons)



China iron ore inventories were unchanged WoW.

China's iron-ore inventories (mt)

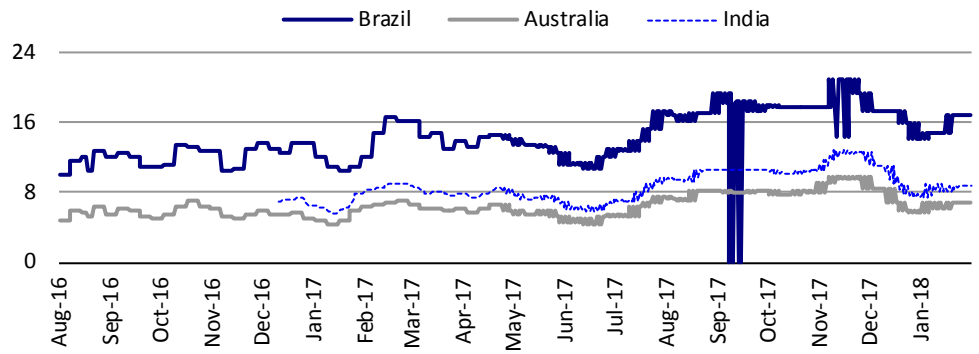


Source: Bloomberg, MOSL

Steel raw materials

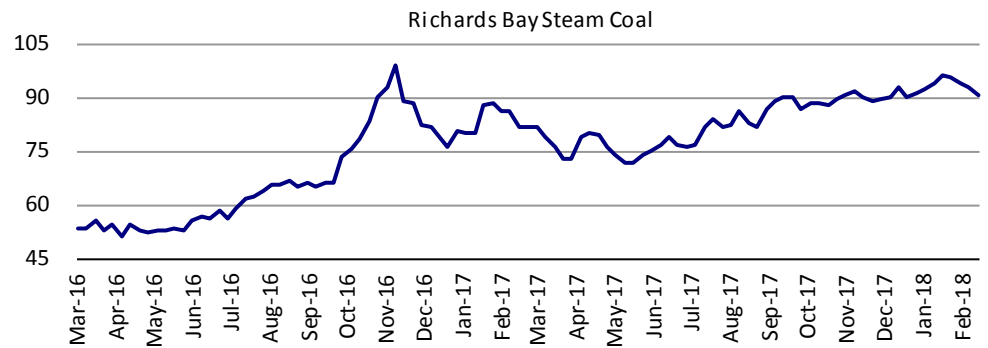
Freight rates to China (USD/ton)

Freight rates were unchanged WoW.



Coal price index

Richards Bay thermal coal prices were down ~3% WoW to USD90.5/t.

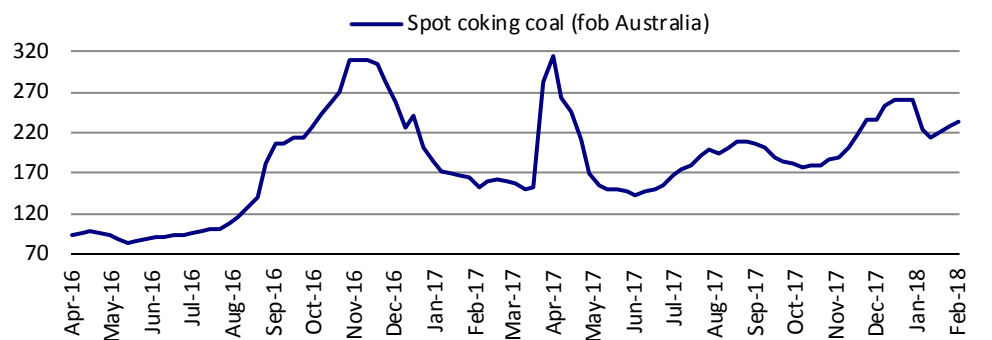


Coke price index (fob China)



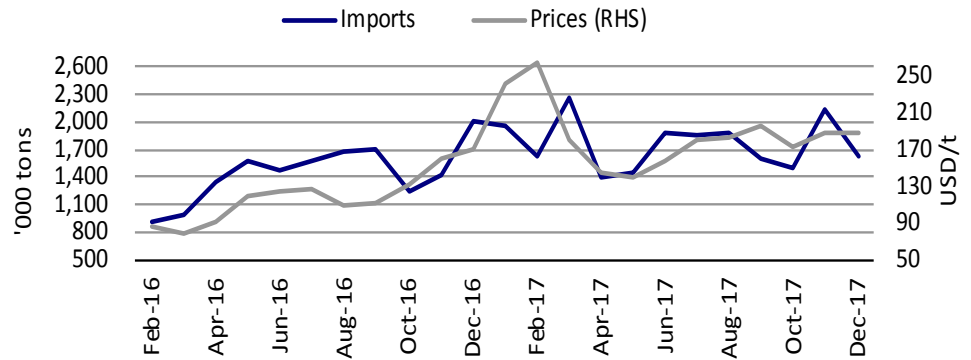
Coking coal (USD/t)

Coking coal prices were up 2% WoW to USD233/t.

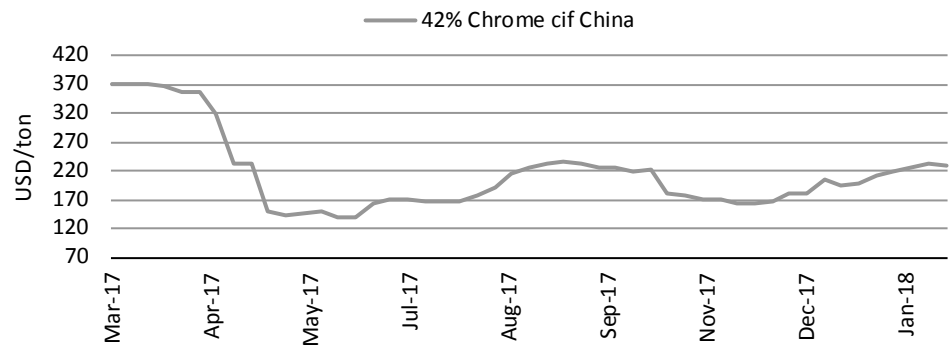


Ferro alloys

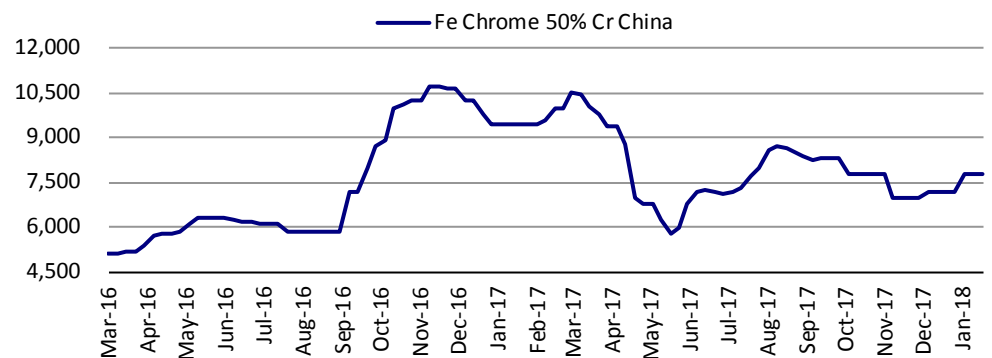
China's imports of manganese ore and concentrate



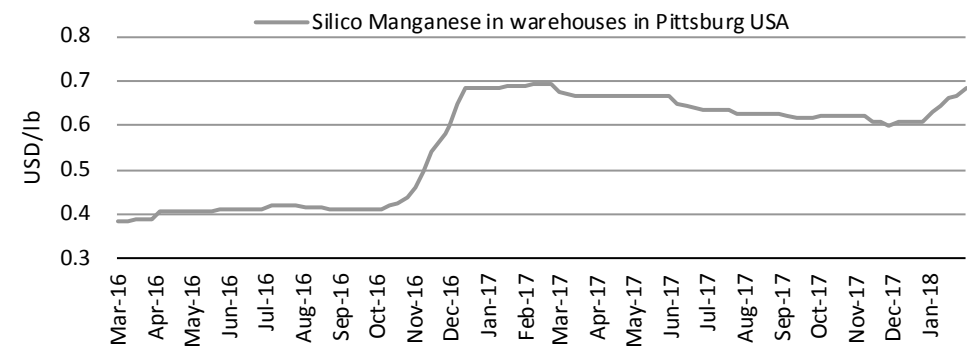
Chrome ore FOB spot prices



Ferro chrome CIF prices (CNY/t)



Silico Manganese prices



Source: Metal Bulletin, Bloomberg, MOSL

Non-ferrous

Aluminum (cash LME) was up 2% WoW to USD2,190/t.

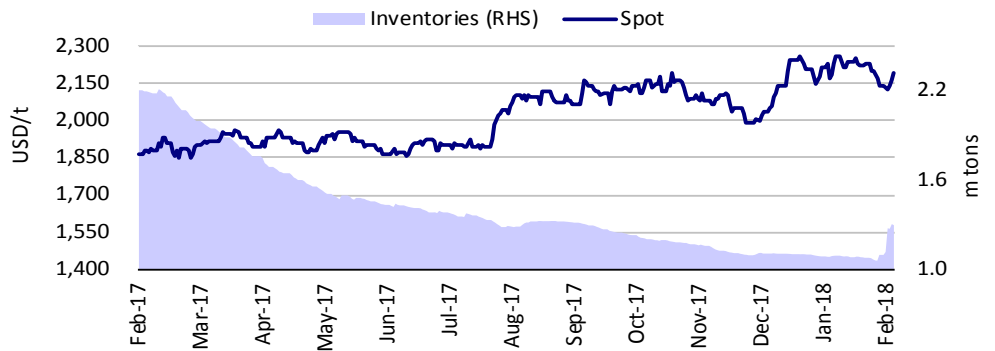
Global aluminum production declined 9.7% YoY to 4.49mt in November 2017.

LME and SHFE arbitrage is unfavorable.

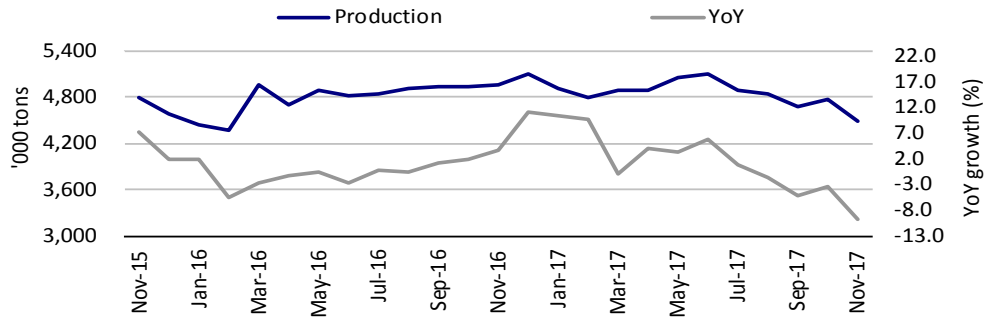
Non-ferrous

Aluminum

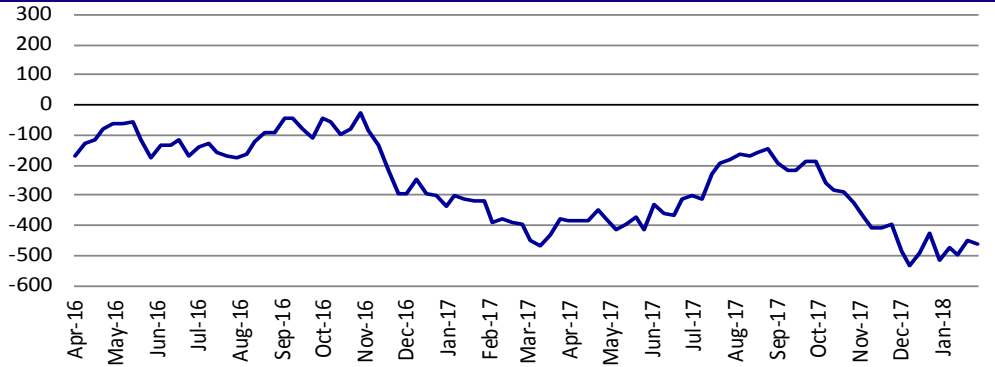
LME inventories and spot prices



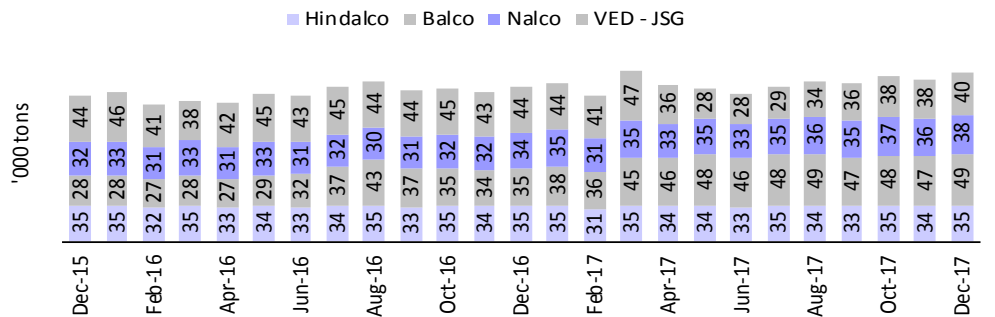
Global primary aluminum monthly production and YoY growth



Aluminum: SHFE Vs LME arbitrage (USD/T)



India: Company-wise primary aluminum monthly production

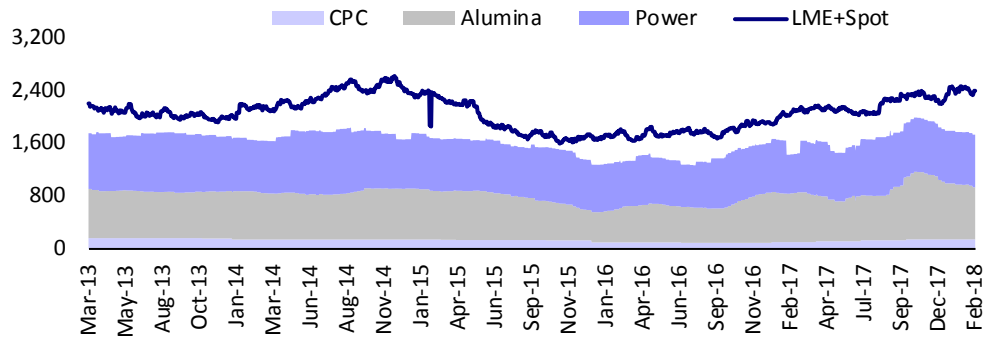


Non-ferrous

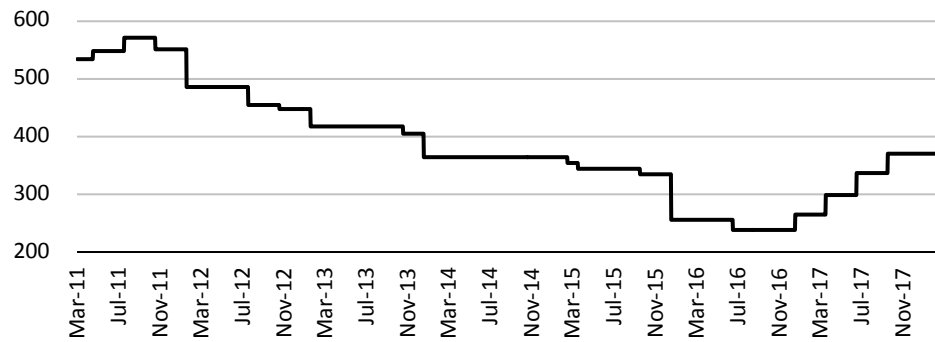
Aluminum

Aluminum raw material and power cost for marginal producer in USA (USD/t)

All-in-aluminum was at USD2,396/t.

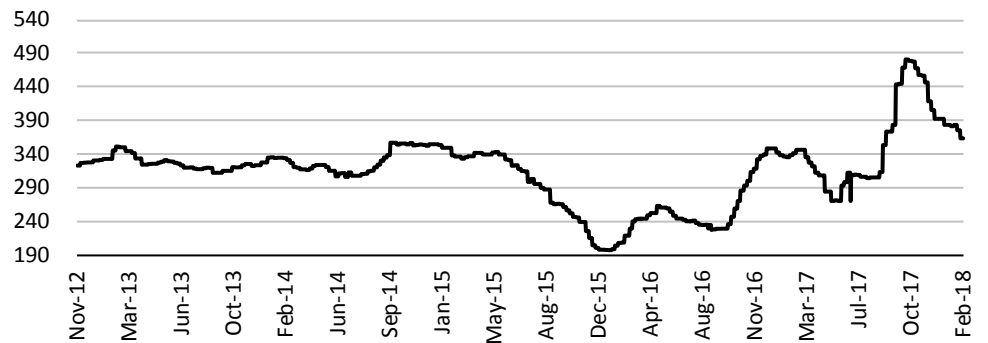


CPC US (USD/t)

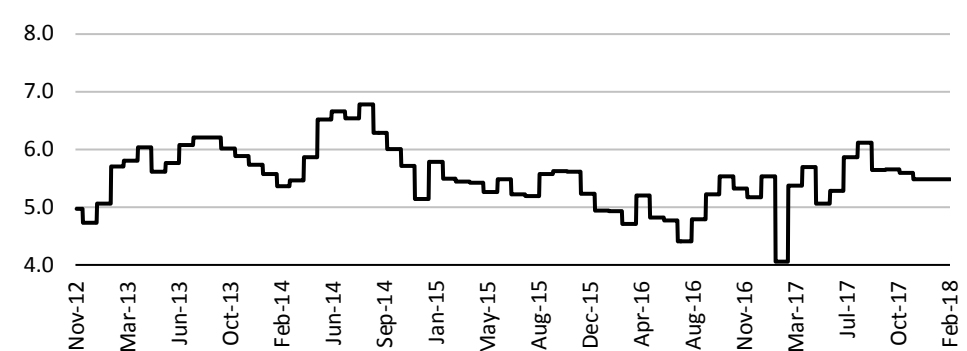


Alumina (USD/t)

Alumina was at USD364/t.



Industrial Power US (Louisiana) per mwh



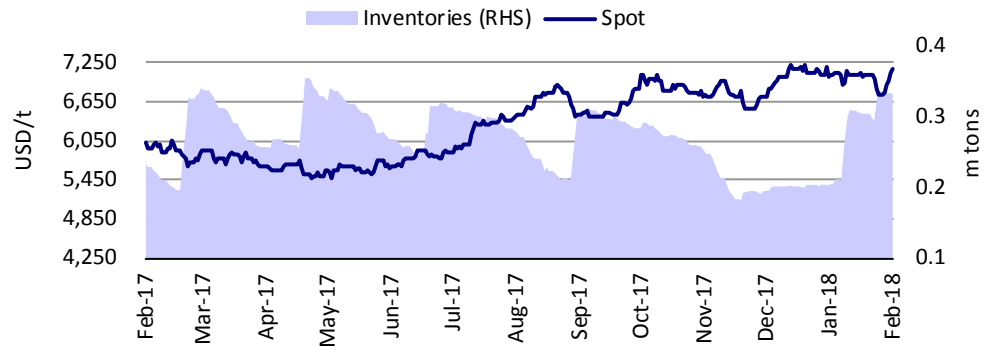
Source: Metal Bulletin, Bloomberg, Industry, MOSL

Non-ferrous

Copper

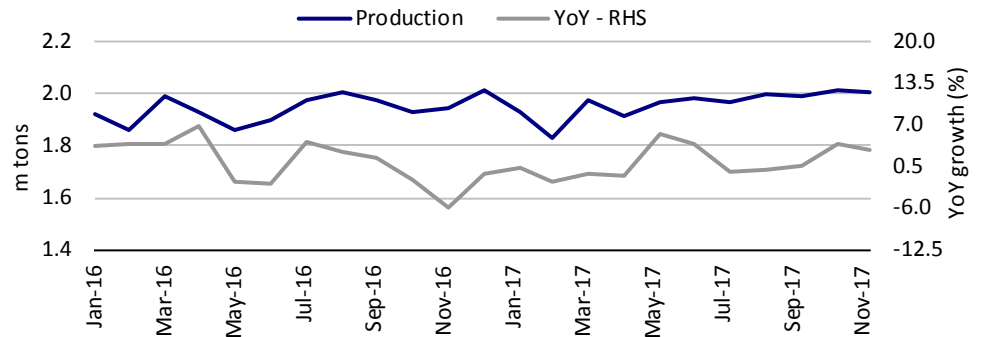
LME inventories and prices

Copper (cash LME) prices were up 6% WoW to USD7,159/t

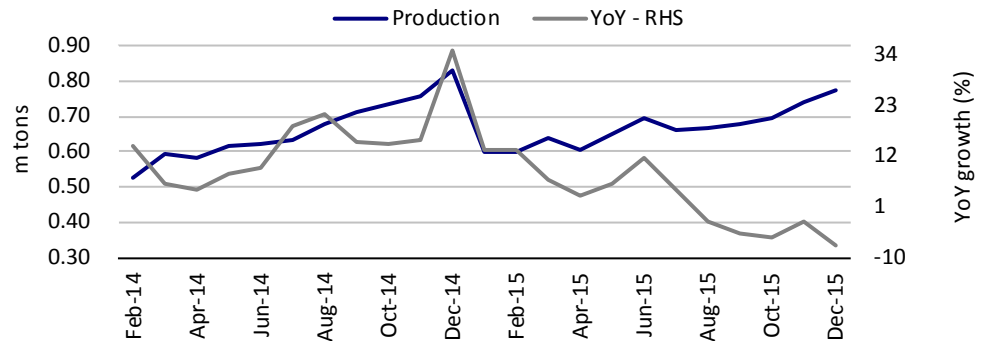


Global refined copper monthly production and YoY growth

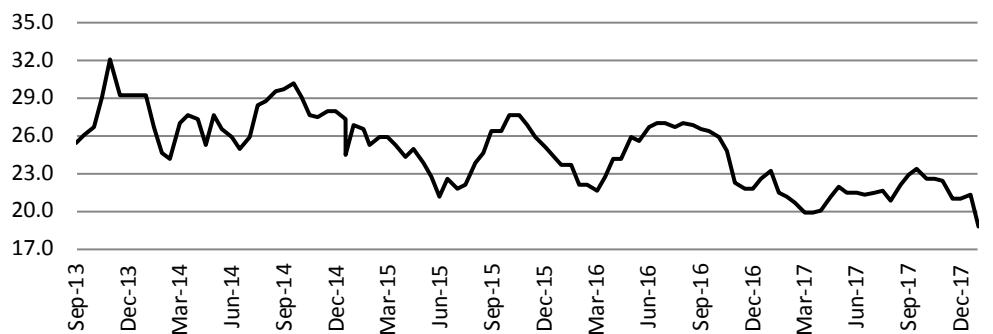
Global copper production grew 3.0% YoY to 2.002mt in November 2017.



China: Refined copper monthly production and YoY growth



Copper: Spot TCRC (USc/lb)

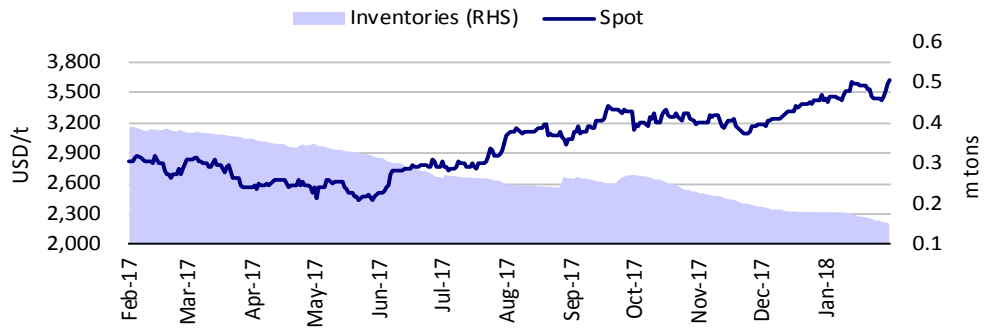


Non-ferrous

Zinc

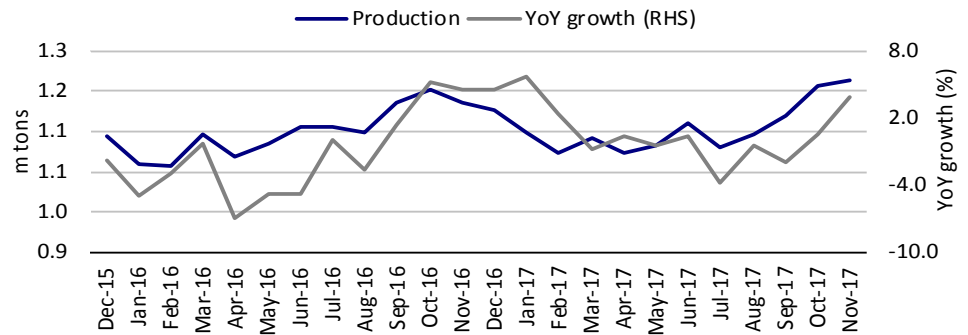
LME inventories and prices

Zinc (cash LME) was up 5%
WoW to USD3,618/t

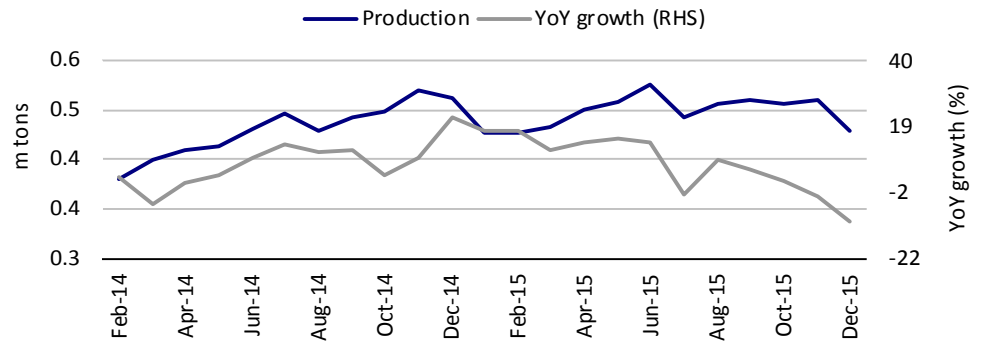


Global refined zinc monthly production and YoY growth

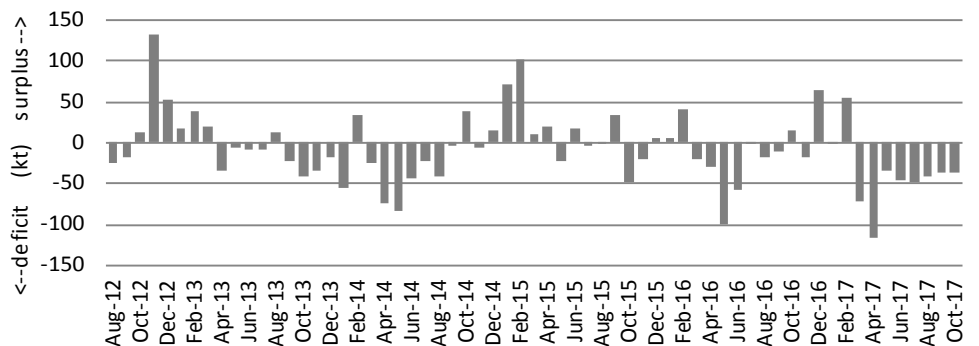
Global zinc production was
up 4% YoY to 1.24mt in
November 2017.



China: Refined zinc monthly production and YoY growth



Zinc: Global metal surplus (deficit) – kt

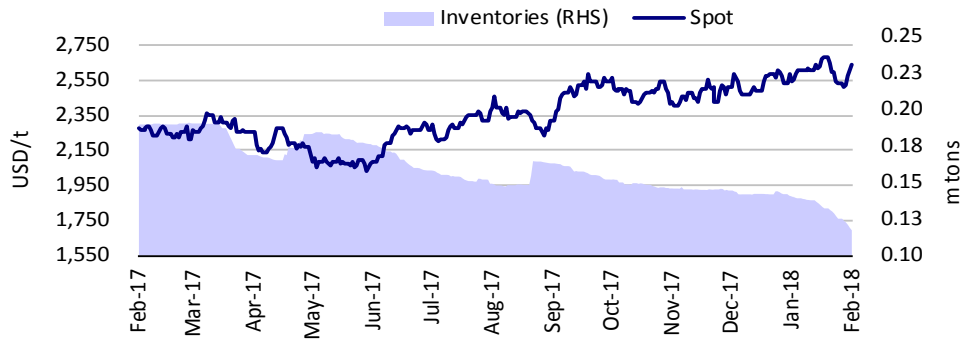


Non-ferrous

Lead

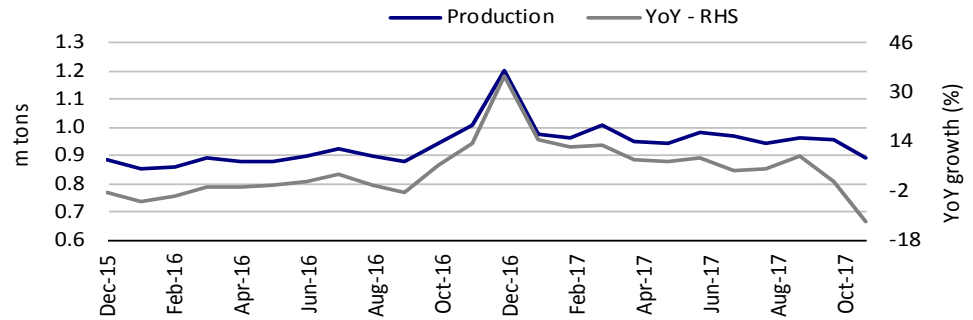
LME inventories and prices

Lead (cash LME) was up 4% WoW to USD2,640/t.

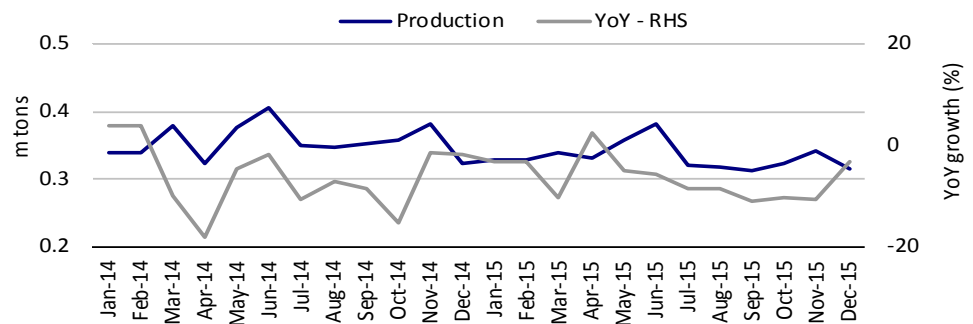


Global refined lead monthly production and YoY growth

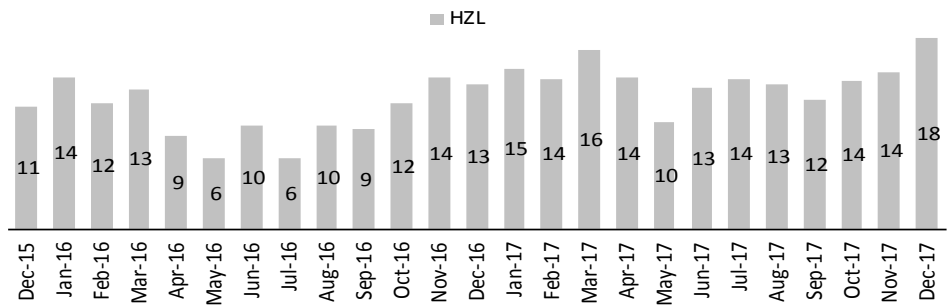
Refined lead production was down 12% YoY to 889kt in Nov 2017.



China: Refined lead monthly production and YoY growth



India: Company-wise refined lead monthly production

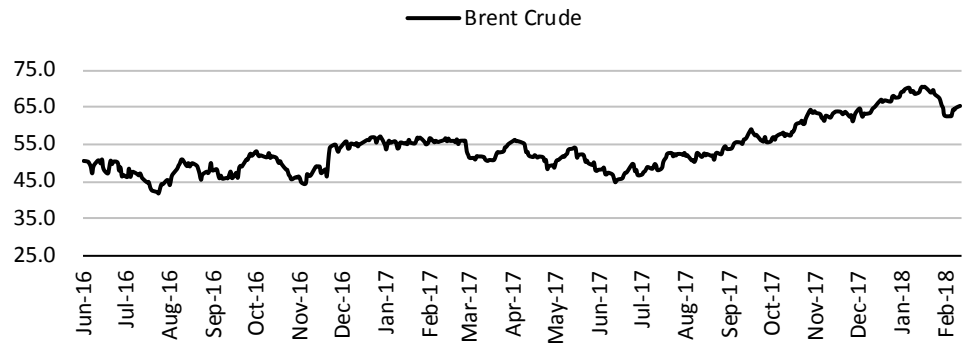


Source: Bloomberg, MOSL

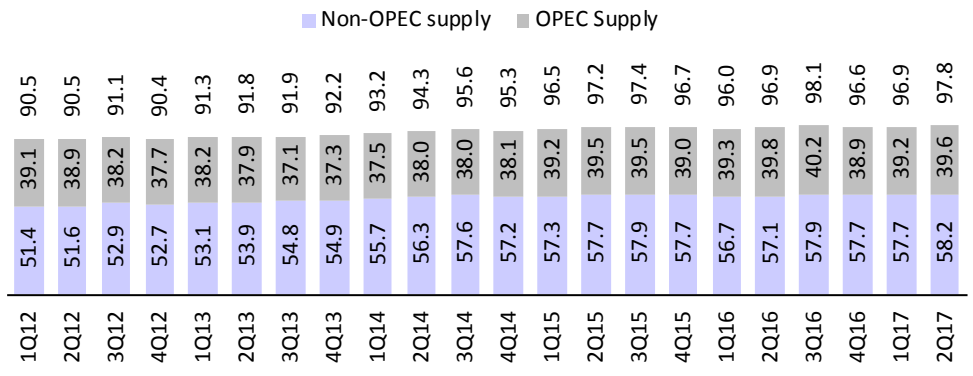
Crude Oil

Brent (crude oil) was up 3.3% WoW to USD65.4/bbl.

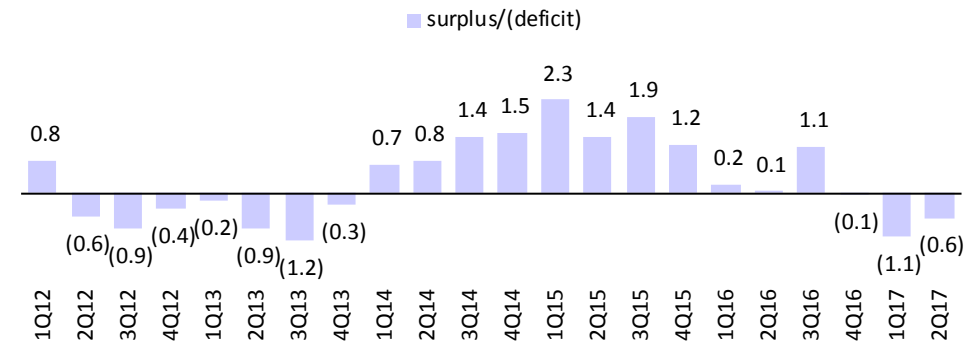
Brent crude oil price (USD/bbl)



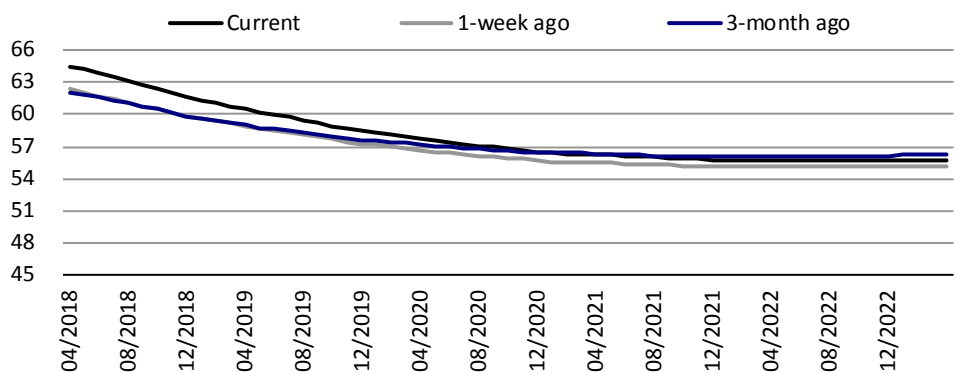
Global crude oil quarterly supply (mbpd)



Global crude oil surplus/(deficit) - mbpd



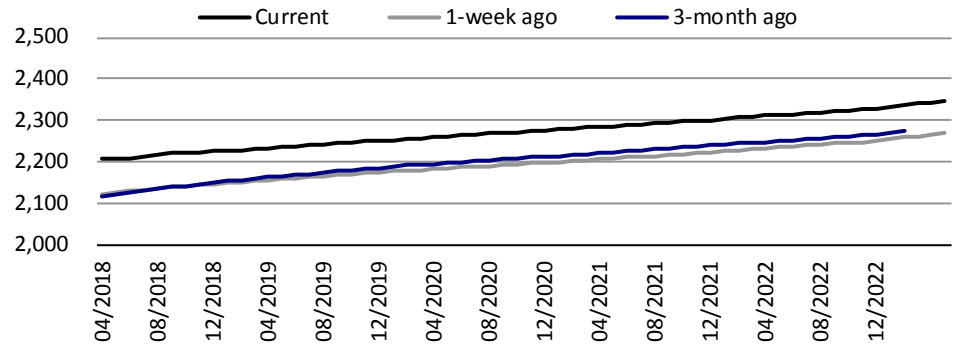
Crude oil futures (USD/bbl)



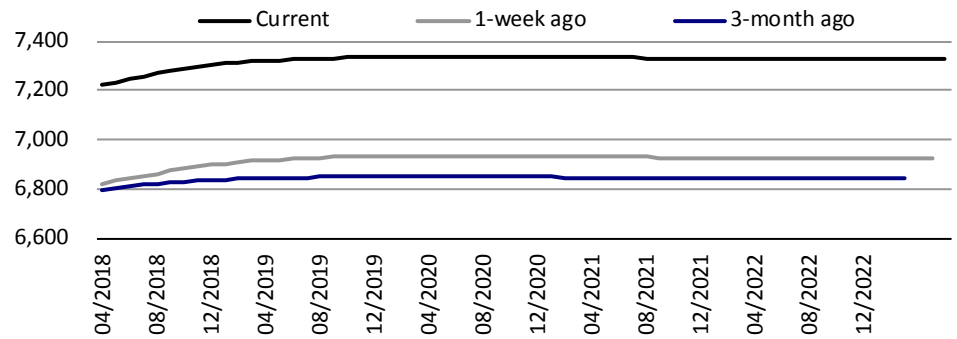
Source: Bloomberg, MOSL

Commodity forward curves

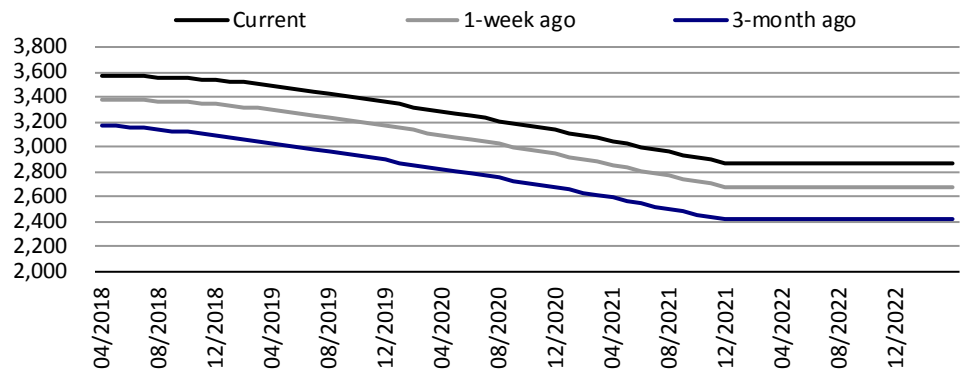
LME aluminum (USD/ton)



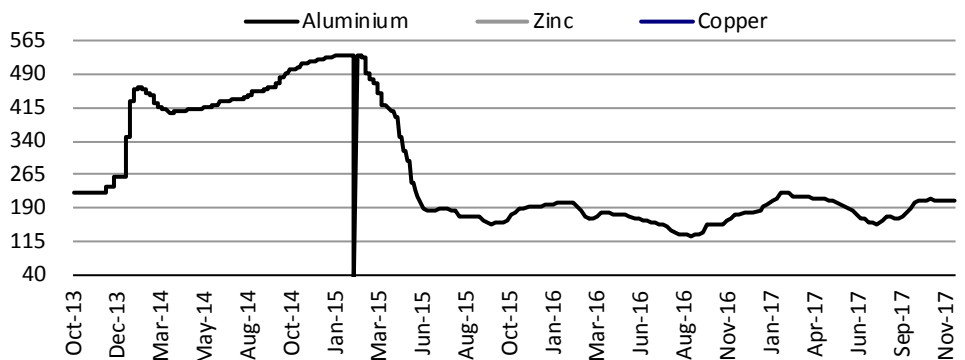
LME copper (USD/ton)



LME zinc futures (USD/ton)



Aluminum metal US spot premium (USD/ton)

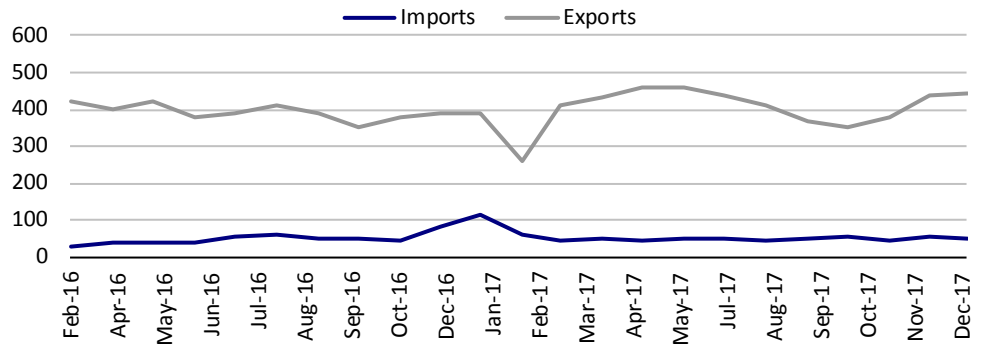


Source: Bloomberg, MOSL

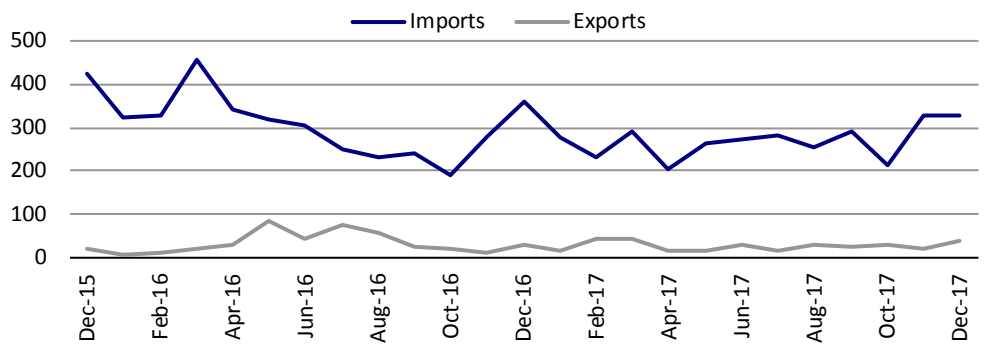
China non-ferrous trade data

Aluminum exports were up 14% YoY to 445kt in December 2017.

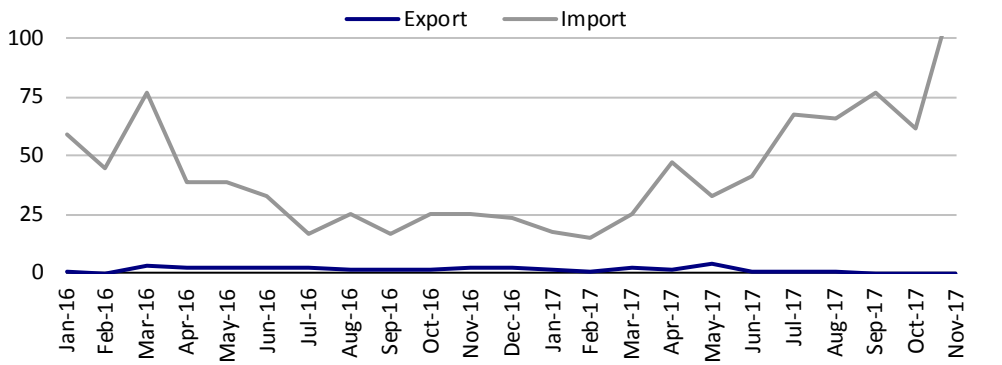
China's aluminum trade ('000 tons)



China's refined copper trade ('000 tons)

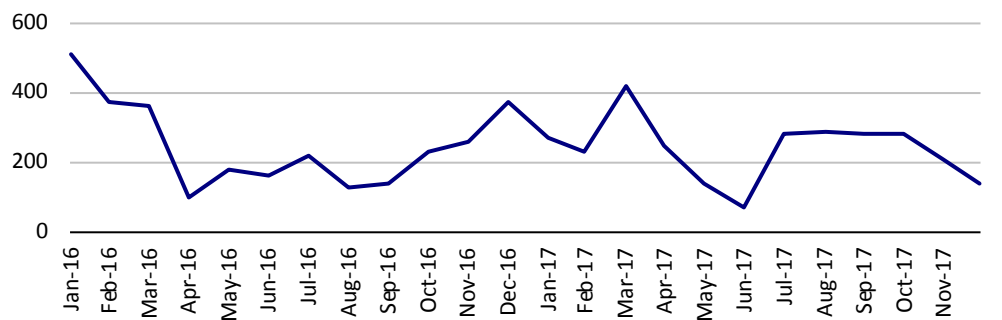


China's refined zinc trade ('000 tons)



China's alumina imports ('000 tons)

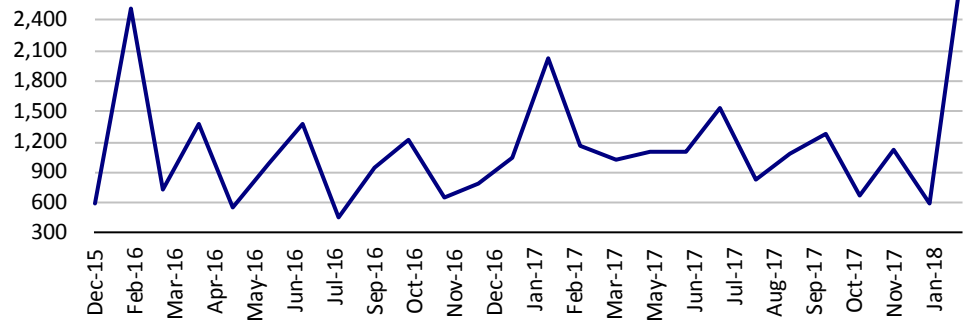
Chinese alumina imports decreased 41% YoY to 74kt in December 2017.



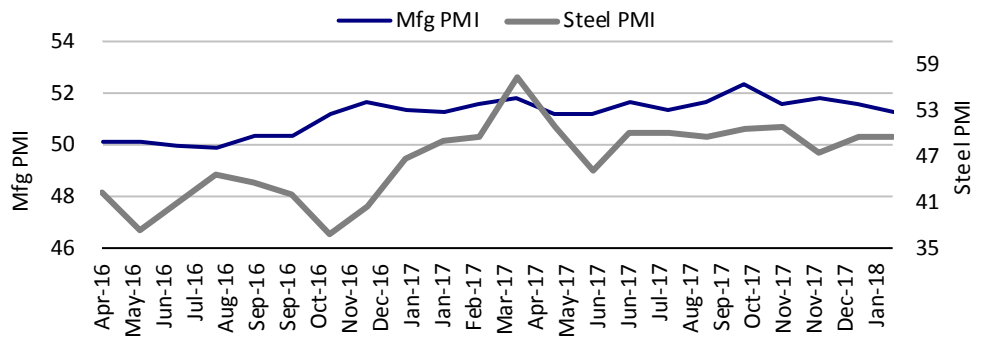
Source: Bloomberg, MOSL

Key indicators

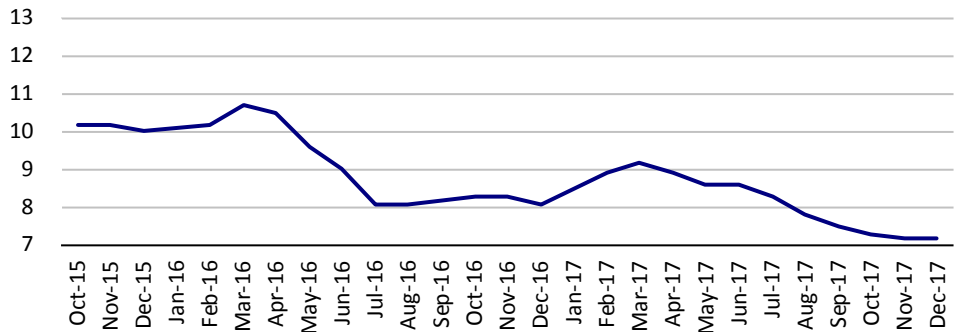
China new loan growth (Yuan b)



China: PMI

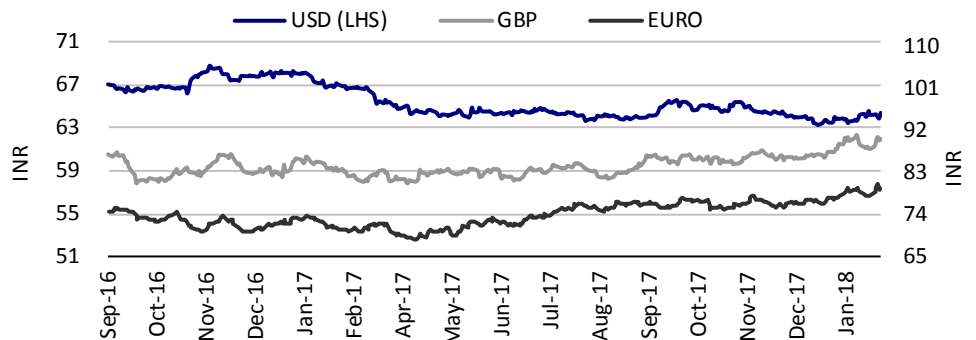


China: Fixed asset investment growth (%)



Fixed asset investment growth was at 7.2% YoY in December.

Currency movement with respect to the rupee

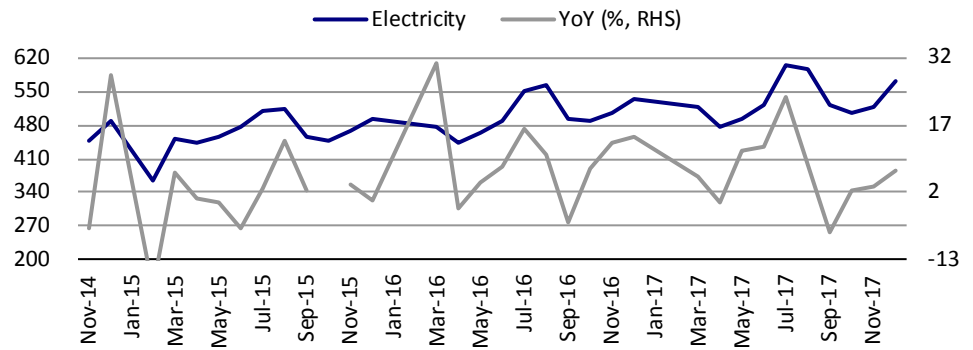


Source: Bloomberg, MOSL

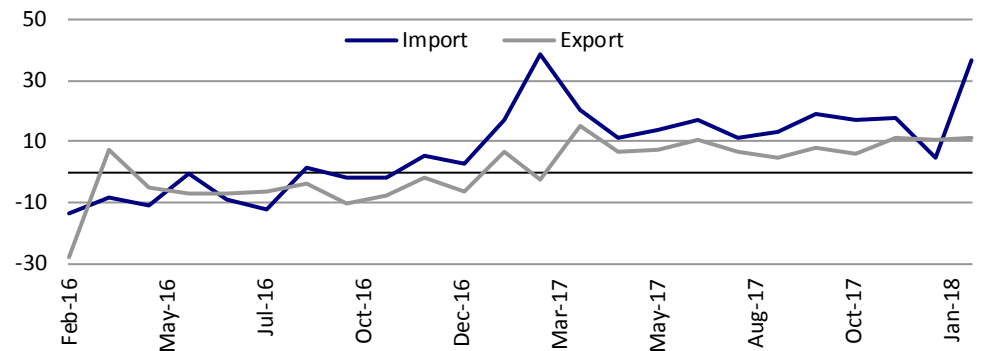
Key indicators (Contd...)

China electricity generation increased 6.9% YoY in December 2017.

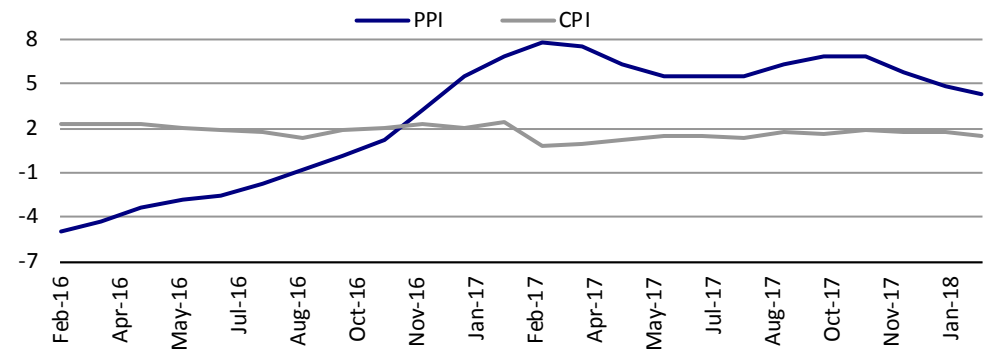
China Energy Production: Electricity (b kwh)



China Monthly Trade YoY (%)

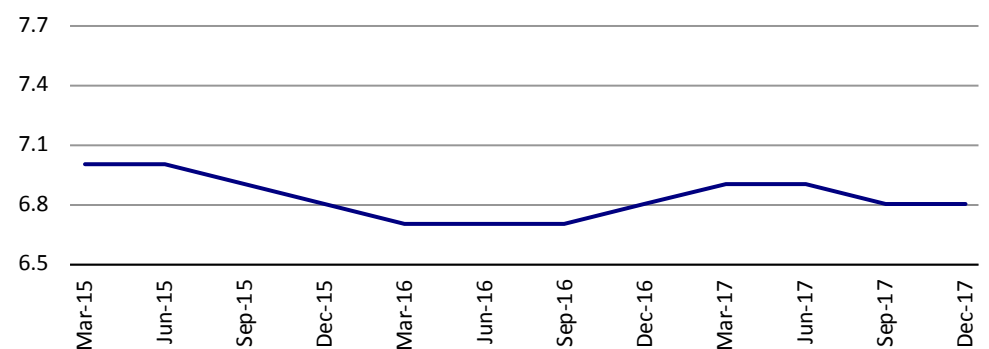


China Price Index YoY (%)



China's GDP growth was 6.8% in 3QCY17.

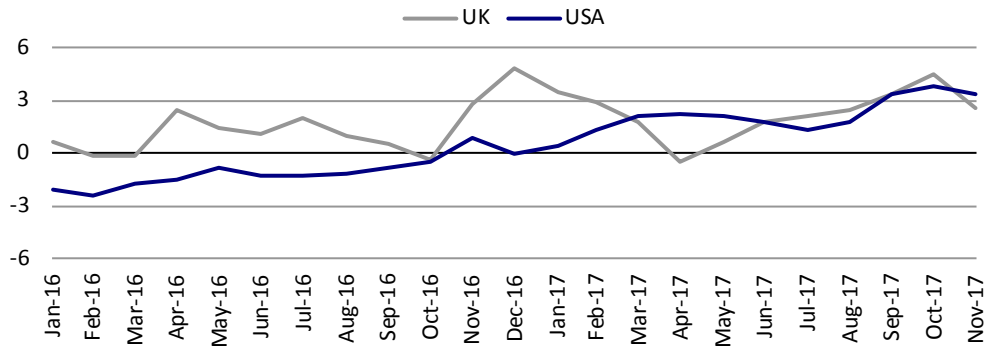
China GDP YoY (%)



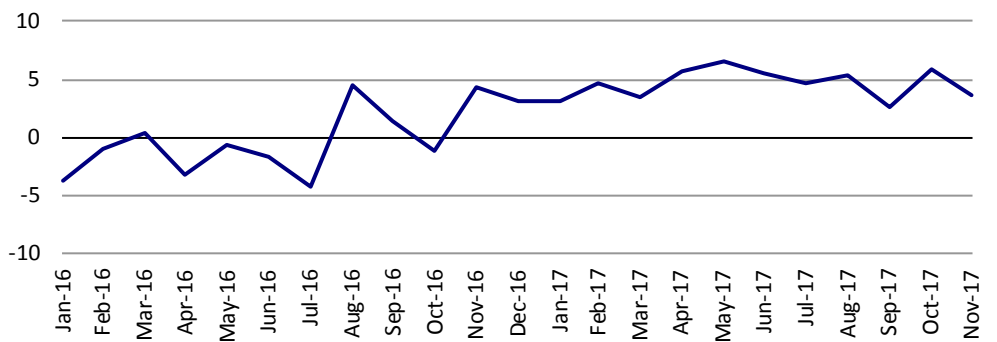
Source: Bloomberg, MOSL

Industrial production growth

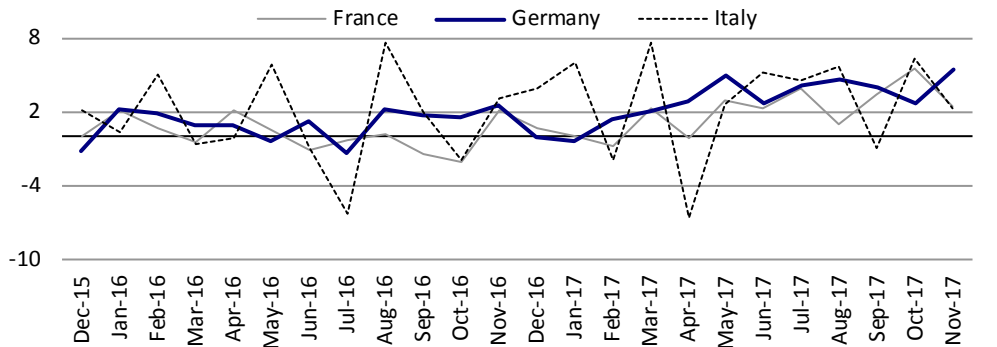
The UK and the USA (%)



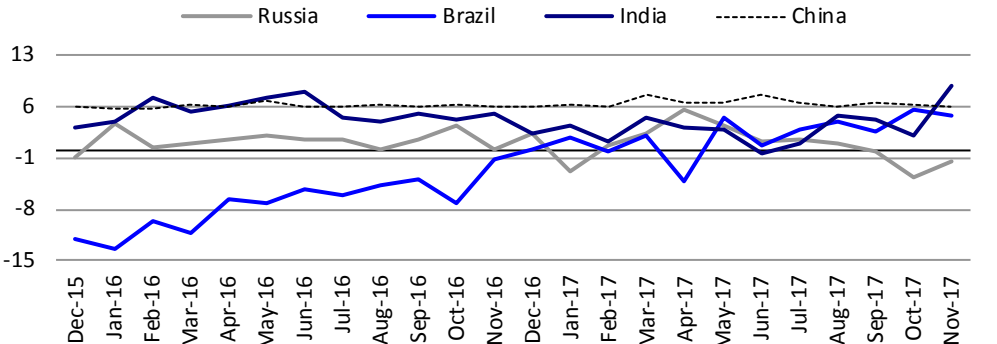
Japan (%)



European Union (%)



BRIC (%)



Source: Bloomberg, MOSL

Stock exchange announcements

None

Metals Valuation Matrix

Valuations: Indian Companies

	Rating	Price (INR)	MCAP (USD M)	EPS			P/E (x)		EV/EBITDA (x)		P/B(x)	
				FY18E	FY19E	FY20E	FY19E	FY20E	FY19E	FY20E	FY19E	FY20E
Steel												
Tata Steel	Neutral	713	10,776	50.5	68.8	60.6	10.4	11.8	6.2	7.4	1.6	1.4
JSW Steel	Buy	311	11,691	20.7	24.0	23.7	12.9	13.1	7.9	7.9	2.3	2.0
JSPL	Buy	274	3,904	-11.5	7.3	11.9	37.8	23.1	7.3	6.5	0.9	0.8
SAIL	Sell	95	6,132	-0.9	4.3	6.5	22.1	14.7	10.6	7.9	1.0	1.0
Non-Ferrous												
Hindalco	Buy	243	7,828	19.7	27.5	30.2	8.8	8.1	5.9	5.3	1.4	1.2
Nalco	Neutral	75	3,011	-0.5	5.1	5.3	14.7	14.3	7.2	7.0	1.4	1.3
Vedanta	Buy	314	14,516	23.8	42.7	44.5	7.4	7.1	4.8	4.3	1.6	1.4
Rain Ind.*	Buy	393	2,055	25.5	38.9	43.0	10.1	9.1	6.4	5.6	2.6	2.1
Mining												
Coal India	Buy	300	29,522	18.5	26.8	31.1	11.2	9.7	6.1	5.4	6.8	6.4
Hindustan Zinc	Neutral	307	20,219	21.6	33.3	32.1	9.2	9.6	5.4	5.2	3.5	2.8
NMDC	Buy	137	8,484	14.3	14.0	14.7	9.8	9.4	6.1	5.7	1.6	1.5

*CY reporting

Source: MOSL

Valuations: Global Companies

Company	BBG CODE	Currency	PRICE	MCAP (US\$ M)	PE (x)		EV/EBITDA(x)		P/BV (x)
					CUR YR	NXT YR	CUR YR	NXT YR	CY17
Mining									
BHP-Billiton	BHP AU	AUD	32	126,663	14.9	18.1	6.2	6.8	nm
FMG	FMG AU	AUD	5	13,194	8.9	10.8	4.3	4.8	nm
Rio Tinto	RIO AU	AUD	82	103,675	14.1	15.0	6.5	6.8	nm
Vale	Vale US	USD	46	75,280	10.9	10.9	6.5	6.7	1.7
Teck Resources	TCK US	USD	30	17,096	8.2	10.6	4.8	5.6	1.0
STEEL									
Arcelor Mittal	MT NA	EUR	28	36,061	9.4	9.9	5.4	5.6	0.9
Posco	005490 KS	k KRW	364	29,618	9.5	8.9	5.7	5.5	0.7
US Steel	X US	USD	45	7,831	12.3	11.0	6.1	5.8	2.3
Nucor	NUE US	USD	69	21,790	13.9	13.1	8.1	7.9	2.4
JFE	5411 JT	JPY	2,500	14,571	9.5	9.1	7.4	6.7	nm
Gerda	GGBR4 BZ	BRL	16	7,972	47.3	20.7	9.4	7.7	1.1
Angang	000898 CH	CNY	7	8,217	10.2	9.7	7.2	6.8	0.8
NON FERROUS									
Alcoa	AA US	USD	47	8,763	12.9	12.9	4.3	4.6	1.8
Norsk Hydro	NHY NO	NOK	58	15,337	12.9	12.2	5.8	5.7	1.3
Rusal	486 HK	HKD	6	10,974	8.2	6.0	8.9	8.0	2.7

Source: Bloomberg

Metals Stock Performance

Among large-cap companies, JSW Steel was the best relative performer.

Among mid-cap companies, Godawari was the best relative performer over one month.

Among global mining companies, Vale was the best relative performer over one week.

Among global steel majors, US Steel was the best relative performer.

Among the global aluminum, Chalco was the best relative performer

Metals stock performance on absolute and relative basis (%)

Months	Absolute Perf (%)				Relative Perf to Sensex (%)			
	1	3	6	12	1	3	6	12
Steel								
Tata Steel	-4.7	6.4	16.0	55.5	-2.5	3.6	8.9	35.3
SAIL	-6.1	14.3	49.4	46.4	-3.9	11.6	42.3	26.2
JSW Steel	10.8	20.4	31.0	66.4	13.0	17.7	24.0	46.2
JSPL	-6.8	52.0	81.7	171.4	-4.6	49.3	74.6	151.2
NMDC	-11.8	5.7	7.9	-4.5	-9.6	3.0	0.9	-24.6
Non-Ferrous								
Vedanta	-3.2	5.9	7.4	21.5	-1.1	3.2	0.3	1.3
Hindustan Zinc	-0.8	3.7	7.6	3.5	1.4	1.0	0.6	-16.7
Nalco	-11.9	-13.9	0.7	7.9	-9.7	-16.6	-6.3	-12.3
Hindalco	-5.0	-3.1	5.9	31.8	-2.9	-5.8	-1.1	11.6
Mid Caps								
Monnet Ispat	-9.7	-16.3	-21.1	-27.6	-7.5	-19.0	-28.1	-47.8
Godawari	-0.3	238.3	335.7	482.1	1.9	235.5	328.6	461.9
Sarda Energy	-15.4	12.4	36.7	105.0	-13.2	9.7	29.7	84.8
Tata Sponge	-10.5	13.3	26.6	72.7	-8.3	10.6	19.6	52.5
Adhunik Metaliks	-26.4	13.8	5.3	-33.5	-24.2	11.0	-1.8	-53.6
Bhushan Steel	-34.3	-36.6	-38.9	-18.1	-32.1	-39.3	-46.0	-38.2
Jai Balaji	-31.1	2.6	19.6	3.9	-28.9	-0.2	12.6	-16.2
Rain Industries	-13.2	4.9	187.4	362.5	-11.1	2.2	180.3	342.4
Prakash Industries	-12.0	68.1	89.9	171.6	-9.8	65.4	82.9	151.4
SENSEX	-2.2	2.7	7.1	20.2	-	-	-	-

Global Metals stock performance on absolute basis (%)

	Absolute Perf (%)					
	1week	1month	3 months	6 months	7 months	12 months
Mining						
Rio Tinto	8.3	1.4	15.6	18.7	12.5	12.5
BHP Billiton	8.2	-0.4	15.6	22.8	17.0	17.0
Vale	9.4	7.2	41.6	39.8	30.0	30.0
FMG	6.4	0.8	15.3	-2.7	-24.1	-24.1
Anglo American	9.0	-0.4	21.5	35.9	27.7	27.7
Vedanta	7.5	-18.4	-2.1	0.5	-29.4	-29.4
Steel						
US Steel	30.7	15.7	64.9	81.7	14.4	14.4
Nucor	11.0	-0.6	25.1	20.8	7.8	7.8
Arcelor Mittal	8.2	-5.7	19.7	26.4	9.8	9.8
Angang	2.8	15.9	19.1	31.1	51.2	51.2
Posco	3.3	-3.8	17.4	14.1	29.4	29.4
JFE Holdings	0.2	-6.2	4.0	14.3	16.5	16.5
Nippon	-0.2	-12.6	0.5	-3.0	-8.7	-8.7
Thyssen Krupp	-0.8	-7.3	3.3	-12.6	-0.3	-0.3
Voest Alpine	3.5	-10.4	0.9	10.0	16.3	16.3
Gerdau	16.3	10.4	62.0	41.0	15.2	15.2
Aluminium						
Alcoa	3.1	-15.8	12.0	20.7	29.9	29.9
Rusal	3.1	-0.7	2.7	9.7	34.8	34.8
Chalco	8.6	-11.3	-8.9	-8.3	16.2	16.2

NOTES

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Investment Rating

BUY	>=15%
SELL	< - 10%
NEUTRAL	> - 10 % to 15%
UNDER REVIEW	Rating may undergo a change
NOT RATED	We have forward looking estimates for the stock but we refrain from assigning recommendation

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