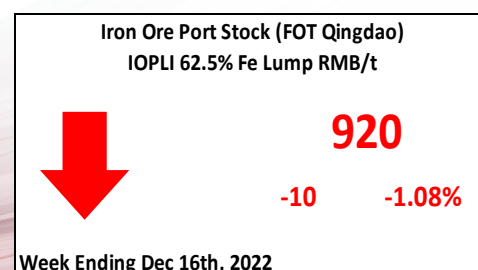
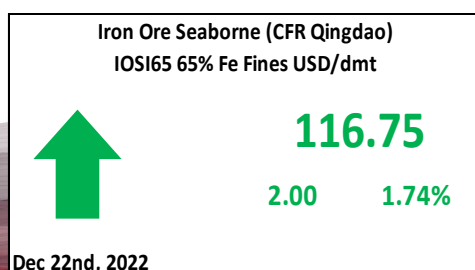
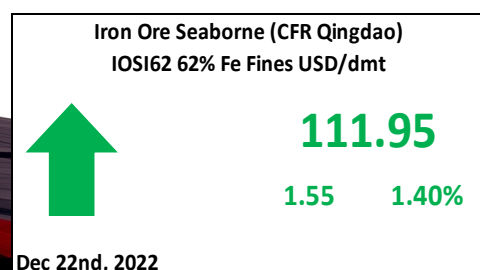
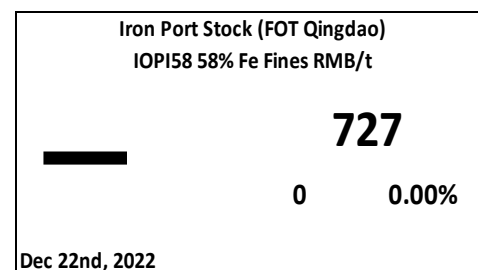
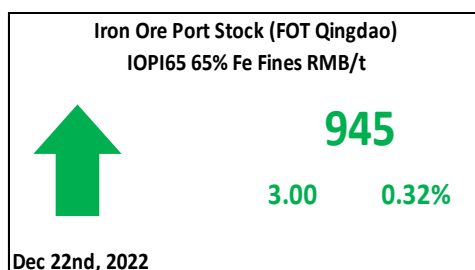
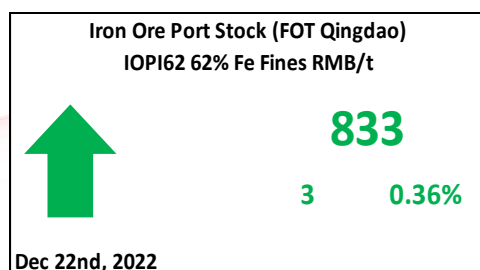


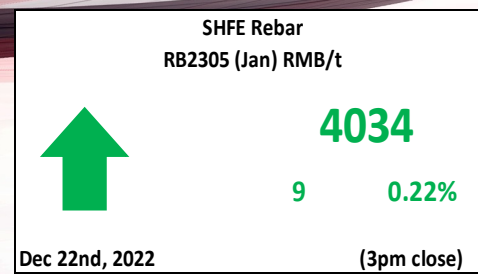
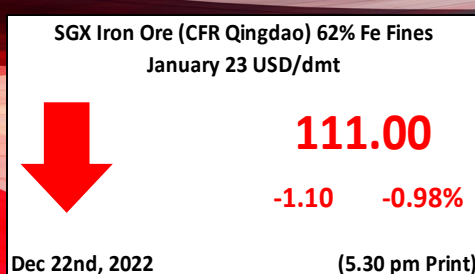
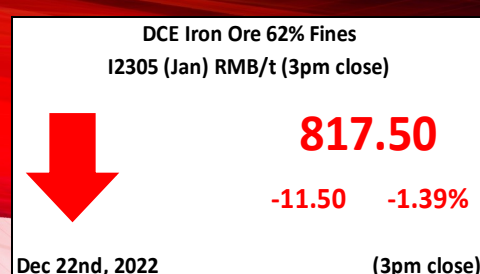


MMi Dashboard

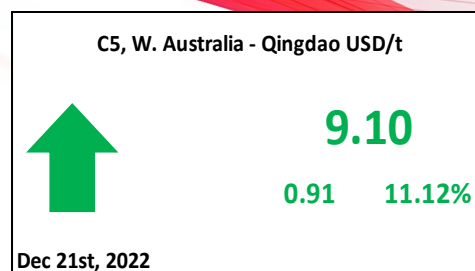
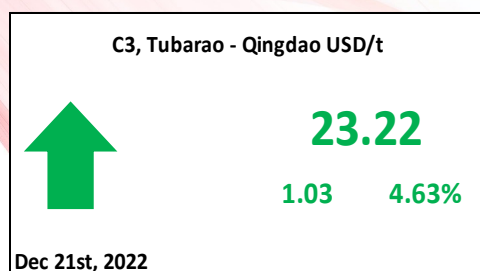
Iron Ore Price Indices



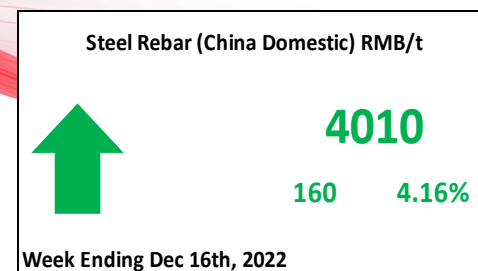
Exchange Traded Contracts



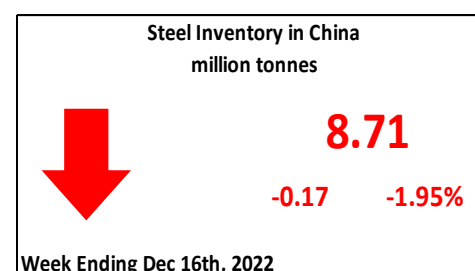
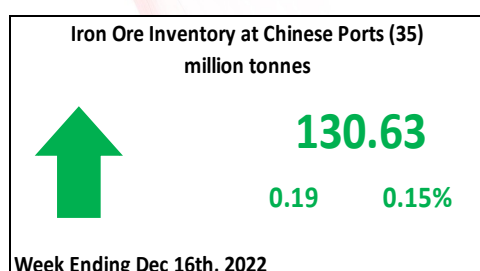
Freight Rates



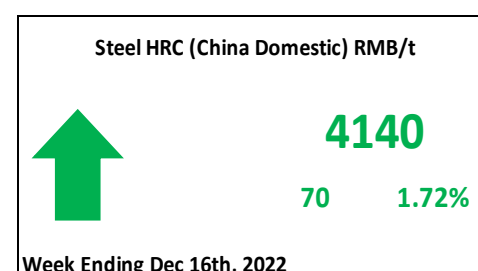
Steel Price



Inventory Levels



Steel Price



IRON ORE PORT STOCK INDEX (IOPI)

Dec 22nd, 2022		FOT Qingdao (inc. 13% VAT), RMB/wet tonne							CFR Qingdao Equivalent (exc. 13% VAT), USD/dry tonne ¹						
Index	Fe Content	Price	Change	Change %	MTD	YTD	Low ²	High ²	Price	Change	Change %	MTD	YTD	Low ²	High ²
IOPI62	62% Fe Fines	833	3	0.4%	760	863	643	1083	111.07	0.31	0.3%	100.70	120.31	82.29	159.06
IOPI58	58% Fe Fines	727	0	0.0%	679	732	567	907	97.51	-0.09	-0.1%	90.57	102.26	77.29	134.15
IOPI65	65% Fe Fines	945	3	0.3%	889	1019	811	1265	126.53	0.30	0.2%	118.41	142.80	108.78	187.25

IRON ORE SEABORNE INDEX (IOSI)

MARKET COMMENTARY

Dec 22nd, 2022		CFR Qingdao, USD/dry tonne							DCE iron ore futures rose by 0.68% today, the main contract closed 817.5. The traders' willingness to ship is less. The steel mills are wait and see. The overall trading sentiment of the market is worse. PBF at Tangshan port dealt 829-830 yuan/mt, SSF at Tangshan port dealt 692 yuan/mt. According to the inventory data of the top ten ports tracked by SMM, the total inventory of the top ten ports fell 0.4% month on month to 90.17 million tons this week. In terms of varieties, the stock of coarse flour dropped most obviously, while that of refined flour, lump ore and pellets were accumulated to varying degrees. At present, the iron ore is still in demand, and it is expected that the iron ore port inventory may decline again following the rhythm of winter storage. In addition, the data of the finished product end has been significantly reduced, giving the raw material end some confidence. However, considering that the rapid rise of ore prices in the early stage still needs time to digest, the iron ore prices will remain volatile in the short term.
Index	Fe Content	Price	Change	Change %	MTD	YTD	Low ²	High ²	
IOSI62	62% Fe Fines	111.95	1.55	1.40%	101.51	122.50	83.90	159.45	
IOSI65	65% Fe Fines	116.75	2.00	1.74%	111.70	140.72	94.45	185.82	

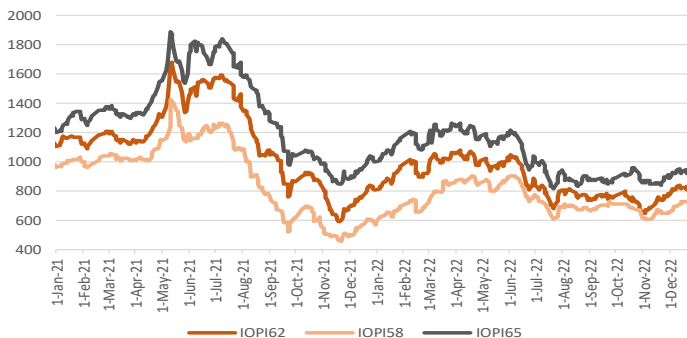
IRON ORE PORT LUMP INDEX (IOPLI)

Week Ending Dec 16th, 2022		FOT Qingdao (inc. 13% VAT), RMB/wet tonne							CFR Qingdao Equivalent (exc. 13% VAT), USD/dry tonne ³						
Index	Fe Content	Price	W-o-W	Change %	MTD	YTD	Low ²	High ²	Price	W-o-W	Change %	MTD	YTD	Low ²	High ²
IOPLI62	62.5% Fe Lump	920	-10	-1.1%	873	1048	770	1405	118.15	-0.87	-0.73%	111.45	141.12	94.72	199.13

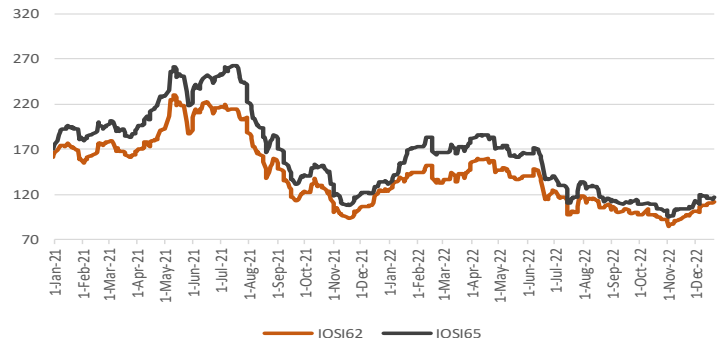
IRON ORE DOMESTIC CONCENTRATE SPOT PRICE ASSESSMENTS AND COMPOSITE INDEX

Week Ending Dec 16th, 2022				RMB/tonne (excluding tax) ³					USD/tonne (excluding tax) ³			
Province	Region	Product	Basis	This week	Change %	Low ²	High ²		This week	Change %	Low ²	High ²
Hebei	Hanxing	66% Fe Concentrate	Dry	992	3.9%	779	1645		142.54	4.27%	110.31	255.69
Hebei	Qian'an	65% Fe Concentrate	Dry	1020	2.0%	780	1630		146.56	2.39%	110.51	251.57
Liaoning	Anshan	65% Fe Concentrate	Wet	740	4.2%	620	1310		106.33	4.62%	87.40	202.32
Shandong	Zibo	65% Fe Concentrate	Dry	1015	3.8%	800	1752		145.84	4.18%	117.19	272.32
Week Ending Dec 16th, 2022				This week	Change %	Low ²	High ²	¹ Exchange rate applied: RMB/USD = 6.7522 ² Last 12 months ³ Weekly exchange rate applied: RMB/USD = 6.9596				
China Mines Concentrate Composite Index RMB/WT				883.25	3.51%	706.36	1511.22					

IRON ORE PORT INDEX, FOT QINGDAO (RMB/WT)



IRON ORE SEABORNE INDEX, CFR QINGDAO (USD/DMT)



IRON ORE PORT STOCK INDEX MONTHLY, QUARTERLY AND YEAR-TO-DATE AVERAGES

Dec 22nd, 2022		FOT Qingdao (inc. 13% VAT), RMB/wet tonne							CFR Qingdao Equivalent (exc. 13% VAT), USD/dry tonne						
Index	Fe Content	August	September	October	November	MTD	QTD	YTD	August	September	October	November	MTD	QTD	YTD
IOPI62	62% Fe Fines	781	759	736	714	760	761	863	106.64	101.14	95.56	92.18	100.70	101.63	120.31
IOPI58	58% Fe Fines	685	697	683	635	679	680	732	94.05	93.56	89.34	82.39	90.57	91.25	102.26
IOPI65	65% Fe Fines	878	875	918	865	889	894	1019	120.31	117.19	120.08	112.37	118.41	119.88	142.80

IRON ORE SEABORNE INDEX MONTHLY, QUARTERLY AND YEAR-TO-DATE AVERAGES

FREIGHT RATES

Dec 22nd, 2022		CFR Qingdao, USD/dry tonne							Dec 21st, 2022						
Index	Fe Content	August	September	October	November	MTD	QTD	YTD	Route	Designation	Change	Change %	Low ²	High ²	
IOSI62	62% Fe Fines	110.64	101.12	95.80	93.05	101.51	102.95	122.50	W. Australia - Qingdao	C5	9.10	0.91	11.12%	3.57	16.77
IOSI65	65% Fe Fines	112.53	111.57	106.70	102.40	111.70	113.87	140.72	Tubarao - Qingdao	C3	23.22	1.03	4.63%	6.70	36.40

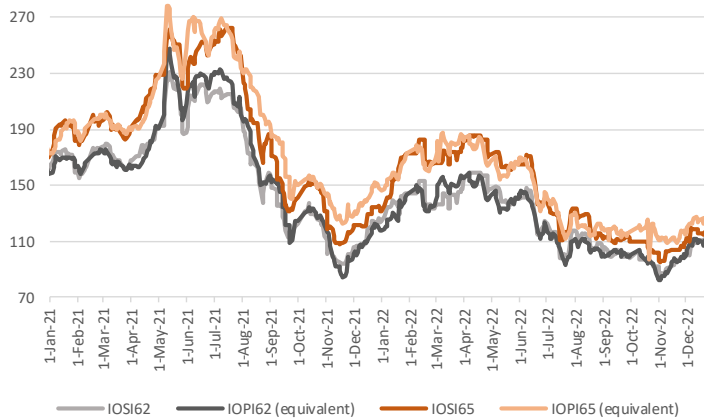
IRON ORE PORT LUMP INDEX MONTHLY, QUARTERLY AND YEAR-TO-DATE AVERAGES

Week Ending Dec 16th, 2022		FOT Qingdao (inc. 13% VAT), RMB/wet tonne							CFR Qingdao Equivalent (exc. 13% VAT), USD/dry tonne ¹						
Index	Fe Content	August	September	October	November	MTD	QTD	YTD	September	October	October	November	MTD	QTD	YTD
IOPLI62	62.5% Fe Lump	900	873	877	811	873	880	1048	118.50	112.75	109.81	100.83	111.45	113.31	141.12

IRON ORE INDEX PREMIUMS/DISCOUNTS

Dec 22nd, 2022		PORT STOCK INDEX (RMB/WT)		Dec 22nd, 2022		SEABORNE INDEX (USD/DMT)	
Index	Fe Content	Spread to IOPI62	% Spread to IOPI62	Index	Fe Content	Spread to IOSI62	% Spread to IOSI62
IOPI58	58% Fe Fines	-106	-12.73%	IOSI65	65% Fe Fines	4.80	4.29%
IOPI65	65% Fe Fines	112	13.45%				

IRON ORE INDEX COMPARISONS (USD/DMT)



CHINA DOMESTIC COMPOSITE MINES INDEX (RMB/Wet Tonne, including VAT)



IRON ORE BRAND SPOT PRICE ASSESSMENTS

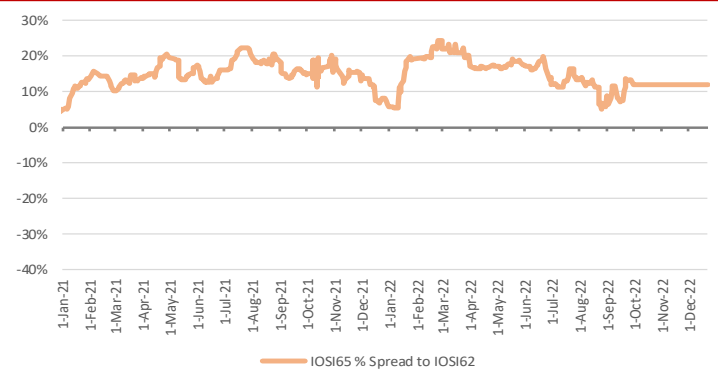
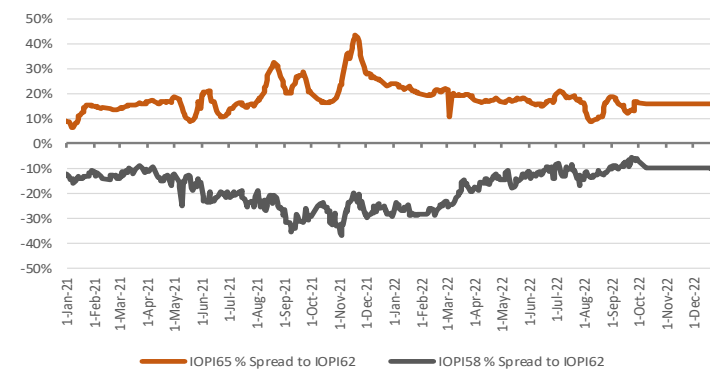
Dec 22nd, 2022				Dec 22nd, 2022			
PORT STOCK INDEX (RMB/WT)				SEABORNE INDEX (USD/DMT)			
	Price	Change	Diff to IOPI62		Price	Change	Diff to IOSI62
Roy Hill	776	3	-57	Roy Hill	107.45	1.55	-4.50
SIMEC Fines	704	3	-129	SIMEC Fines	103.95	1.55	-8.00
PB Fines	802	3	-31	PB Fines	108.20	1.55	-3.75
Newman Fines	801	3	-32	Newman Fines	111.10	1.55	-0.85
MAC Fines	783	3	-50	MAC Fines	108.20	1.55	-3.75
Jimblebar Blended Fines	698	3	-135	Jimblebar Blended Fines	100.60	1.55	-11.35
Carajas Fines	1013	3	180	Carajas Fines	141.50	1.55	29.55
Brazilian SSF	796	3	-37	Brazilian SSF	115.70	1.55	3.75
Brazilian Blend Fines	815	3	-18	Brazilian Blend Fines	117.35	1.55	5.40
RTX Fines	716	3	-117	RTX Fines	101.85	1.55	-10.10
West Pilbara Fines	744	3	-89	West Pilbara Fines	106.20	1.55	-5.75
Dec 22nd, 2022							
PORT STOCK INDEX (RMB/WT)							
	Price	Change	Diff to IOPI58				
SSF	727	0	0				
FMG Blended Fines	736	0	9				
Robe River	737	0	10				
Western Fines	739	0	12				
Atlas Fines	734	0	7				
Yandi	720	0	-7				

IRON ORE INDEX NORMALISATION DIFFERENTIALS

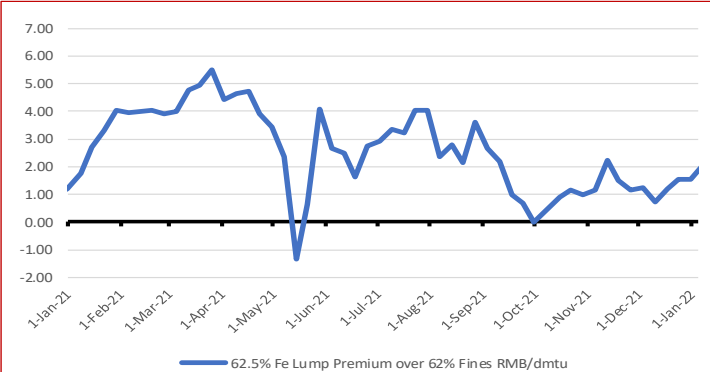
Port Stock Index Product Differentials (RMB/wet tonne)				Seaborne Index Product Differentials (USD/dry tonne)			
	Applicable range	Value	Change		Applicable range	Value	Change
1% Fe	High Grade Fe 60 - 63%	29.00	0.00	1% Fe	High Grade Fe 60 - 63%	3.00	0.00
	High Grade Fe 63 - 64%	43.00	1.00		High Grade Fe 63 - 64%	0.25	0.00
	High Grade Fe 64 - 65%	43.00	1.00		High Grade Fe 64 - 65%	0.25	0.00
	High Grade Fe 65 - 65.5%	43.00	1.00		High Grade Fe 65 - 65.5%	0.25	0.00
1% Alumina	Low Grade Fe	22.00	1.00	1% Alumina	High Fe Grade Al <2.25%	0.50	0.00
	High Fe Grade Al <2.25%	91.00	-5.00		High Fe Grade Al 2.25-4%	2.00	0.00
	High Fe Grade Al 2.25-4%	48.00	5.00		High Fe Grade Si <4%	0.25	0.00
	Low Fe Grade Al <2.25%	38.00	-5.00		High Fe Grade Si 4 - 6.5%	1.50	0.00
1% Silica	Low Fe Grade Al 2.25-4%	18.00	4.00	1% Silica	High Fe Grade Si <4%	0.25	0.00
	High Fe Grade Si <4%	46.00	1.00		High Fe Grade Si 4 - 6.5%	1.50	0.00
	High Fe Grade Si 4 - 6.5%	36.00	-2.00		High Fe Grade 0.09%<P<0.115%	1.50	0.00
	Low Fe Grade	16.00	4.00		High Fe Grade 0.115%<P<0.15%	3.00	0.00
0.01% Phosphorus	High Fe Grade 0.09%<P<0.115%	26.00	2.00	0.01% Phosphorus	High Fe Grade 0.09%<P<0.115%	1.50	0.00
	High Fe Grade 0.115%<P<0.15%	26.00	2.00		High Fe Grade 0.115%<P<0.15%	3.00	0.00
Low Fe Grade 0.09%<P<0.1%			5.00 0.00				

Port Stock Price Differentials to Qingdao Port for PB Fines (RMB/wet tonne)											
Port	Value	Change	Port	Value	Change	Port	Value	Change	Port	Value	Change
Bayuquan	-100.00	0.00	Fangcheng	-25.00	0.00	Lanshan	0.00	0.00	Rizhao	0.00	0.00
Beilun	0.00	0.00	Jiangyin	-30.00	0.00	Lianyungang	0.00	0.00	Shekou	0.00	0.00
Caofeidian	-10.00	0.00	Jingtang	-20.00	0.00	Majishan	0.00	0.00	Taicang	-30.00	0.00
Dalian	0.00	0.00	Lanqiao	0.00	0.00	Qingdao	0.00	0.00	Tianjin	-10.00	0.00

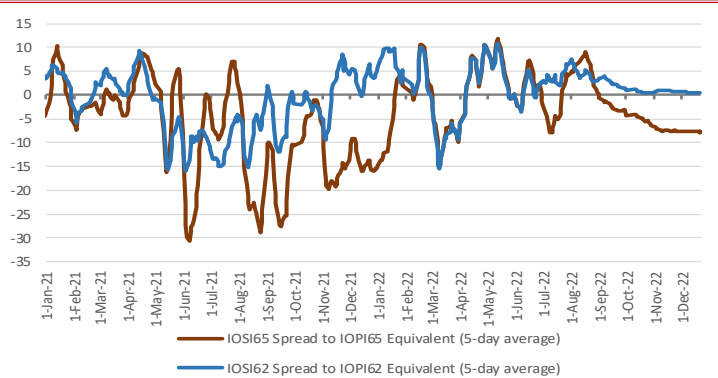
IRON ORE INDEX PREMIUMS/DISCOUNTS



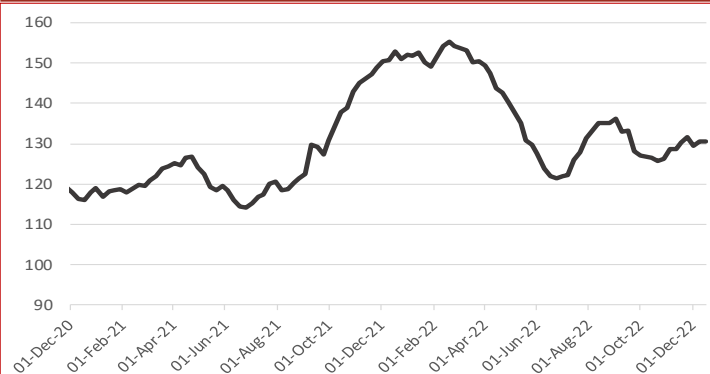
WEEKLY IRON ORE PORT STOCK LUMP PREMIUM (RMB/DMTU)



IRON ORE SEABORNE TO PORT STOCK PRICE SPREADS (USD/DMT)



TOTAL IRON ORE INVENTORIES AT CHINA PORTS (MILLION TONNES)



FUTURE TRADING—FRONT MONTH CLOSING PRICE



IRON ORE PORT INVENTORIES (MILLION TONNES)

Week Ending Dec 16th, 2022

Province	This week	Change %	Low ²	High ²
Jingtang	12.78	-1.54%	9.84	19.20
Qingdao	25.74	2.75%	9.41	26.24
Caofeidian	12.38	0.41%	9.05	16.29
Tianjin	9.31	3.67%	7.14	12.97
Rizhao	17.47	-0.85%	9.44	19.26
Total (35 Ports)	130.63	0.15%	98.80	155.39

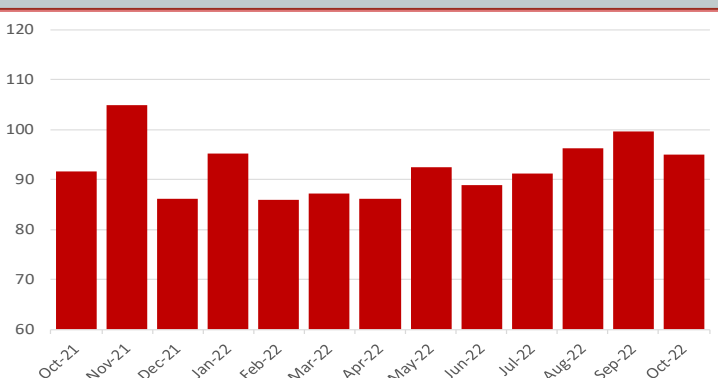
IRON ORE FUTURES CONTRACTS

Closing Date	DCE (RMB/WMT)			SGX (USD/DMT)		
	Dec 22nd, 3pm close			Dec 22nd, 5:30pm		
Contract	I2305	Change	Change %	Jan. 23	Change	Change %
Closing Price	817.50	-11.50	-1.39%	111.00	-1.10	-0.98%
Vol traded ('000 lots)	78.55	-8.24	-9.49%	4.69	-0.37	-7.37%
Open positions ('000 lots)	84.10	1.19	1.44%	31.92	-0.32	-0.98%
Day Low	816.0	19.00	2.38%	110.50	1.75	1.61%
Day High	835.0	5.50	0.66%	112.70	-0.75	-0.66%

DRY BULK FREIGHT RATES (USD/MT)



TOTAL CHINA IRON ORE IMPORT VOLUMES (MILLION TONNES)



STEEL SPOT MARKET PRICES—CHINA

Steel Spot Market RMB/tonne

Product	2022/12/16	Change	Change %
ReBar HRB400 ϕ 18mm	4,010	160	4.16%
Wirerod Q300 ϕ 6.5mm	4,280	60	1.42%
HRC Q235/SS400 5.5mm*1500*C	4,140	70	1.72%
CRC SPCC/ST12 1.0mm*1250*2500	4,560	120	2.70%
Medium & Heavy Plate Q235B 20mm	4,190	120	2.95%
GI ST02Z 1.0mm*1000*C	4,850	120	2.54%
Colour Coated Plate	7,530	80	1.07%

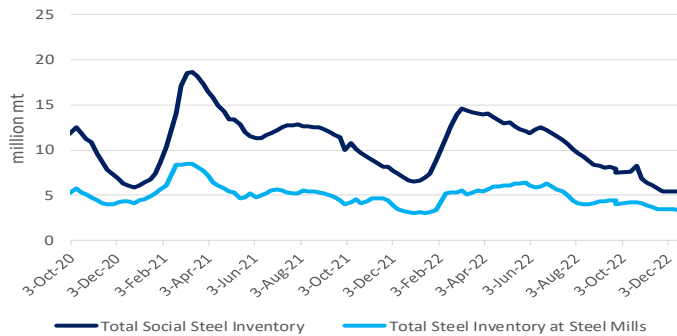
CHINESE STEEL MILL PROFITABILITY

SMM Tracking of Steel Mill P&L - Rebar and Hot-rolled Coil (RMB/tonne)

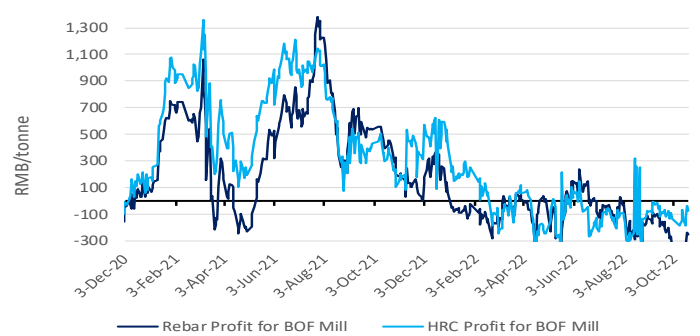
Category	Price	Change (WoW)	Note
MMi (Fe 62%), USD/mt excluding tax	110.25	3	Mmi CFR Equivalent index for 1st Feb
Coke	3,070	110	2nd grade met coke, Tangshan, incl. tax
Steel Scrap	3,090	80	steel scrap (6mm) in Zhangjiagang, excl. tax
Billet Cost	3,736	74	Q234, incl. tax
Rebar cost - Blast furnace	4,255	84	calculated based on theoretical weight, incl. tax
Rebar profit - Blast furnace	-255	66	based on Shanghai prices, incl. tax
Hot-rolled coil cost - Blast furnace	4,216	82	based on actual weight, incl. tax
Hot-rolled coil profit - Blast furnace	-76	-12	based on Shanghai prices, incl. tax

Note: 1. Costs in the table are calculated based on today's market prices and factored our management, sales, financial and depreciations fees.
2. The cost refers to average cost in the industry based on SMM's survey of small, medium and large mills in China

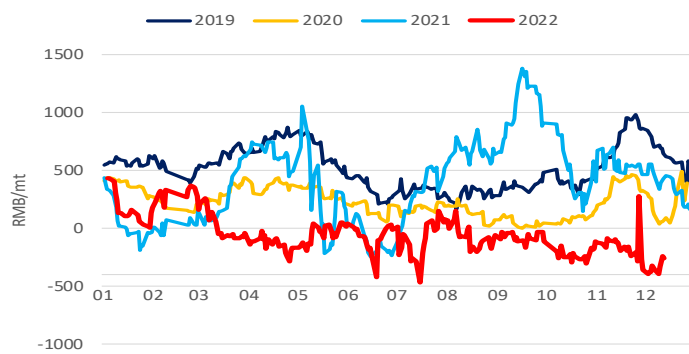
CHINESE STEEL INVENTORIES



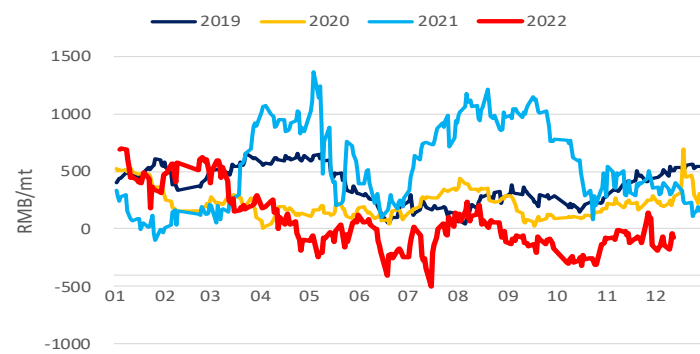
CHINESE STEEL MILL PROFITABILITY



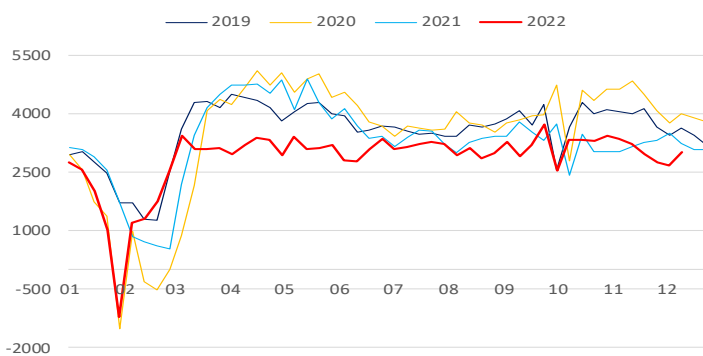
CHINESE STEEL MILL PROFITABILITY—Rebar



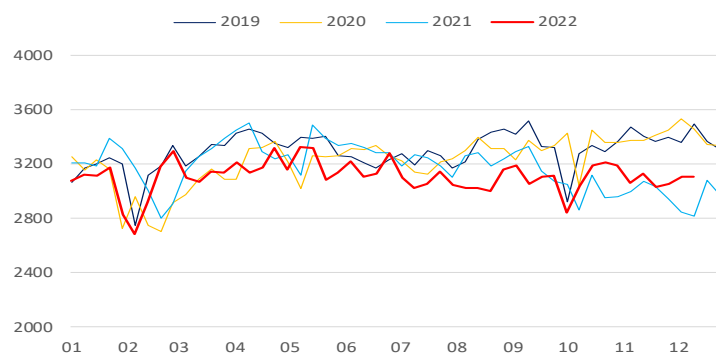
CHINESE STEEL MILL PROFITABILITY—Hot-rolled Coil



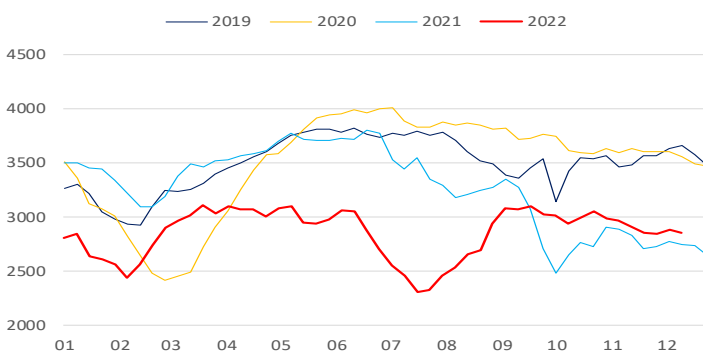
CHINESE STEEL CONSUMPTION—Rebar



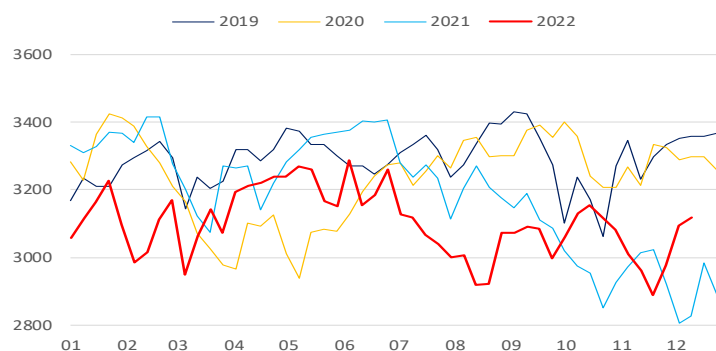
CHINESE STEEL CONSUMPTION—Hot-rolled Coil



CHINESE STEEL PRODUCTION—Rebar



CHINESE STEEL PRODUCTION—Hot-rolled Coil



IRON ORE INDEX SPECIFICATIONS, COMPILATION RATIONALE AND DATA EXCLUSIONS

Iron Ore Index Specifications (Port and Seaborne)					Iron Ore Index Compilation Rationale and Data Exclusions
Fe %	65% Fe Fines	62% Fe Fines	58% Fe Fines	62.5% Fe Lump	
Alumina %	65.00	62.00	58.00	62.50	
Silica%	1.40	2.25	2.25	1.50	
Phosphorus %	1.50	4.00	5.50	3.50	
Sulphur %	0.06	0.09	0.05	0.08	
Moisture %	0.01	0.02	0.02	0.02	
	8.00	8.00	9.00	4.00	
Sizing	Granular size below 10mm for at least 90% of cargo; maximum of 40% below 150 micron			Size below 6.3mm max 15% Size above 31.15mm max 25%	
Pricing Point	Qingdao Port (FOT and CFR respectively)			FOT Qingdao Port	
Timing (Seaborne)	Loading within 4 weeks, Delivery within 8 weeks			Delivery within 2 weeks	
Payment Terms	L/C at sight			L/C at sight or CAD	

Data Exclusions*			
Port Index	62%	58%	65%
Seaborne index	0		0
Lump Index 62.5	0		

* Number of price submissions for iron ore indices that were excluded from index calculations today as they were anomalous and could not be verified

IRON ORE DOMESTIC CONCENTRATE INDEX CALCULATION METHODOLOGY

The compilation method for price index generally refers to the compilation method of CPI price index and other price indices, breakdown the price data and calculate the average value according to a certain method, taking the vertical axis as the regional composite index (average of different grade index) and the horizontal axis as the grade composite index (average of different regional index), a total composite index for domestic ore can be output ultimately. The process system is also adopted in the calculation i.e. each sub-index can be obtained as well.

AVERAGE IRON ORE SPECIFICATIONS APPLIED FOR BRAND PRICE ASSESSMENTS

PORT STOCK BRANDS						SEABORNE BRANDS					
Dec 22nd, 2022	Specifications applied for 62% brand assessments						Specifications applied for 62% brand assessments				
	Fe	Alumina	Silica	Phos	Moisture		Fe	Alumina	Silica	Phos	Moisture
Roy Hill	60.88%	2.35%	4.45%	0.055%	9.26%	Roy Hill	60.70%	2.30%	4.90%	0.055%	8.00%
SIMEC Fines	60.00%	2.30%	6.30%	0.060%	6.00%	SIMEC Fines	60.00%	2.30%	6.30%	0.060%	6.00%
PB Fines	61.64%	2.31%	3.87%	0.099%	9.45%	PB Fines 62%	62.00%	2.60%	4.30%	0.090%	9.50%
Newman Fines	62.49%	2.31%	3.98%	0.090%	7.72%	Newman Fines	62.30%	2.40%	4.30%	0.095%	8.00%
MAC Fines	60.43%	2.38%	4.64%	0.078%	7.57%	MAC Fines	60.80%	2.35%	4.40%	0.075%	7.80%
Jimblebar Blended Fines	60.87%	2.95%	4.53%	0.111%	7.32%	Jimblebar Blended Fines	60.50%	3.10%	4.80%	0.120%	7.80%
Carajas Fines	64.90%	1.39%	1.82%	0.080%	7.78%	Carajas Fines	65.10%	1.50%	1.70%	0.080%	8.50%
Brazilian SSF	62.00%	1.00%	6.50%	0.040%	6.00%	Brazilian SSF	62.00%	1.00%	6.50%	0.040%	6.00%
Brazilian Blend Fines	62.56%	1.58%	4.79%	0.091%	8.72%	Brazilian Blend Fines	63.00%	1.50%	5.00%	0.070%	7.00%
RTX Fines	61.00%	3.10%	4.50%	0.135%	7.50%	RTX Fines	61.00%	3.10%	4.50%	0.135%	7.50%
West Pilbara Fines	60.10%	2.30%	4.70%	0.075%	8.50%	West Pilbara Fines	60.10%	2.30%	4.70%	0.075%	8.50%
Dec 22nd, 2022	Specifications applied for 58% brand assessments										
	Fe	Alumina	Silica	Phos	Moisture						
SSF	56.49%	3.20%	6.19%	0.065%	9.18%						
FMG Blended Fines	58.20%	2.43%	5.54%	0.057%	8.29%						
Robe River	56.44%	3.16%	5.73%	0.042%	8.44%						
Western Fines	57.88%	2.87%	7.50%	0.062%	7.45%						
Atlas Fines	58.00%	1.85%	5.50%	0.090%	9.00%						
Yandi	56.87%	1.58%	6.41%	0.042%	9.53%						

BLOOMBERG TICKERS

PORT STOCK INDICES			SEABORNE INDICES	
	FOT Qingdao (RMB/wet tonne)	CFR Qingdao Equivalent (USD/dry tonne)		CFR Qingdao (USD/DMT)
IOPI62	IRCNQ001	IRCNQ004	IOSI62	IRCN0034
IOPI58	IRCNQ002	IRCNQ005	IOSI65	IRCN0035
IOPI65	IRCNQ003	IRCNQ006		
IOPLI62	IRCN0036	IRCN0037		

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