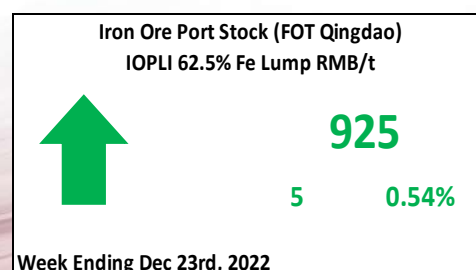
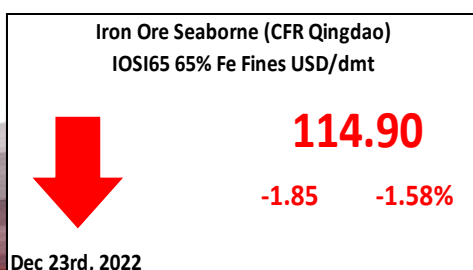
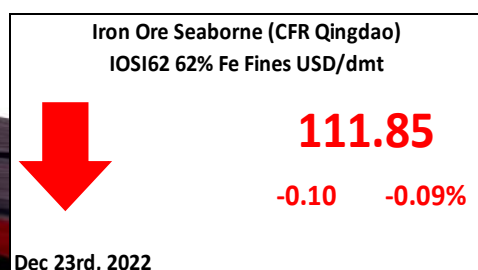
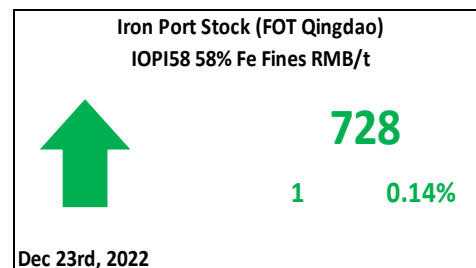
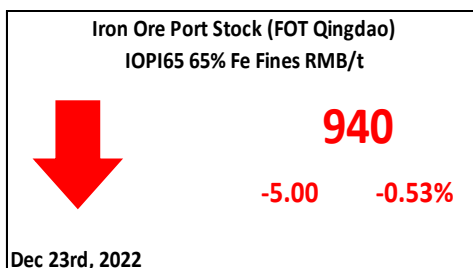
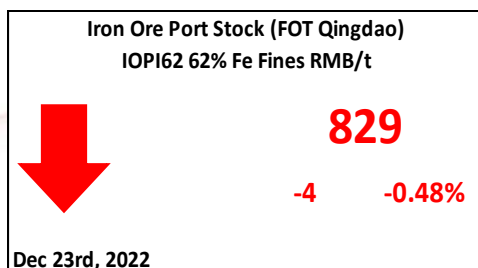


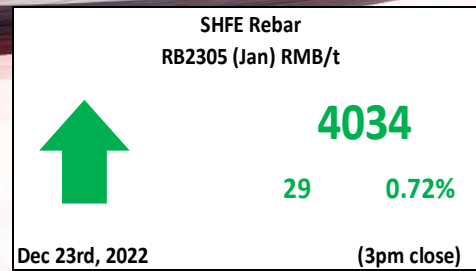
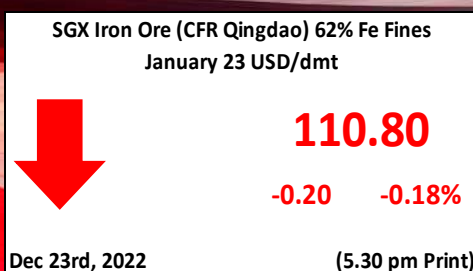
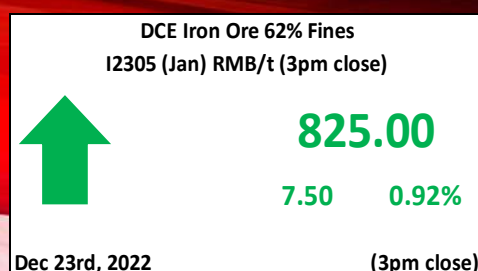


MMi Dashboard

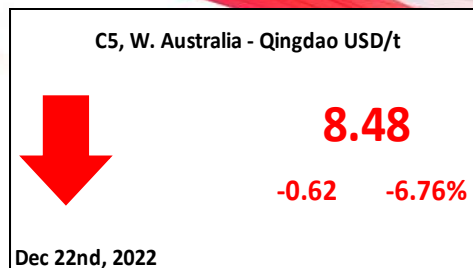
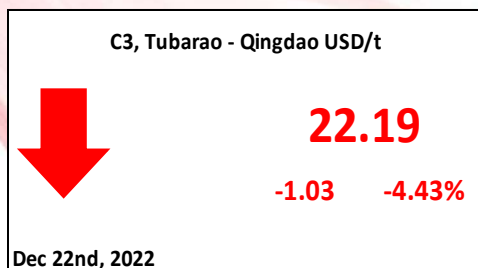
Iron Ore Price Indices



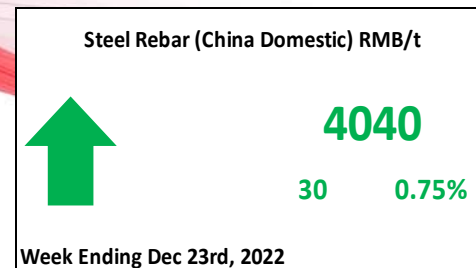
Exchange Traded Contracts



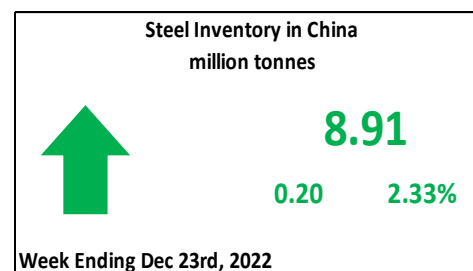
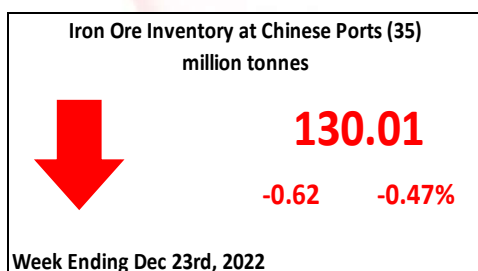
Freight Rates



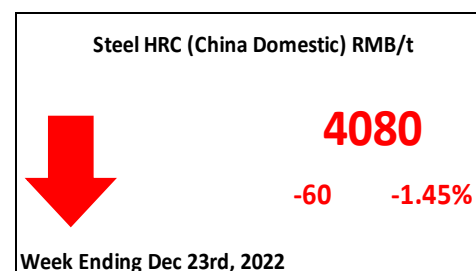
Steel Price



Inventory Levels



Steel Price



IRON ORE PORT STOCK INDEX (IOPI)

Dec 23rd, 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	829	-4	-0.5%	760	863	643	1083	110.37	-0.71	-0.6%	100.79	120.27	82.29	159.06
IOPI58	58% Fe Fines	728	1	0.1%	680	732	567	907	97.51	0.00	0.0%	90.64	102.24	77.29	134.15
IOPI65	65% Fe Fines	940	-5	-0.5%	890	1019	811	1265	125.66	-0.86	-0.7%	118.48	142.73	108.78	187.25

IRON ORE SEABORNE INDEX (IOSI)

Dec 23rd, 2022		CFR Qingdao, USD/dry tonne							MARKET COMMENTARY							
Index	Fe Content	Price	Change	Change %	MTD	YTD	Low ²	High ²	DCE iron ore futures declined by 0.18% today, the main contract closed 825. PBF at Shandong port dealt 822-830 yuan/mt, increases 5-8 yuan/mt; PBF at Tangshan port dealt 828 yuan/mt. As of December 23, the inventory of 35 ports tracked by SMM totaled 1300.1 million tons, down 620,000 tons from last week and 22.06 million tons from the same period last year. The average daily port dredging volume of imported ore in this period decreased by 45,000 tons to 2,927 million tons on a weekly basis. Although the steel plant resumed production as planned this week, the hot metal output increased slightly, but the iron ore price was high, the steel plant's willingness to replenish the warehouse was weak, and the demand for iron ore declined. Some ports in the north are closed due to strong winds, so the port dredging volume decreases slightly. In addition, the continuous increase of the ore price and the rise of the coke price have increased the pressure on the steel mills' capital, slowed down the pace of iron ore replenishment, and the steel mills turned to wait and see. The current market continues to consume the optimism in the early stage. Considering the frequent impact of the news, it is expected that the ore price will mainly fluctuate in a wide range next week.							
IOSI62	62% Fe Fines	111.85	-0.10	-0.09%	101.61	122.46	83.90	159.45								
IOSI65	65% Fe Fines	114.90	-1.85	-1.58%	111.73	140.61	94.45	185.82								

IRON ORE PORT LUMP INDEX (IOPLI)

Week Ending Dec 23rd, 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	925	5	0.5%	876	1046	770	1405	118.54	0.39	0.33%	111.81	140.65	94.72	199.13

IRON ORE DOMESTIC CONCENTRATE SPOT PRICE ASSESSMENTS AND COMPOSITE INDEX

Week Ending Dec 23rd, 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	998	0.6%	779	1645	143.07	0.37%	110.31	255.69
Hebei	Qian'an	65% Fe Concentrate	Dry	1020	0.0%	780	1630	146.22	-0.23%	110.51	251.57
Liaoning	Anshan	65% Fe Concentrate	Wet	740	0.0%	620	1310	106.08	-0.23%	87.40	202.32
Shandong	Zibo	65% Fe Concentrate	Dry	1021	0.6%	800	1752	146.37	0.36%	117.19	272.32

Week Ending Dec 23rd, 2022

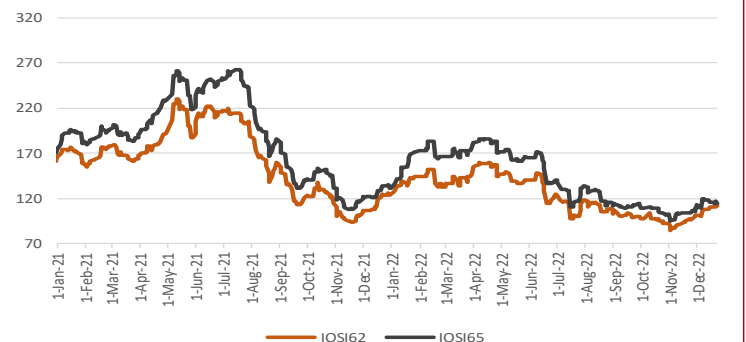
	This week	Change %	Low ²	High ²
China Mines Concentrate Composite Index RMB/WT	896.99	1.56%	706.36	1511.22

¹ Exchange rate applied: RMB/USD = 6.7522 ² Last 12 months
³ Weekly exchange rate applied: RMB/USD = 6.9596

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 23rd, 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	762	863	106.64	101.14	95.56	92.18	100.79	101.71	120.27
IOPI58	58% Fe Fines	685	697	683	635	680	680	732	94.05	93.56	89.34	82.39	90.64	91.30	102.24
IOPI65	65% Fe Fines	878	875	918	865	890	894	1019	120.31	117.19	120.08	112.37	118.48	119.92	142.73

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

Dec 23rd, 2022		CFR Qingdao, USD/dry tonne							FREIGHT RATES							
Index	Fe Content	August	September	October	November	MTD	QTD	YTD	FREIGHT RATES - DRY BULK US\$/wet tonne							
									Route	Designation	Change	Change %	Low ²	High ²		
IOSI62	62% Fe Fines	110.64	101.12	95.80	93.05	101.61	103.02	122.46	W. Australia - Qingdao	C5	8.48	-0.62	-6.76%	3.57	16.77	
IOSI65	65% Fe Fines	112.53	111.57	106.70	102.40	111.73	113.88	140.61	Tubarao - Qingdao	C3	22.19	-1.03	-4.43%	6.70	36.40	

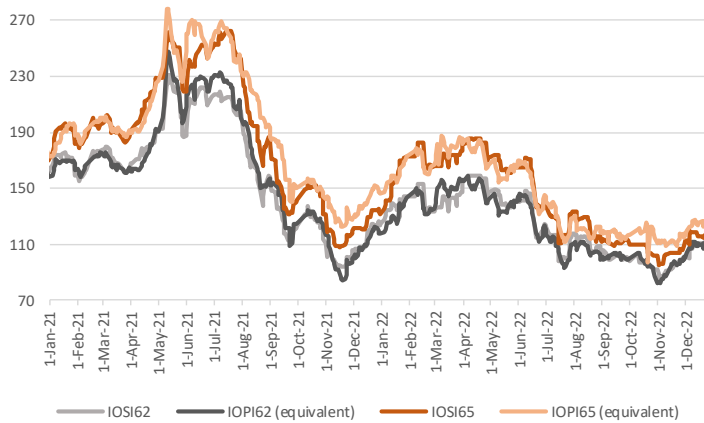
IRON ORE PORT LUMP INDEX MONTHLY, QUARTERLY AND YEAR-TO-DATE AVERAGES

Week Ending Dec 23rd, 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	876	882	1046	118.50	112.75	109.81	100.83	111.81	113.52	140.65

IRON ORE INDEX PREMIUMS/DISCOUNTS

Dec 23rd, 2022		PORT STOCK INDEX (RMB/WT)		Dec 23rd, 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	-101	-12.18%	IOSI65	65% Fe Fines	3.05	2.73%
IOPI65	65% Fe Fines	111	13.39%				

IRON ORE INDEX COMPARISONS (USD/DMT)



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



IRON ORE BRAND SPOT PRICE ASSESSMENTS

Dec 23rd, 2022				Dec 23rd, 2022			
PORT STOCK INDEX (RMB/WT)				SEABORNE INDEX (USD/DMT)			
	Price	Change	Diff to IOPI62		Price	Change	Diff to IOSI62
Roy Hill	772	-4	-57	Roy Hill	107.35	-0.10	-4.50
SIMEC Fines	700	-4	-129	SIMEC Fines	103.85	-0.10	-8.00
PB Fines	798	-4	-31	PB Fines	108.10	-0.10	-3.75
Newman Fines	797	-4	-32	Newman Fines	111.00	-0.10	-0.85
MAC Fines	779	-4	-50	MAC Fines	108.10	-0.10	-3.75
Jimblebar Blended Fines	694	-4	-135	Jimblebar Blended Fines	100.50	-0.10	-11.35
Carajas Fines	1009	-4	180	Carajas Fines	141.40	-0.10	29.55
Brazilian SSF	792	-4	-37	Brazilian SSF	115.60	-0.10	3.75
Brazilian Blend Fines	811	-4	-18	Brazilian Blend Fines	117.25	-0.10	5.40
RTX Fines	712	-4	-117	RTX Fines	101.75	-0.10	-10.10
West Pilbara Fines	740	-4	-89	West Pilbara Fines	106.10	-0.10	-5.75

Dec 23rd, 2022			
PORT STOCK INDEX (RMB/WT)			
	Price	Change	Diff to IOPI58
SSF	728	1	0
FMG Blended Fines	737	1	9
Robe River	738	1	10
Western Fines	740	1	12
Atlas Fines	735	1	7
Yandi	721	1	-7

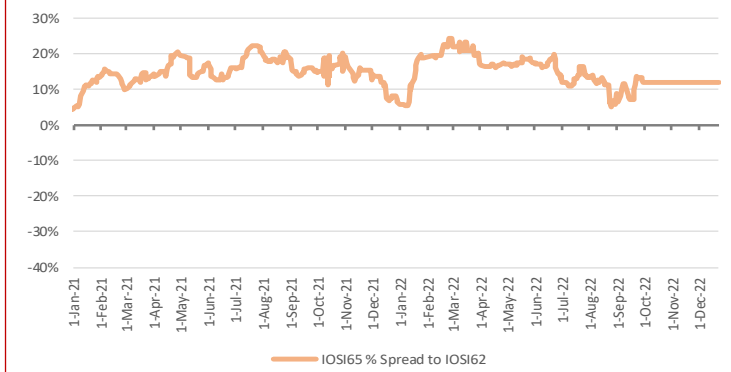
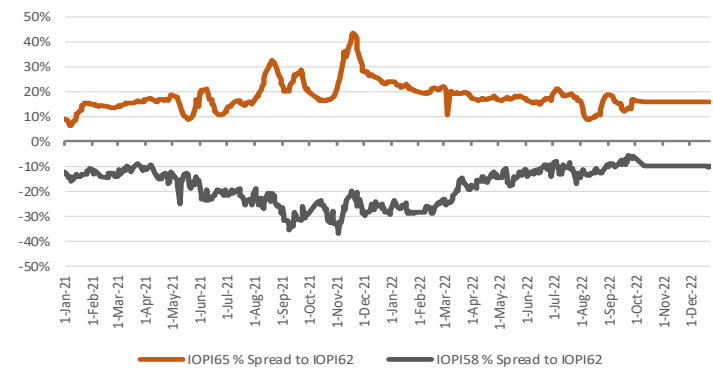
IRON ORE INDEX NORMALISATION DIFFERENTIALS

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	0.00		High Grade Fe 63 - 64%	0.25	0.00
	High Grade Fe 64 - 65%	43.00	0.00		High Grade Fe 64 - 65%	0.25	0.00
	High Grade Fe 65 - 65.5%	43.00	0.00		High Grade Fe 65 - 65.5%	0.25	0.00
1% Alumina	Low Grade Fe	23.00	1.00	1% Alumina	High Fe Grade Al <2.25%	0.75	0.25
	High Fe Grade Al <2.25%	91.00	0.00		High Fe Grade Al 2.25-4%	1.50	-0.50
	High Fe Grade Al 2.25-4%	53.00	5.00				
	Low Fe Grade Al <2.25%	38.00	0.00				
1% Silica	Low Fe Grade Al 2.25-4%	20.00	2.00	1% Silica	High Fe Grade Si <4%	0.25	0.00
	High Fe Grade Si <4%	46.00	0.00		High Fe Grade Si 4 - 6.5%	1.00	-0.50
	High Fe Grade Si 4-6.5%	34.00	-2.00				
0.01% Phosphorus	Low Fe Grade	18.00	2.00	0.01% Phosphorus	High Fe Grade 0.09%<P<0.115%	1.75	0.25
	High Fe Grade 0.09%<P<0.115%	27.00	1.00		High Fe Grade 0.115%<P<0.15%	5.00	2.00
	High Fe Grade 0.115%<P<0.15%	27.00	1.00				
	Low Fe Grade 0.09%<P<0.1%	5.00	0.00				

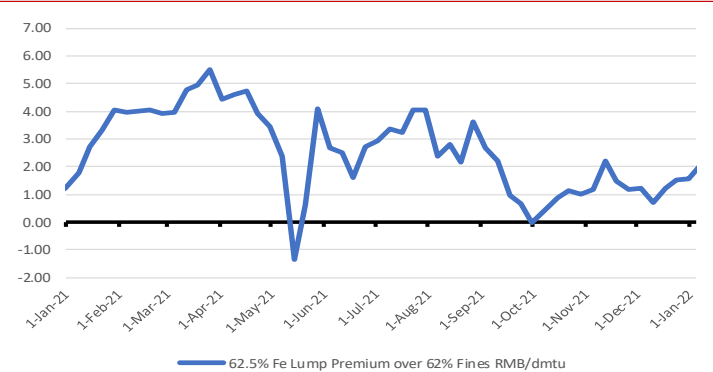
Port Stock Price Differentials to Qingdao Port for PB Fines (RMB/wet tonne)

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	Taichang	-30.00	0.00
Dalian	0.00	0.00	Lanqiao	0.00	0.00	Qingdao	0.00	0.00	Tianjin	-10.00	0.00

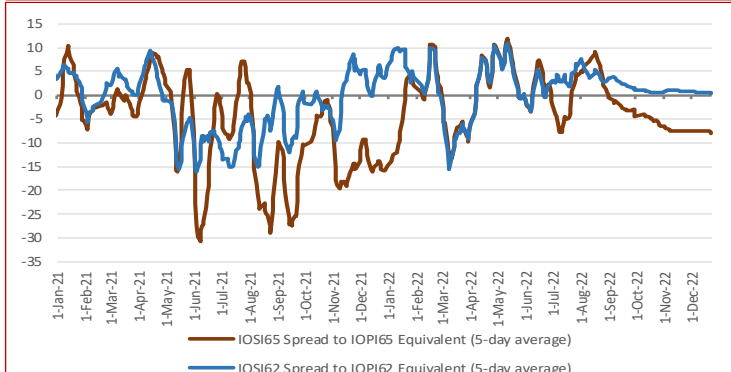
IRON ORE INDEX PREMIUMS/DISCOUNTS



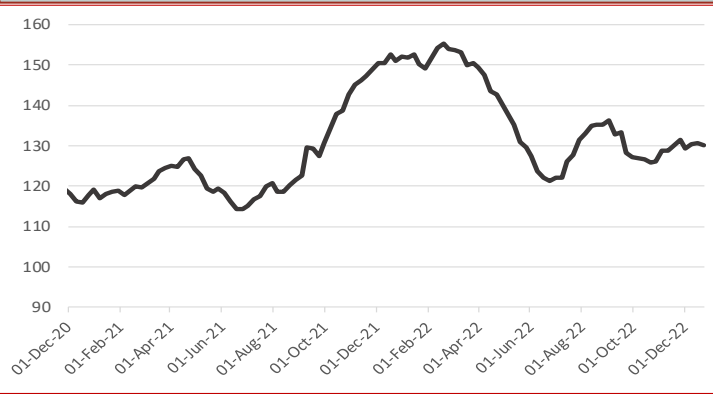
WEEKLY IRON ORE PORT STOCK LUMP PREMIUM (RMB/DMTU)



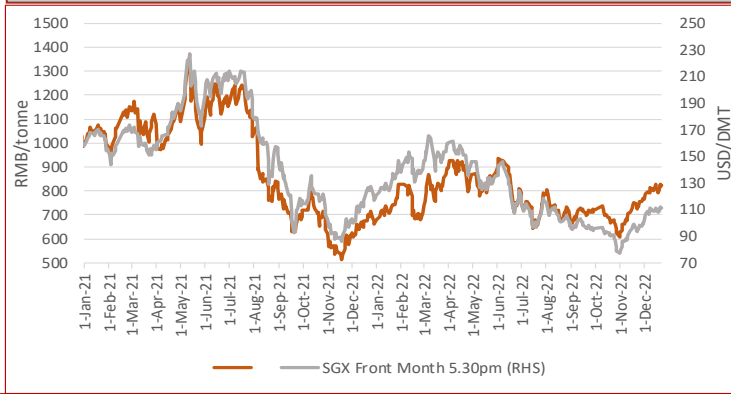
IRON ORE SEABORNE TO PORT STOCK PRICE SPREADS (USD/DMT)



TOTAL IRON ORE INVENTORIES AT CHINA PORTS (MILLION TONNES)



FUTURE TRADING—FRONT MONTH CLOSING PRICE



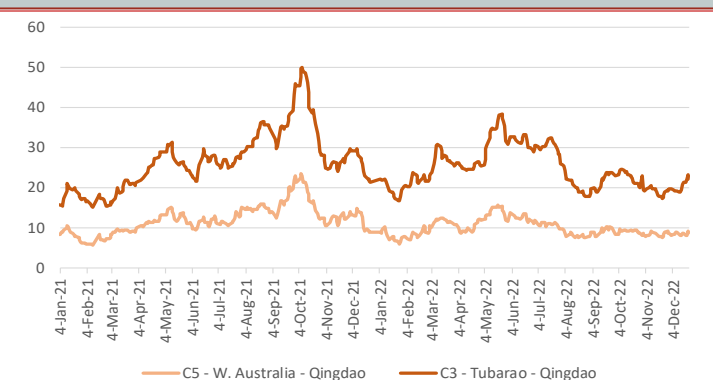
IRON ORE PORT INVENTORIES (MILLION TONNES)

Week Ending Dec 23rd, 2022				
Province	This week	Change %	Low ²	High ²
Jingtang	12.65	-1.02%	9.84	19.20
Qingdao	25.54	-0.78%	9.41	26.24
Caofeidian	12.23	-1.21%	9.05	16.29
Tianjin	9.43	1.29%	7.14	12.97
Rizhao	17.64	0.97%	9.44	19.26
Total (35 Ports)	130.01	-0.47%	98.80	155.39

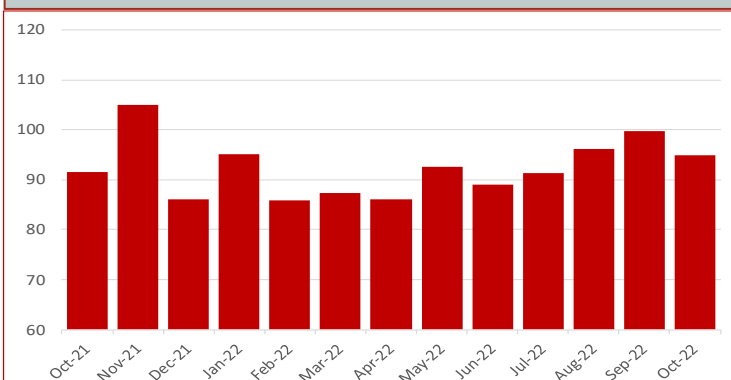
IRON ORE FUTURES CONTRACTS

Closing Date	DCE (RMB/WMT)			SGX (USD/DMT)		
	Dec 23rd, 3pm close	Change	Change %	Dec 23rd, 5:30pm	Change	Change %
Contract	12305			Jan. 23		
Closing Price	825.00	7.50	0.92%	110.80	-0.20	-0.18%
Vol traded ('000 lots)	89.22	10.66	13.57%	3.44	-1.25	-26.75%
Open positions ('000 lots)	83.78	-0.33	-0.39%	30.93	-0.99	-3.11%
Day Low	805.5	-10.50	-1.29%	109.05	-1.45	-1.31%
Day High	827.5	-7.50	-0.90%	111.80	-0.90	-0.80%

DRY BULK FREIGHT RATES (USD/MT)



TOTAL CHINA IRON ORE IMPORT VOLUMES (MILLION TONNES)



STEEL SPOT MARKET PRICES—CHINA

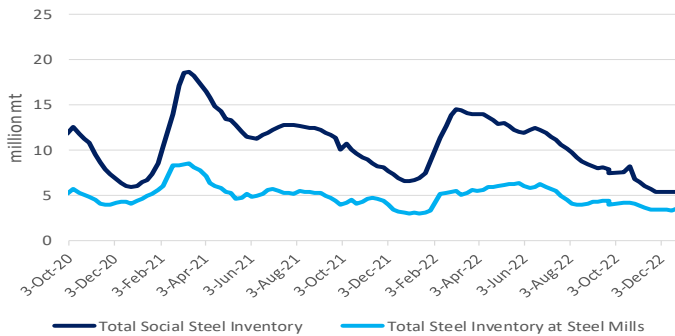
Product	2022/12/23	Change	Change %
ReBar HRB400 φ18mm	4,040	30	0.75%
Wirerod Q300 φ6.5mm	4,300	20	0.47%
HRC Q235/SS400 5.5mm*1500*C	4,080	-60	-1.45%
CRC SPCC/ST12 1.0mm*1250*2500	4,580	20	0.44%
Medium & Heavy Plate Q235B 20mm	4,150	-40	-0.95%
GI ST02Z 1.0mm*1000*C	4,820	-30	-0.62%
Colour Coated Plate	7,530	0	0.00%

CHINESE STEEL MILL PROFITABILITY

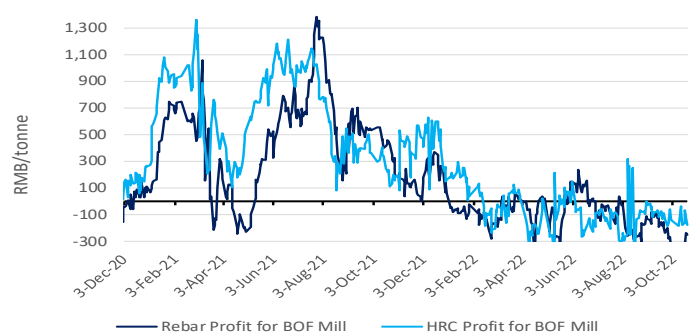
SMM Tracking of Steel Mill P&L - Rebar and Hot-rolled Coil (RMB/tonne)			
Category	Price	Change (WoW)	Note
MMi (Fe 62%), USD/mt excluding tax	111.95	2	Mmi CFR Equivalent index for 1st Feb
Coke	3,180	110	2nd grade met coke, Tangshan, incl. tax
Steel Scrap	3,040	-50	steel scrap (6mm) in Zhangjiagang, excl. tax
Billet Cost	3,783	47	Q234, incl. tax
Rebar cost - Blast furnace	4,309	54	calculated based on theoretical weight, incl. tax
Rebar profit - Blast furnace	-309	-54	based on Shanghai prices, incl. tax
Hot-rolled coil cost - Blast furnace	4,269	54	based on actual weight, incl. tax
Hot-rolled coil profit - Blast furnace	-179	-104	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

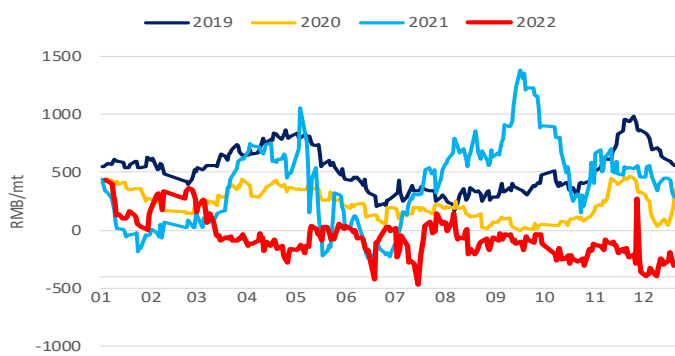
CHINESE STEEL INVENTORIES



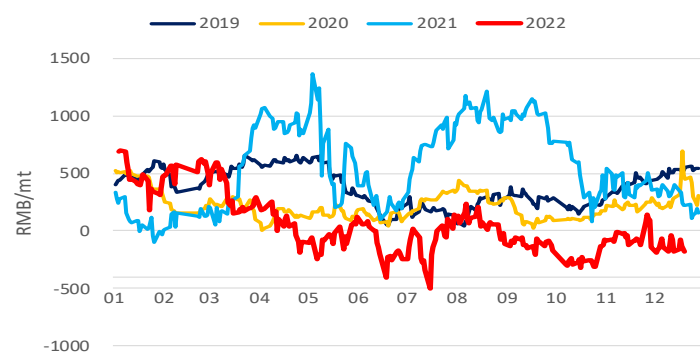
CHINESE STEEL MILL PROFITABILITY



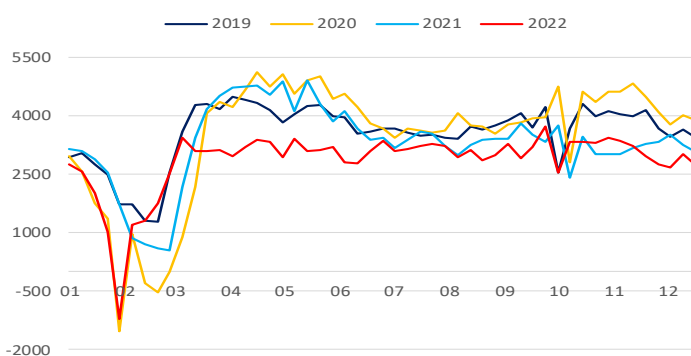
CHINESE STEEL MILL PROFITABILITY—Rebar



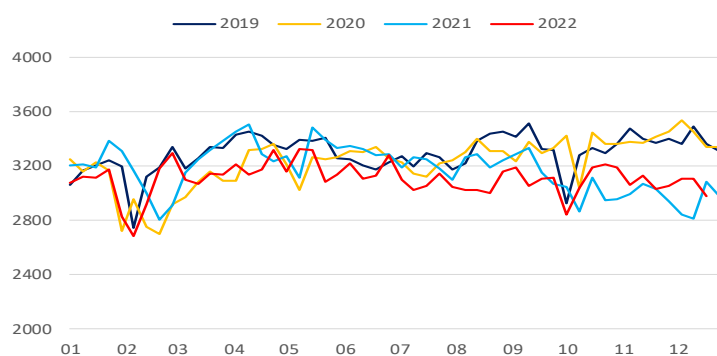
CHINESE STEEL MILL PROFITABILITY—Hot-rolled Coil



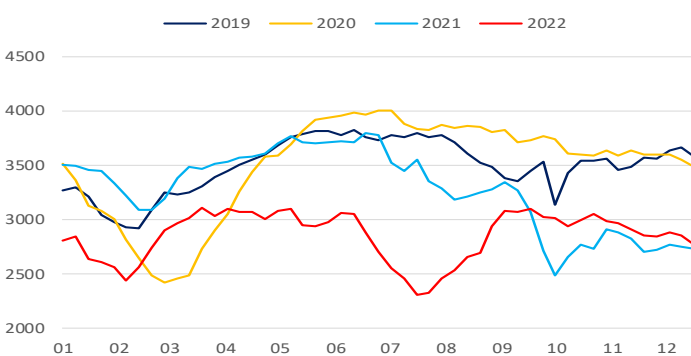
CHINESE STEEL CONSUMPTION—Rebar



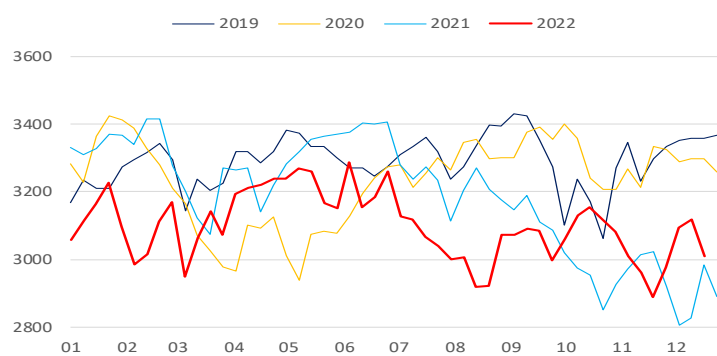
CHINESE STEEL CONSUMPTION—Hot-rolled Coil



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
	65% Fe Fines	62% Fe Fines	58% Fe Fines	62.5% Fe Lump	MMi iron ore indices are compiled from data provided by companies that are part of the iron ore supply chain and involved in spot market transactions. The indices are calculated using detailed transaction-level data submitted to MMi by these companies. This data is normalised to the appropriate specifications and screened to remove outliers before volume-weighted average prices are calculated from the remaining core set of data. For more details on MMi's iron ore methodology please download the guide published on our website at: www.mmiprices.com
Fe %	65.00	62.00	58.00	62.50	
Alumina %	1.40	2.25	2.25	1.50	
Silica%	1.50	4.00	5.50	3.50	
Phosphorus %	0.06	0.09	0.05	0.08	
Sulphur %	0.01	0.02	0.02	0.02	
Moisture %	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	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 23rd, 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 23rd, 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		IRCN0034
IOPI58	IRCNQ002		IRCNQ005		IRCN0035
IOPI65	IRCNQ003		IRCNQ006		
IOPLI62	IRCN0036		IRCN0037		

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