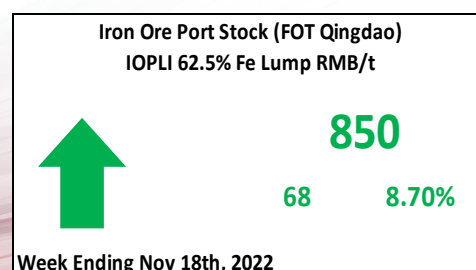
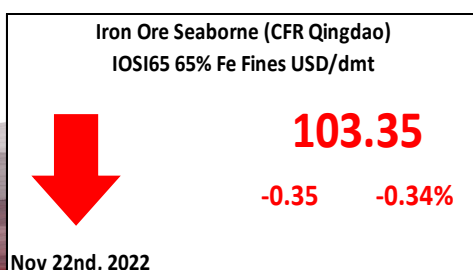
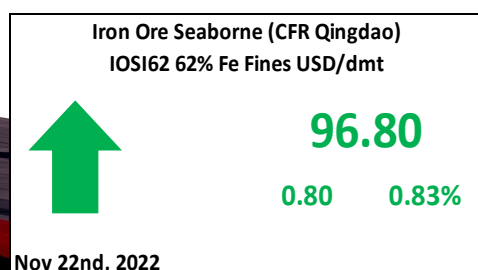
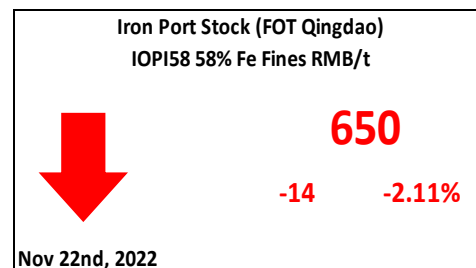
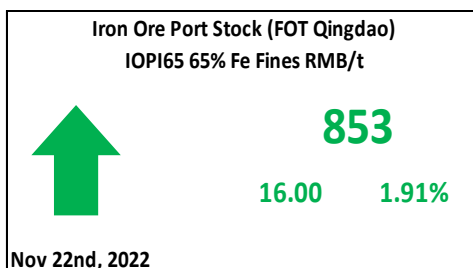
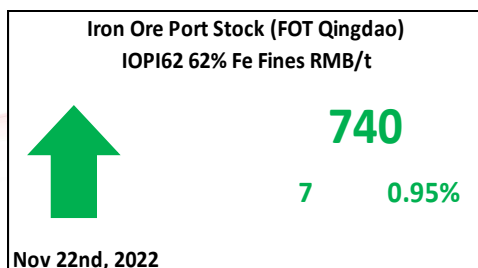


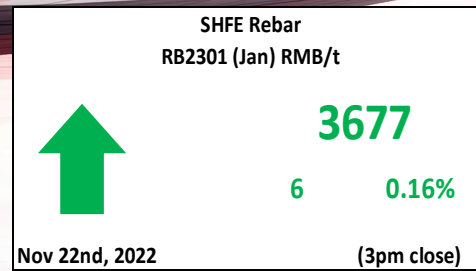
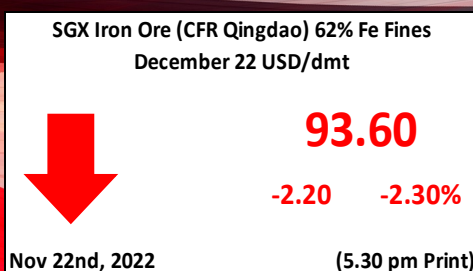
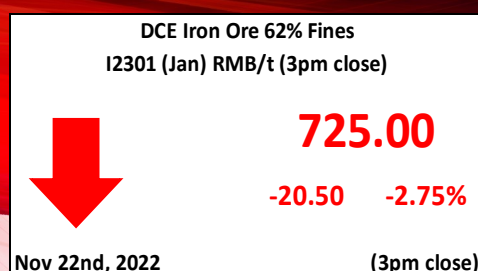


MMi Dashboard

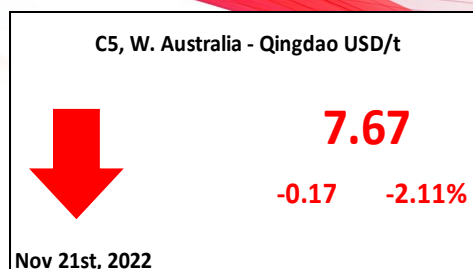
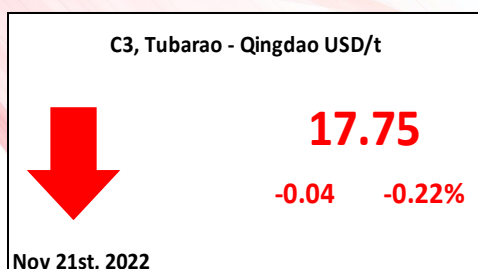
Iron Ore Price Indices



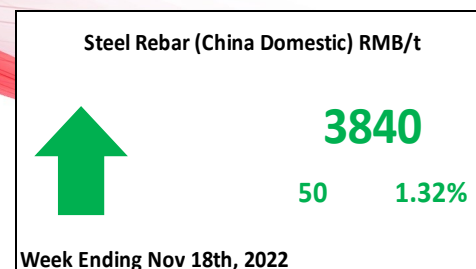
Exchange Traded Contracts



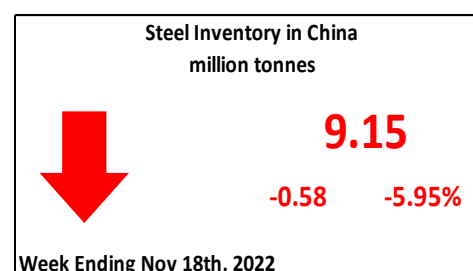
Freight Rates



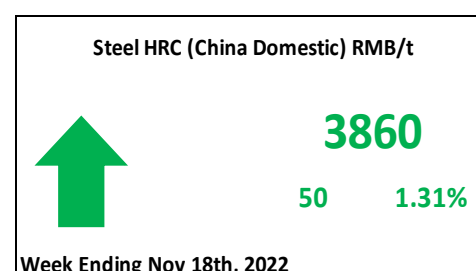
Steel Price



Inventory Levels



Steel Price



IRON ORE PORT STOCK INDEX (IOPI)

Nov 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	740	7	1.0%	748	870	614	1083	95.56	0.39	0.4%	99.27	121.83	82.29	159.06
IOPI58	58% Fe Fines	650	-14	-2.1%	676	736	488	907	84.40	-2.40	-2.8%	90.30	103.38	70.04	134.15
IOPI65	65% Fe Fines	853	16	1.9%	881	1030	811	1265	110.73	1.52	1.4%	117.48	144.99	108.78	187.25

IRON ORE SEABORNE INDEX (IOSI)

MARKET COMMENTARY

Nov 22nd, 2022		CFR Qingdao, USD/dry tonne							DCE iron ore futures rose by 1.96 % today, the main contract closed 725. The traders' willingness to ship is less. The steel mills are purchase on demand. The overall trading sentiment of the market is less. PBF at Shandong port dealt 725-733 yuan/mt, decrease 2-10 yuan/mt; PBF at Tangshan port dealt 738-745 yuan/mt, decrease 5 yuan/mt; SSF at Tangshan port dealt 635 yuan/mt. Affected by the national epidemic situation, the downstream construction was affected, causing market panic, and the futures market continued to decline. According to SMM statistics, the impact of blast furnace maintenance this week on molten iron is 202.77 tons, 31400 tons less than that of last week. The blast furnaces in some areas have resumed production in succession, and the daily average hot metal output is expected to increase slightly in the later period. In terms of supply, the fourth quarter was still the peak of overseas shipment. Last week, Western Australia Mining Company was more active and rented a large number of ships in the spot market. On the whole, short-term iron ore prices may be subject to a correction.
Index	Fe Content	Price	Change	Change %	MTD	YTD	Low ²	High ²	
IOSI62	62% Fe Fines	96.80	0.80	0.83%	100.48	124.25	83.90	159.45	
IOSI65	65% Fe Fines	103.35	-0.35	-0.34%	111.24	143.47	94.45	185.82	

IRON ORE PORT LUMP INDEX (IOPLI)

Week Ending Nov 18th, 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	850	68	8.7%	866	1062	730	1405	107.20	10.97	11.40%	110.85	143.67	95.00	199.13

IRON ORE DOMESTIC CONCENTRATE SPOT PRICE ASSESSMENTS AND COMPOSITE INDEX

Week Ending Nov 18th, 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	869	5.6%	779	1645	122.92	7.83%	110.31	255.69
Hebei	Qian'an	65% Fe Concentrate	Dry	910	4.6%	780	1630	128.72	6.81%	110.51	251.57
Liaoning	Anshan	65% Fe Concentrate	Wet	705	0.0%	620	1310	99.73	2.12%	87.40	202.32
Shandong	Zibo	65% Fe Concentrate	Dry	892	5.4%	800	1752	126.18	7.67%	117.19	272.32

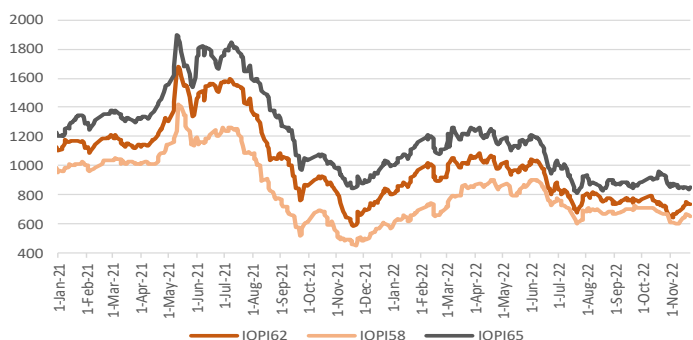
Week Ending Nov 18th, 2022

This week	Change %	Low ²	High ²
801.27	1.44%	706.36	1511.22

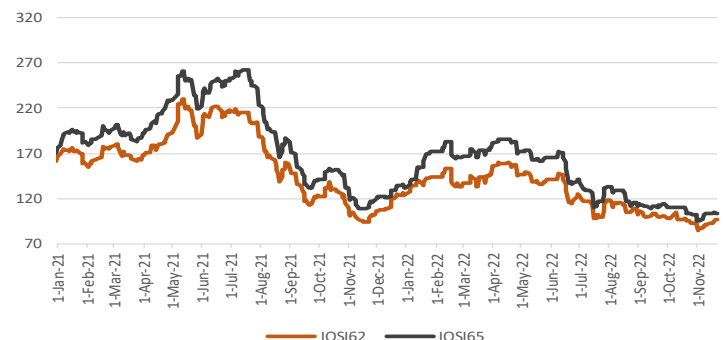
China Mines Concentrate Composite Index RMB/WT

¹ Exchange rate applied: RMB/USD = 6.7522 ² Last 12 months
³ Weekly exchange rate applied: RMB/USD = 7.06942

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

Nov 22nd, 2022		FOT Qingdao (inc. 13% VAT), RMB/wet tonne							CFR Qingdao Equivalent (exc. 13% VAT), USD/dry tonne						
Index	Fe Content	July	August	September	October	MTD	QTD	YTD	June	August	September	October	MTD	QTD	YTD
IOPI62	62% Fe Fines	770	781	759	736	748	753	870	106.01	106.64	101.14	95.56	99.27	100.73	121.83
IOPI58	58% Fe Fines	682	685	697	683	676	677	736	94.43	94.05	93.56	89.34	90.30	91.19	103.38
IOPI65	65% Fe Fines	915	878	875	918	881	888	1030	126.73	120.31	117.19	120.08	117.48	119.48	144.99

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

FREIGHT RATES

Nov 22nd, 2022		CFR Qingdao, USD/dry tonne							Nov 21st, 2022						
Index	Fe Content	July	August	September	October	MTD	QTD	YTD	Route	Designation	Change	Change %	Low ²	High ²	
IOSI62	62% Fe Fines	110.07	110.64	101.12	95.80	100.48	102.46	124.25	W. Australia - Qingdao	C5	7.67	-0.17	-2.11%	3.57	16.77
IOSI65	65% Fe Fines	124.60	112.53	111.57	106.70	111.24	113.99	143.47	Tubarao - Qingdao	C3	17.75	-0.04	-0.22%	6.70	36.40

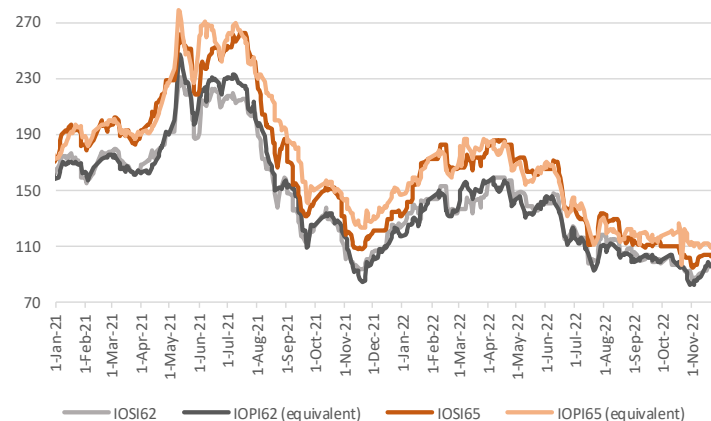
IRON ORE PORT LUMP INDEX MONTHLY, QUARTERLY AND YEAR-TO-DATE AVERAGES

Week Ending Nov 18th, 2022		FOT Qingdao (inc. 13% VAT), RMB/wet tonne							CFR Qingdao Equivalent (exc. 13% VAT), USD/dry tonne ¹						
Index	Fe Content	July	August	September	October	MTD	QTD	YTD	July	August	September	October	MTD	QTD	YTD
IOPLI62	62.5% Fe Lump	906	900	873	877	866	876	1062	120.36	118.50	112.75	109.81	110.85	113.22	143.67

IRON ORE INDEX PREMIUMS/DISCOUNTS

Nov 22nd, 2022		PORT STOCK INDEX (RMB/WT)		Nov 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	-90	-12.16%	IOSI65	65% Fe Fines	6.55	6.77%
IOPI65	65% Fe Fines	113	15.27%				

IRON ORE INDEX COMPARISONS (USD/DMT)



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



IRON ORE BRAND SPOT PRICE ASSESSMENTS

Nov 22nd, 2022				Nov 22nd, 2022			
PORT STOCK INDEX (RMB/WT)				SEABORNE INDEX (USD/DMT)			
	Price	Change	Diff to IOPI62		Price	Change	Diff to IOSI62
Roy Hill	683	7	-57	Roy Hill	92.30	0.80	-4.50
SIMEC Fines	609	7	-131	SIMEC Fines	88.80	0.80	-8.00
PB Fines	710	7	-30	PB Fines	93.05	0.80	-3.75
Newman Fines	708	7	-32	Newman Fines	95.95	0.80	-0.85
MAC Fines	689	7	-51	MAC Fines	93.05	0.80	-3.75
Jimblebar Blended Fines	604	7	-136	Jimblebar Blended Fines	85.45	0.80	-11.35
Carajas Fines	920	7	180	Carajas Fines	126.35	0.80	29.55
Brazilian SSF	701	7	-39	Brazilian SSF	100.55	0.80	3.75
Brazilian Blend Fines	723	7	-17	Brazilian Blend Fines	102.20	0.80	5.40
RTX Fines	622	7	-118	RTX Fines	86.70	0.80	-10.10
West Pilbara Fines	652	7	-88	West Pilbara Fines	91.05	0.80	-5.75

Nov 22nd, 2022			
PORT STOCK INDEX (RMB/WT)			
	Price	Change	Diff to IOPI58
SSF	650	-14	0
FMG Blended Fines	658	-14	8
Robe River	659	-14	9
Western Fines	661	-14	11
Atlas Fines	656	-14	6
Yandi	644	-14	-6

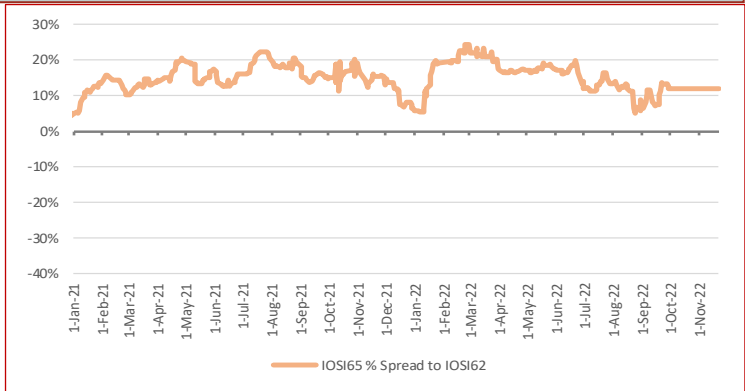
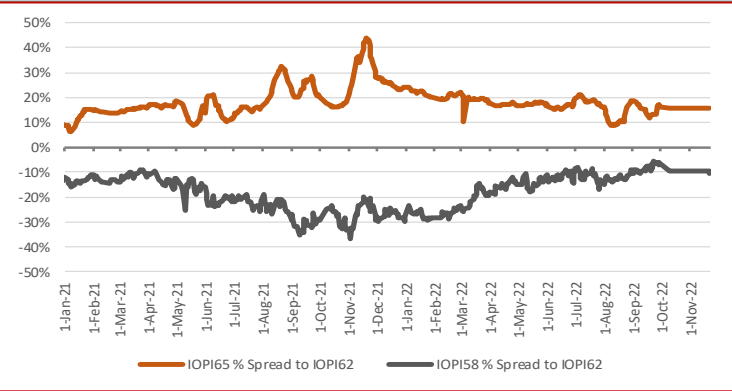
IRON ORE INDEX NORMALISATION DIFFERENTIALS

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%	9.00	3.00	1% Fe	High Grade Fe 60 - 63%	0.75	-0.25
	High Grade Fe 63 - 64%	5.00	0.00		High Grade Fe 63 - 64%	1.25	0.25
	High Grade Fe 64 - 65%	5.00	0.00		High Grade Fe 64 - 65%	1.25	0.25
	High Grade Fe 65 - 65.5%	5.00	0.00		High Grade Fe 65 - 65.5%	1.25	0.25
1% Alumina	Low Grade Fe	27.00	-2.00	1% Alumina	High Fe Grade Al <2.25%	1.00	0.25
	High Fe Grade Al <2.25%	64.00	5.00		High Fe Grade Al 2.25-4%	2.25	-0.25
	High Fe Grade Al 2.25-4%	7.00	2.00				
	Low Fe Grade Al <2.25%	5.00	0.00				
1% Silica	Low Fe Grade Al 2.25-4%	13.00	-1.00	1% Silica	High Fe Grade Si <4%	1.00	0.25
	High Fe Grade Si <4%	16.00	1.00		High Fe Grade Si 4 - 6.5%	1.00	-0.25
0.01% Phosphorus	High Fe Grade Si <4%	16.00	1.00	0.01% Phosphorus	High Fe Grade 0.09%<P<0.115%	3.25	0.25
	High Fe Grade 0.09%<P<0.115%	5.00	0.00		High Fe Grade 0.115%<P<0.15%	4.50	-0.25
	High Fe Grade 0.115%<P<0.15%	5.00	0.00				
	Low Fe Grade 0.09%<P<0.1%	5.00	0.00				

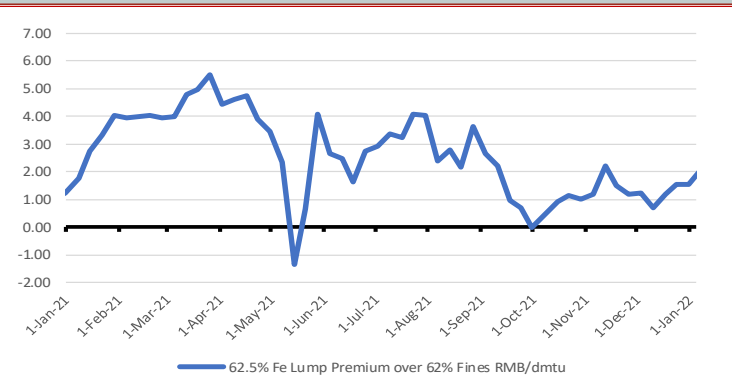
Port Stock Price Differentials to Qingdao Port for PB Fines (RMB/wet tonne)

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	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

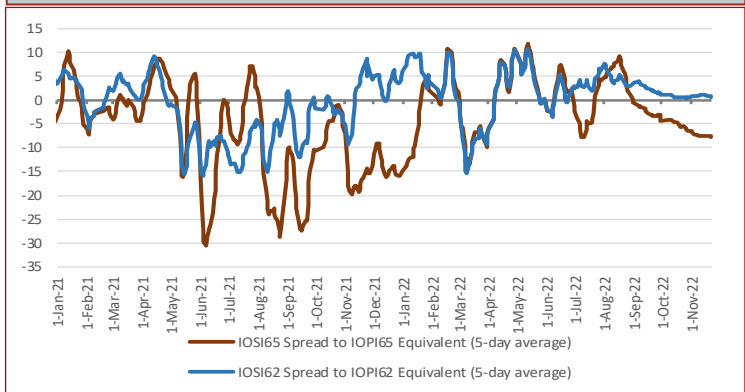
IRON ORE INDEX PREMIUMS/DISCOUNTS



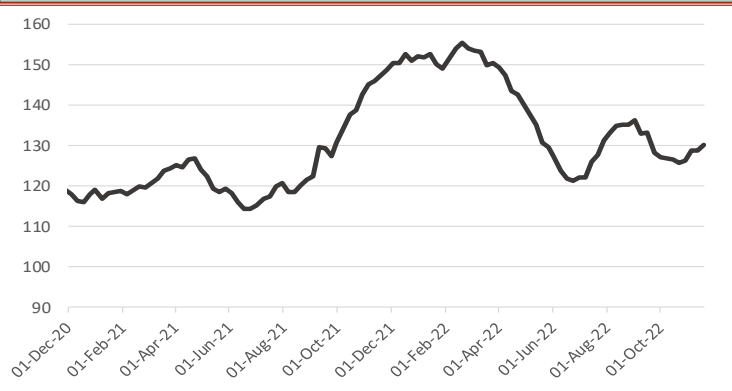
WEEKLY IRON ORE PORT STOCK LUMP PREMIUM (RMB/DMTU)



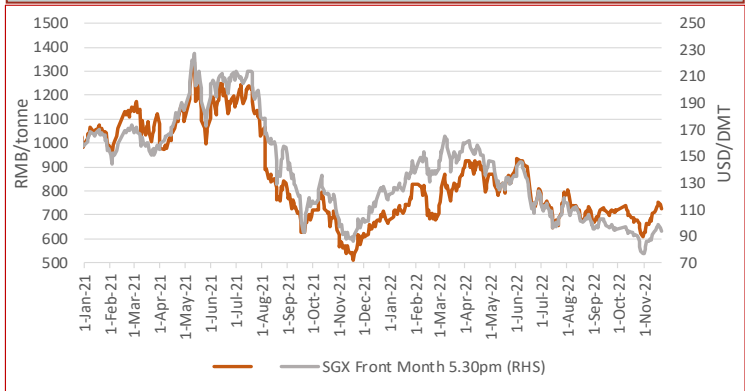
IRON ORE SEABORNE TO PORT STOCK PRICE SPREADS (USD/DMT)



TOTAL IRON ORE INVENTORIES AT CHINA PORTS (MILLION TONNES)



FUTURE TRADING—FRONT MONTH CLOSING PRICE



IRON ORE PORT INVENTORIES (MILLION TONNES)

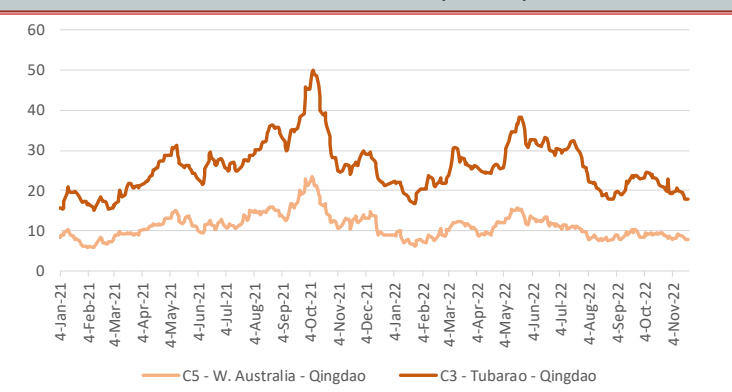
Week Ending Nov 18th, 2022

Province	This week	Change %	Low ²	High ²
Jingtang	13.10	1.55%	9.84	19.20
Qingdao	24.75	3.73%	9.41	26.24
Caofeidian	11.00	-6.78%	9.05	16.29
Tianjin	9.53	-6.84%	7.14	12.97
Rizhao	17.93	-0.28%	9.44	19.26
Total (35 Ports)	130.20	1.14%	98.80	155.39

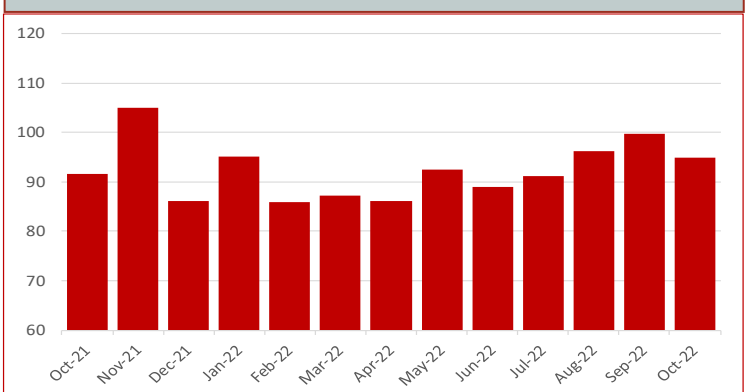
IRON ORE FUTURES CONTRACTS

Closing Date	DCE (RMB/WMT)			SGX (USD/DMT)		
	Nov 22nd, 3pm close			Nov 22nd, 5:30pm		
Contract	I2301	Change	Change %	Dec. 22	Change	Change %
Closing Price	725.00	-20.50	-2.75%	93.60	-2.20	-2.30%
Vol traded ('000 lots)	85.83	-13.15	-13.29%	3.78	-1.04	-21.50%
Open positions ('000 lots)	72.41	-4.30	-5.61%	33.22	-0.23	-0.68%
Day Low	724.0	-2.00	-0.28%	93.05	-1.30	-1.38%
Day High	747.5	-7.50	-0.99%	96.25	-2.65	-2.68%

DRY BULK FREIGHT RATES (USD/MT)



TOTAL CHINA IRON ORE IMPORT VOLUMES (MILLION TONNES)



STEEL SPOT MARKET PRICES—CHINA

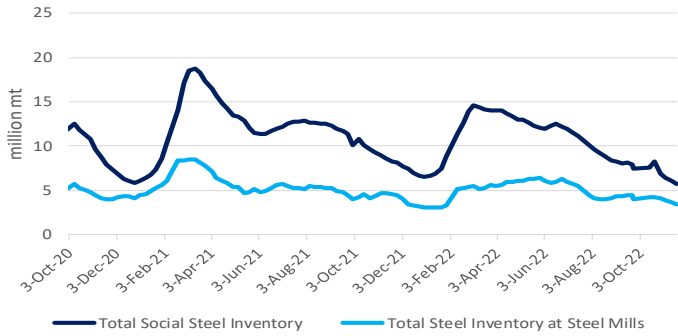
Product	2022/11/18	Change	Change %
ReBar HRB400 φ18mm	3,840	50	1.32%
Wirerod Q300 φ6.5mm	4,340	70	1.64%
HRC Q235/SS400 5.5mm*1500*C	3,860	50	1.31%
CRC SPCC/ST12 1.0mm*1250*2500	4,370	0	0.00%
Medium & Heavy Plate Q235B 20mm	3,910	40	1.03%
GI ST02Z 1.0mm*1000*C	4,630	20	0.43%
Colour Coated Plate	7,500	0	0.00%

CHINESE STEEL MILL PROFITABILITY

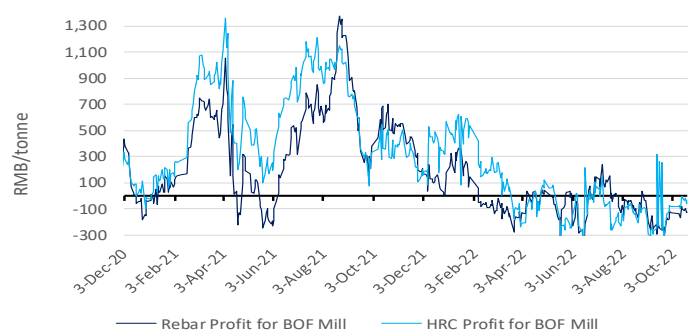
SMM Tracking of Steel Mill P&L - Rebar and Hot-rolled Coil (RMB/tonne)			
Category	Price	Change (WoW)	Note
MMi (Fe 62%), USD/mt excluding tax	92.95	2	Mmi CFR Equivalent index for 1st Feb
Coke	2,740	0	2nd grade met coke, Tangshan, incl. tax
Steel Scrap	2,910	100	steel scrap (6mm) in Zhangjiagang, ext. tax
Billet Cost	3,459	78	Q234, incl. tax
Rebar cost - Blast furnace	3,942	88	calculated based on theoretical weight, incl. tax
Rebar profit - Blast furnace	-122	-39	based on Shanghai prices, incl. tax
Hot-rolled coil cost - Blast furnace	3,905	86	based on actual weight, incl. tax
Hot-rolled coil profit - Blast furnace	-35	-26	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

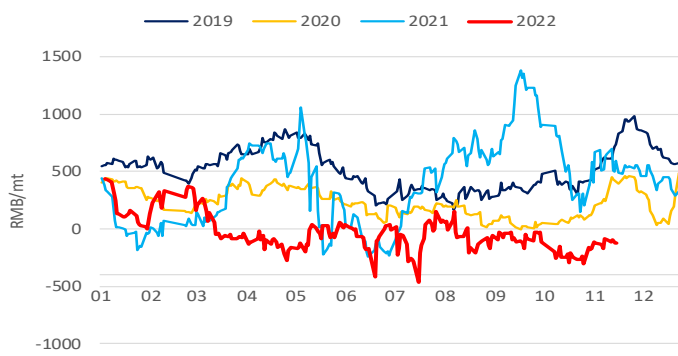
CHINESE STEEL INVENTORIES



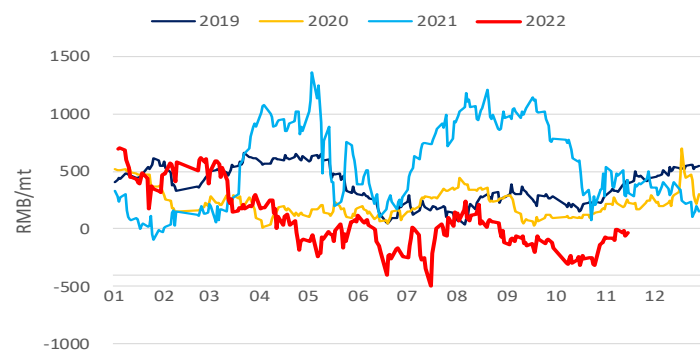
CHINESE STEEL MILL PROFITABILITY



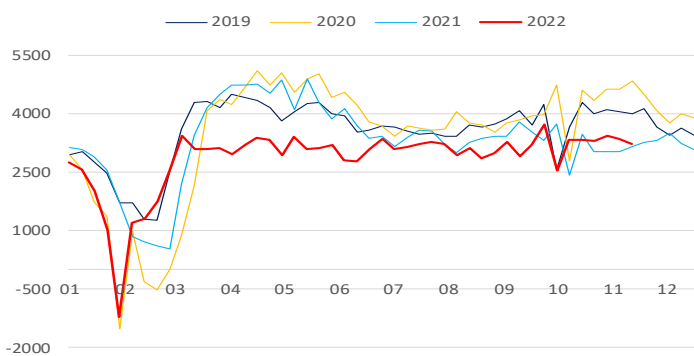
CHINESE STEEL MILL PROFITABILITY—Rebar



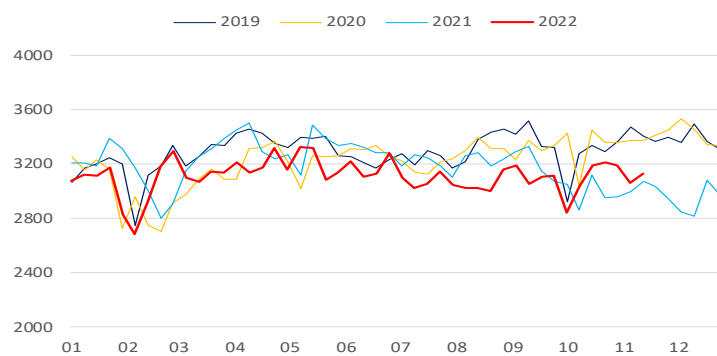
CHINESE STEEL MILL PROFITABILITY—Hot-rolled Coil



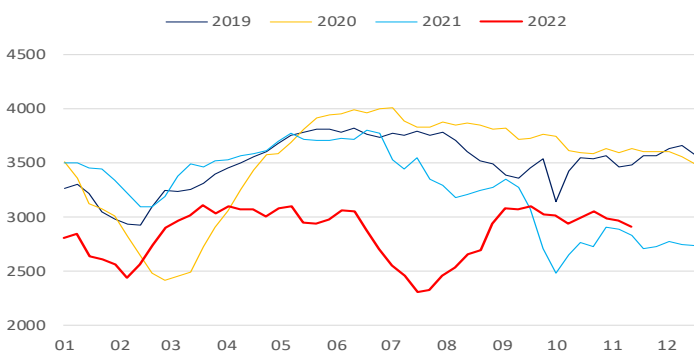
CHINESE STEEL CONSUMPTION—Rebar



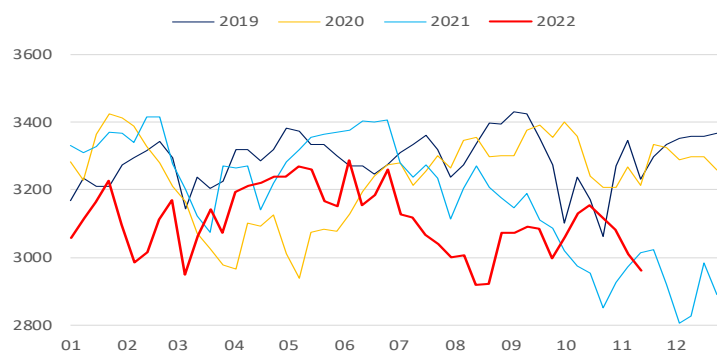
CHINESE STEEL CONSUMPTION—Hot-rolled Coil



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																					
Fe %	65.00	62.00	58.00	62.50	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																				
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%	<table border="1"> <thead> <tr> <th colspan="4">Data Exclusions*</th> </tr> <tr> <th></th> <th>62%</th> <th>58%</th> <th>65%</th> </tr> </thead> <tbody> <tr> <td>Port Index</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>Seaborne index</td> <td>0</td> <td></td> <td>0</td> </tr> <tr> <td>Lump Index 62.5</td> <td>0</td> <td></td> <td></td> </tr> </tbody> </table>	Data Exclusions*					62%	58%	65%	Port Index	0	0	0	Seaborne index	0		0	Lump Index 62.5	0		
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	62%	58%	65%																						
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Lump Index 62.5	0																								
Pricing Point	Qingdao Port (FOT and CFR respectively)			FOT Qingdao Port	* Number of price submissions for iron ore indices that were excluded from index calculations today as they were anomalous and could not be verified																				
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																					

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					
Nov 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%
Nov 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		IRCN0034
IOPI58	IRCNQ002		IRCNQ005		IRCN0035
IOPI65	IRCNQ003		IRCNQ006		
IOPLI62	IRCN0036		IRCN0037		

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