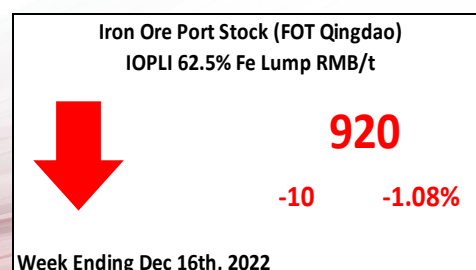
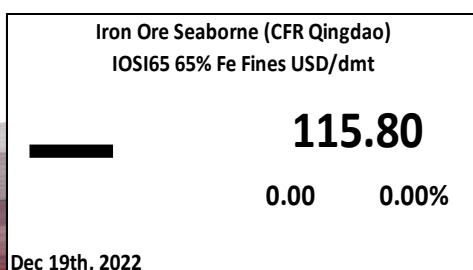
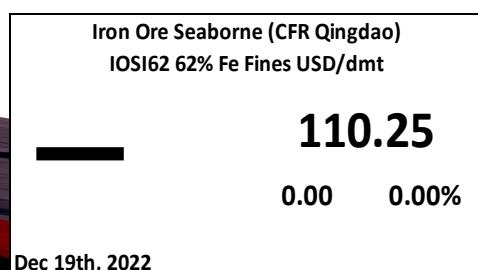
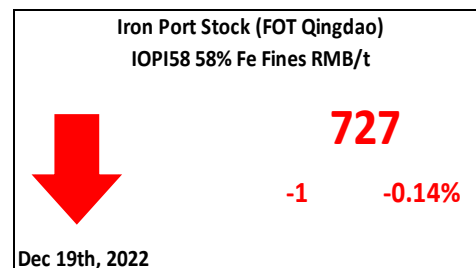
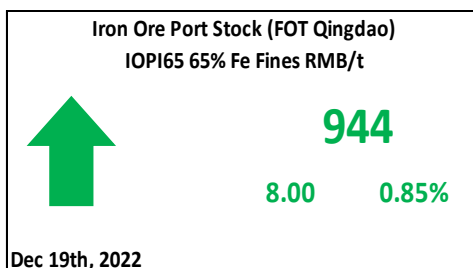
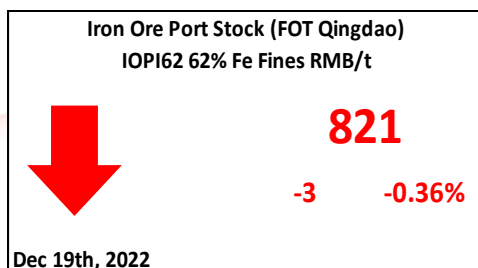


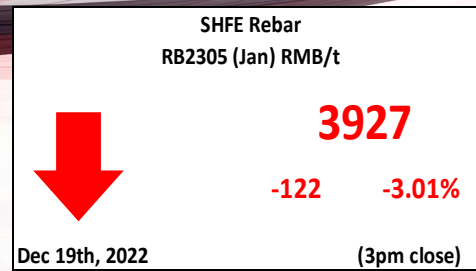
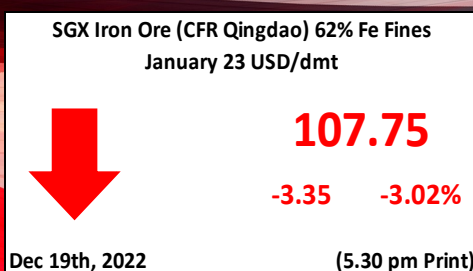
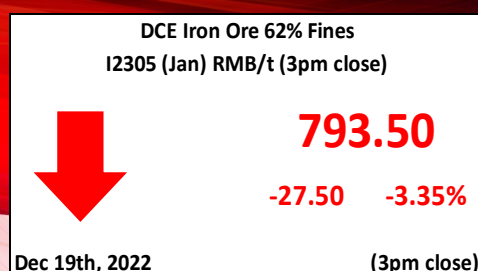


# MMi Dashboard

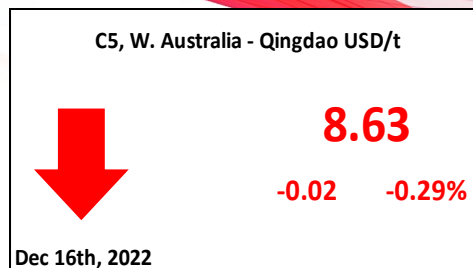
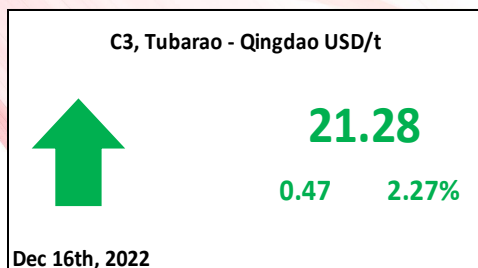
## Iron Ore Price Indices



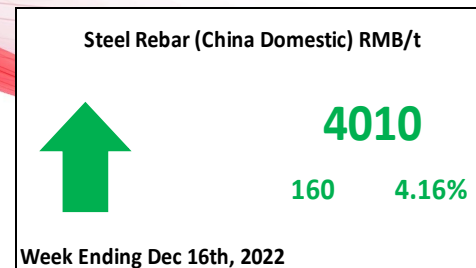
## Exchange Traded Contracts



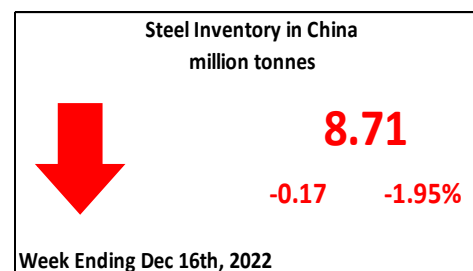
## Freight Rates



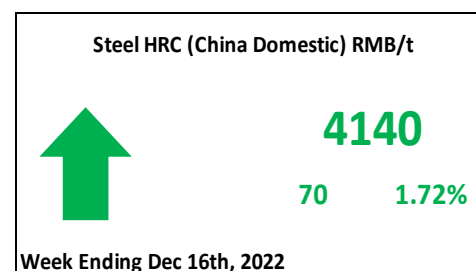
## Steel Price



## Inventory Levels



## Steel Price



## IRON ORE PORT STOCK INDEX (IOPI)

Dec 19th, 2022		FOT Qingdao (inc. 13% VAT), RMB/wet tonne							CFR Qingdao Equivalent (exc. 13% VAT), USD/dry tonne <sup>1</sup>						
Index	Fe Content	Price	Change	Change %	MTD	YTD	Low <sup>2</sup>	High <sup>2</sup>	Price	Change	Change %	MTD	YTD	Low <sup>2</sup>	High <sup>2</sup>
IOPI62	62% Fe Fines	821	-3	-0.4%	758	864	643	1083	109.37	-0.34	-0.3%	100.41	120.45	82.29	159.06
IOPI58	58% Fe Fines	727	-1	-0.1%	678	732	567	907	97.46	-0.08	-0.1%	90.35	102.33	77.29	134.15
IOPI65	65% Fe Fines	944	8	0.9%	888	1020	811	1265	126.33	1.18	0.9%	118.19	143.03	108.78	187.25

## IRON ORE SEABORNE INDEX (IOSI)

Dec 19th, 2022		CFR Qingdao, USD/dry tonne						
Index	Fe Content	Price	Change	Change %	MTD	YTD	Low <sup>2</sup>	High <sup>2</sup>
IOSI62	62% Fe Fines	110.25	0.00	0.00%	101.21	122.65	83.90	159.45
IOSI65	65% Fe Fines	115.80	0.00	0.00%	111.58	141.04	94.45	185.82

## MARKET COMMENTARY

DCE iron ore futures declined by 3.7% today, the main contract closed 793.5. 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 Shandong port dealt 808 yuan/mt, decrease 12 yuan/mt; PBF at Tangshan port dealt 814-815 yuan/mt, decrease 32-33 yuan/mt. According to the shipping data tracked by SMM, SMM shipped 34.53 million tons of iron ore globally last week, an increase of 13.3% month on month. Among them, 17.38 million tons were shipped from Australia to China, an increase of 10.3% month on month; Brazil sent 3.11 million tons to China, up 51.7% month on month. However, the total amount of iron ore arriving at the port in China was 24303300 tons, a month on month decrease of 11%. Based on the calculation of the shipping date, the decline in the amount of iron ore arriving at the port this time was consistent with the previous shipment reduction. On the demand side, the output of crude steel dropped sharply from October to November, and there was no pressure on crude steel in December. In addition, according to the maintenance data of SMM statistics, the output of molten iron this week may still be at a high level, and the demand for iron ore is still

## 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 <sup>3</sup>						
Index	Fe Content	Price	W-o-W	Change %	MTD	YTD	Low <sup>2</sup>	High <sup>2</sup>	Price	W-o-W	Change %	MTD	YTD	Low <sup>2</sup>	High <sup>2</sup>
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

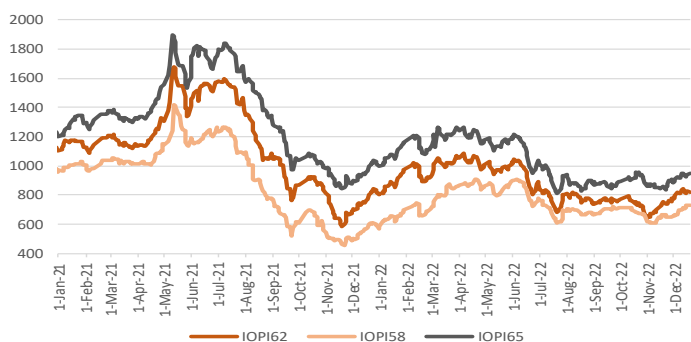
Week Ending Dec 16th, 2022				RMB/tonne (excluding tax) <sup>3</sup>				USD/tonne (excluding tax) <sup>3</sup>			
Province	Region	Product	Basis	This week	Change %	Low <sup>2</sup>	High <sup>2</sup>	This week	Change %	Low <sup>2</sup>	High <sup>2</sup>
Hebei	Hanxing	66% Fe Concentrate	Dry	992	3.9%	779	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 <sup>2</sup>	High <sup>2</sup>
China Mines Concentrate Composite Index RMB/WT	883.25	3.51%	706.36	1511.22

<sup>1</sup> Exchange rate applied: RMB/USD = 6.7522    <sup>2</sup> Last 12 months  
<sup>3</sup> 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 19th, 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	758	760	864	106.64	101.14	95.56	92.18	100.41	101.42	120.45
IOPI58	58% Fe Fines	685	697	683	635	678	678	732	94.05	93.56	89.34	82.39	90.35	91.09	102.33
IOPI65	65% Fe Fines	878	875	918	865	888	893	1020	120.31	117.19	120.08	112.37	118.19	119.74	143.03

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

Dec 19th, 2022		CFR Qingdao, USD/dry tonne							Dec 16th, 2022				FREIGHT RATES - DRY BULK US\$/wet tonne			
Index	Fe Content	August	September	October	November	MTD	QTD	YTD	Route	Designation	Change	Change %	Low <sup>2</sup>	High <sup>2</sup>		
IOSI62	62% Fe Fines	110.64	101.12	95.80	93.05	101.21	102.74	122.65	W. Australia - Qingdao	C5	8.63	-0.02	-0.29%	3.57	16.77	
IOSI65	65% Fe Fines	112.53	111.57	106.70	102.40	111.58	113.83	141.04	Tubarao - Qingdao	C3	21.28	0.47	2.27%	6.70	36.40	

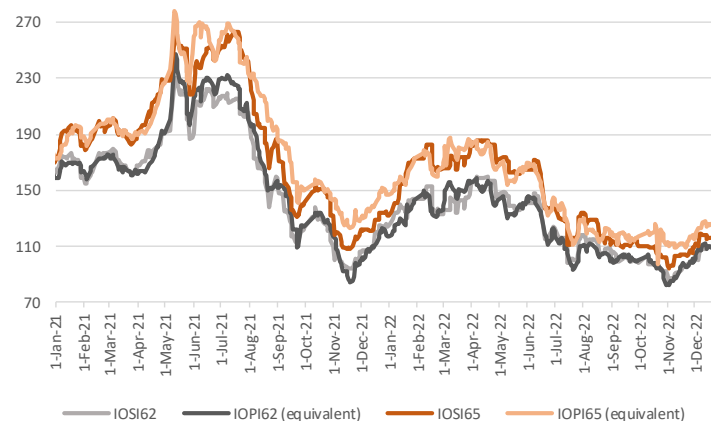
## IRON ORE PORT LUMP INDEX MONTHLY, QUARTERLY AND YEAR-TO-DATE AVERAGES

Week Ending Dec 16th, 2022		FOT Qingdao (inc. 13% VAT), RMB/wet tonne							CFR Qingdao Equivalent (exc. 13% VAT), USD/dry tonne <sup>1</sup>						
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 19th, 2022		PORT STOCK INDEX (RMB/WT)		Dec 19th, 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	-94	-11.45%	IOSI65	65% Fe Fines	5.55	5.03%
IOPI65	65% Fe Fines	123	14.98%				

## IRON ORE INDEX COMPARISONS (USD/DMT)



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



## IRON ORE BRAND SPOT PRICE ASSESSMENTS

Dec 19th, 2022				Dec 19th, 2022			
PORT STOCK INDEX (RMB/WT)				SEABORNE INDEX (USD/DMT)			
	Price	Change	Diff to IOPI62		Price	Change	Diff to IOSI62
Roy Hill	764	-3	-57	Roy Hill	105.75	0.00	-4.50
SIMEC Fines	692	-3	-129	SIMEC Fines	102.25	0.00	-8.00
PB Fines	790	-3	-31	PB Fines	106.50	0.00	-3.75
Newman Fines	789	-3	-32	Newman Fines	109.35	0.00	-0.90
MAC Fines	771	-3	-50	MAC Fines	106.50	0.00	-3.75
Jimblebar Blended Fines	685	-3	-136	Jimblebar Blended Fines	98.85	0.00	-11.40
Carajas Fines	1001	-3	180	Carajas Fines	139.80	0.00	29.55
Brazilian SSF	784	-3	-37	Brazilian SSF	114.00	0.00	3.75
Brazilian Blend Fines	803	-3	-18	Brazilian Blend Fines	115.60	0.00	5.35
RTX Fines	704	-3	-117	RTX Fines	100.10	0.00	-10.15
West Pilbara Fines	732	-3	-89	West Pilbara Fines	104.50	0.00	-5.75

Dec 19th, 2022			
PORT STOCK INDEX (RMB/WT)			
	Price	Change	Diff to IOPI58
SSF	727	-1	0
FMG Blended Fines	736	-1	9
Robe River	737	-1	10
Western Fines	739	-1	12
Atlas Fines	734	-1	7
Yandi	720	-1	-7

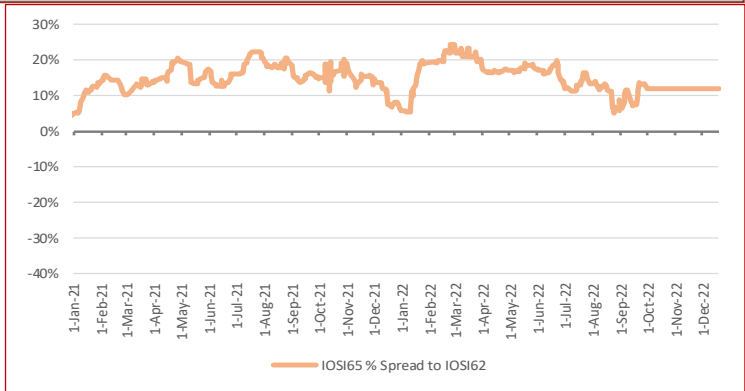
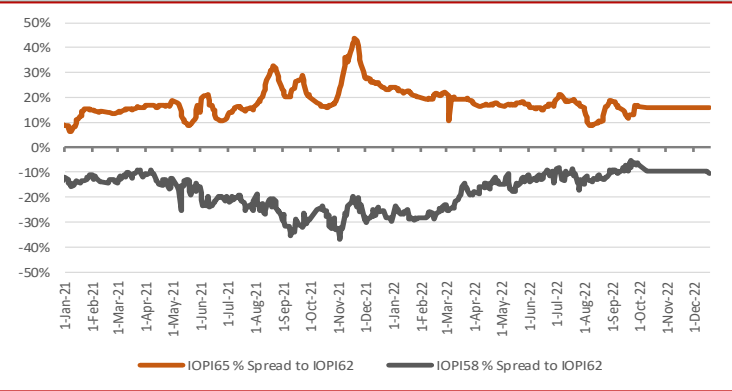
## IRON ORE INDEX NORMALISATION DIFFERENTIALS

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	1.00	1% Fe	High Grade Fe 60 - 63%	2.25	0.00
	High Grade Fe 63 - 64%	34.00	5.00		High Grade Fe 63 - 64%	0.25	0.00
	High Grade Fe 64 - 65%	34.00	5.00		High Grade Fe 64 - 65%	0.25	0.00
	High Grade Fe 65 - 65.5%	34.00	5.00		High Grade Fe 65 - 65.5%	0.25	0.00
1% Alumina	Low Grade Fe	17.00	2.00	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%	2.25	0.00
	High Fe Grade Al 2.25-4%	38.00	5.00				
	Low Fe Grade Al <2.25%	48.00	-5.00				
1% Silica	Low Fe Grade Al 2.25-4%	11.00	4.00	1% Silica	High Fe Grade Si <4%	0.25	0.00
	High Fe Grade Si <4%	42.00	3.00		High Fe Grade Si 4 - 6.5%	2.00	0.00
	High Fe Grade Si 4-6.5%	42.00	1.00				
0.01% Phosphorus	Low Fe Grade	7.00	2.00	0.01% Phosphorus	High Fe Grade 0.09%<P<0.115%	1.25	0.00
	High Fe Grade 0.09%<P<0.115%	18.00	3.00		High Fe Grade 0.115%<P<0.15%	2.75	0.00
	High Fe Grade 0.115%<P<0.15%	18.00	3.00				
	Low Fe Grade 0.09%<P<0.1%	5.00	0.00				

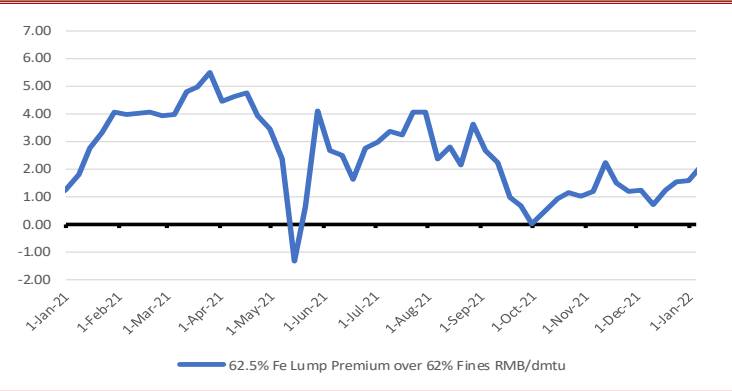
## Port Stock Price Differentials to Qingdao Port for PB Fines (RMB/wet tonne)

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	10.00	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

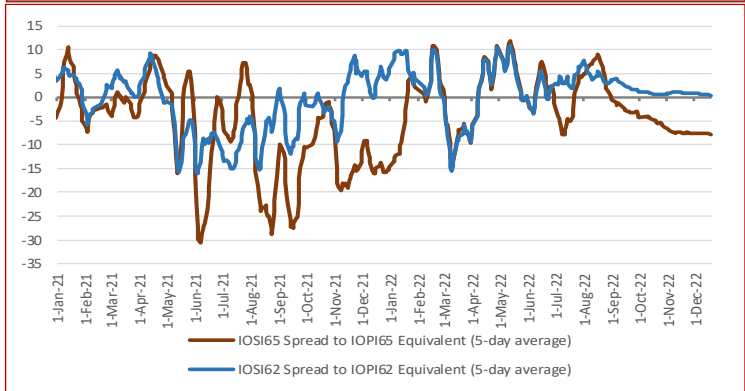
IRON ORE INDEX PREMIUMS/DISCOUNTS



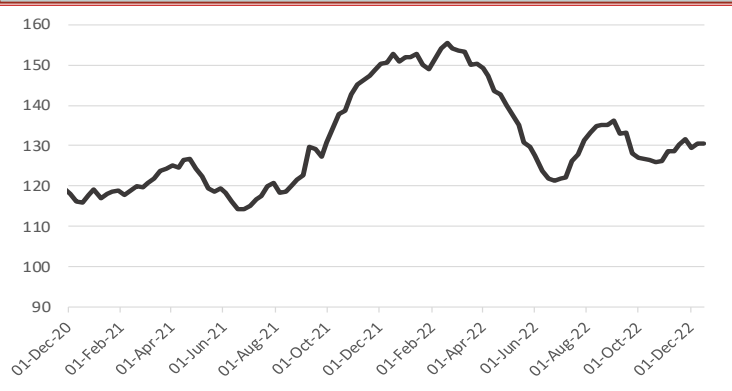
WEEKLY IRON ORE PORT STOCK LUMP PREMIUM (RMB/DMTU)



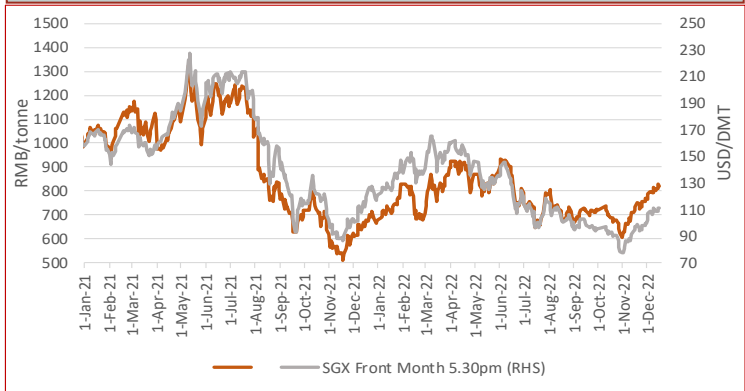
IRON ORE SEABORNE TO PORT STOCK PRICE SPREADS (USD/DMT)



TOTAL IRON ORE INVENTORIES AT CHINA PORTS (MILLION TONNES)



FUTURE TRADING—FRONT MONTH CLOSING PRICE



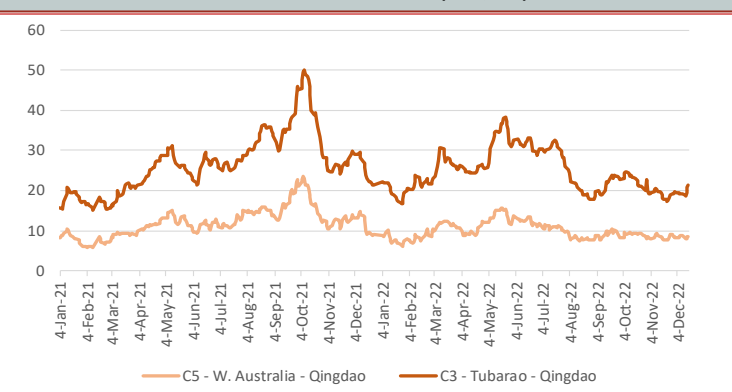
IRON ORE PORT INVENTORIES (MILLION TONNES)

Week Ending Dec 16th, 2022				
Province	This week	Change %	Low <sup>2</sup>	High <sup>2</sup>
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
<b>Total (35 Ports)</b>	<b>130.63</b>	<b>0.15%</b>	<b>98.80</b>	<b>155.39</b>

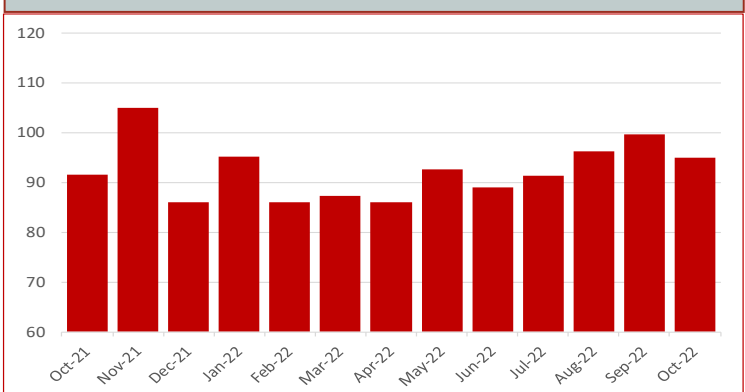
IRON ORE FUTURES CONTRACTS

Closing Date	DCE (RMB/WMT)			SGX (USD/DMT)		
	Dec 19th, 3pm close	Change	Change %	Dec 19th, 5:30pm	Change	Change %
Contract	12305			Jan. 23		
Closing Price	793.50	-27.50	-3.35%	107.75	-3.35	-3.02%
Vol traded ('000 lots)	109.19	-3.67	-3.25%	3.69	-1.27	-25.62%
Open positions ('000 lots)	77.41	-0.91	-1.16%	32.62	-0.18	-0.55%
Day Low	792.0	-11.00	-1.37%	107.20	0.00	0.00%
Day High	821.5	-20.00	-2.38%	111.30	-1.60	-1.42%

DRY BULK FREIGHT RATES (USD/MT)



TOTAL CHINA IRON ORE IMPORT VOLUMES (MILLION TONNES)



STEEL SPOT MARKET PRICES—CHINA

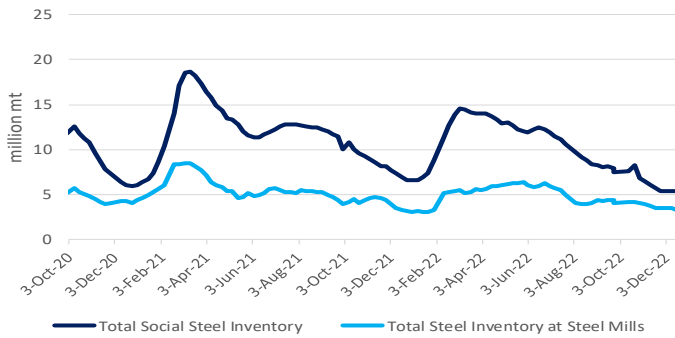
Product	2022/12/16	Change	Change %
ReBar HRB400 φ18mm	4,010	160	4.16%
Wirerod Q300 φ6.5mm	4,280	60	1.42%
HRC Q235/SS400 5.5mm*1500*C	4,140	70	1.72%
CRC SPCC/ST12 1.0mm*1250*2500	4,560	120	2.70%
Medium & Heavy Plate Q235B 20mm	4,190	120	2.95%
GI ST02Z 1.0mm*1000*C	4,850	120	2.54%
Colour Coated Plate	7,530	80	1.07%

CHINESE STEEL MILL PROFITABILITY

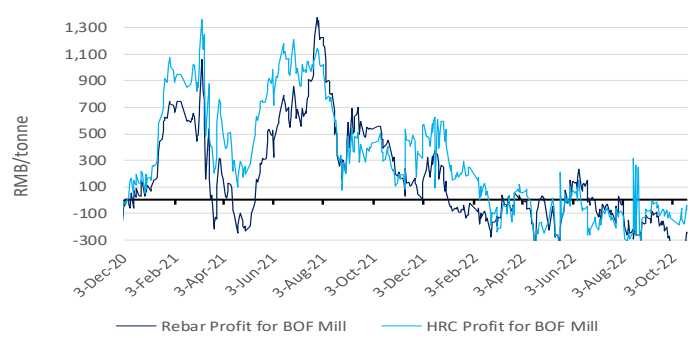
SMM Tracking of Steel Mill P&L - Rebar and Hot-rolled Coil (RMB/tonne)			
Category	Price	Change (WoW)	Note
MMi (Fe 62%), USD/mt excluding tax	110.25	3	Mmi CFR Equivalent index for 1st Feb
Coke	3,070	110	2nd grade met coke, Tangshan, incl. tax
Steel Scrap	3,090	80	steel scrap (6mm) in Zhangjiagang, excl. 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

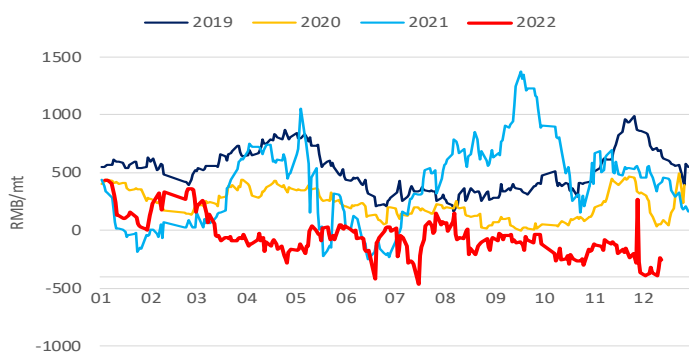
CHINESE STEEL INVENTORIES



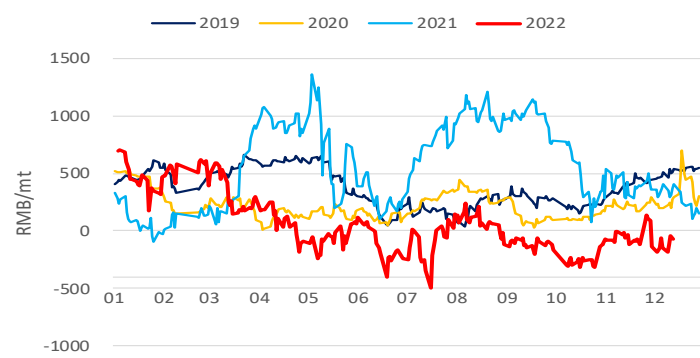
CHINESE STEEL MILL PROFITABILITY



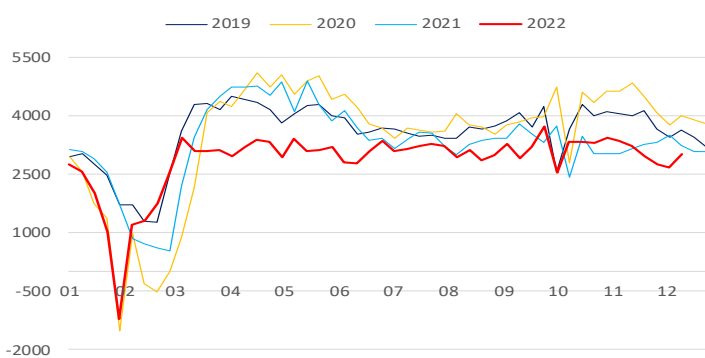
CHINESE STEEL MILL PROFITABILITY—Rebar



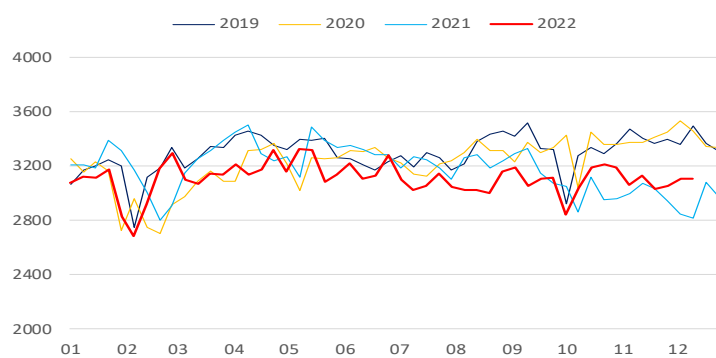
CHINESE STEEL MILL PROFITABILITY—Hot-rolled Coil



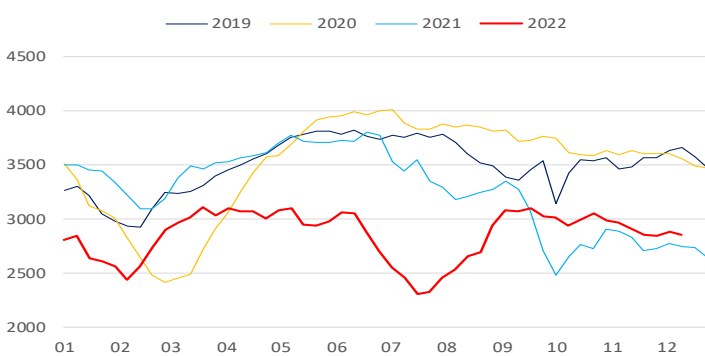
CHINESE STEEL CONSUMPTION—Rebar



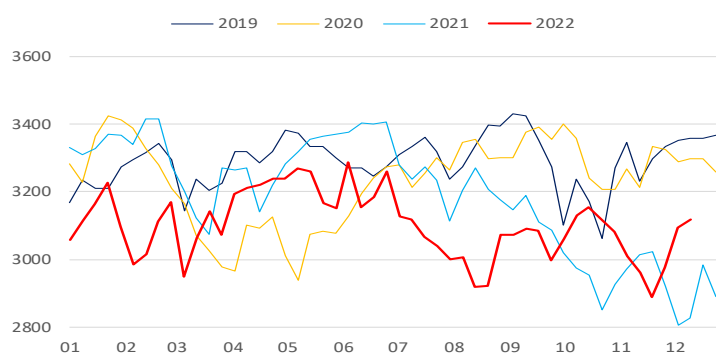
CHINESE STEEL CONSUMPTION—Hot-rolled Coil



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
	<b>65% Fe Fines</b>	<b>62% Fe Fines</b>	<b>58% Fe Fines</b>	<b>62.5% Fe Lump</b>	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: <a href="http://www.mmiprices.com">www.mmiprices.com</a>
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 19th, 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 19th, 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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