Investors should note that CRU has been engaged by our Company to prepare a report to provide an overview of the global and Chinese iron ore industry, which will be used for use in whole or in part in this Prospectus.

CRU is a research and consulting company specialising in the international metals, mining and electricity industries, and the views contained in this report are solely those of CRU. CRU prepared its report based on its in-house database, independent third-party report and publicly available data from reputable industry organisations.

Part of the statistical and graphical information contained in this Industry Overview is provided by CRU. CRU has advised that (i) some information in CRU's database is derived from estimates from industry source or subjective judgments; and (ii) the information in the database of other mining industry data collection agencies may differ from the information in CRU's database.

The information and statistics set out in this section have been extracted from the research report compiled by CRU and other publicly available sources. CRU and our Directors believe that the sources of this information are appropriate sources for such information and have taken reasonable care in extracting and reproducing such information. CRU and our Directors have no reason to believe that such information is false or misleading or that any fact has been omitted that would render such information false or misleading.

No independent verification has been carried out on such information and statistics by us, the Sole Sponsor, the Sole Bookrunner, the Underwriters, their respective affiliates, directors and advisers or any other parties involved in the Share Offer, and none of them makes any representation as to the accuracy or completeness of such information.

SOURCE OF INFORMATION

CRU Report

This prospectus contained information extracted from the CRU Report in sections such as "Summary", "Risk factors", "Industry overview", "Business", and "Financial information". The sources cited in this "Industry overview" section are in the form provided in the CRU Report, unless otherwise noted.

CRU, an experienced consultant in the mining & metals industry, has been engaged to provide the CRU Report for use in whole or in part in this document. The research and writing of the CRU Report was a desktop exercise carried out by experienced CRU professionals who have extensive knowledge of the iron ore sector. CRU utilizes its in-house database, independent third-party reports and publicly available data from reputable industry organizations to prepare the CRU Report. Where necessary, CRU's researchers contact companies operating in the industry to gather and synthesize information about the market, prices and other relevant information. CRU applied its own professional judgment and analysis to the data from 3rd party sources to form the statistics and data used in the report.

CRU has confirmed that it is not aware of anything which could possibly lead it to believe that this assumption is unfair, unreasonable or incomplete. The CRU report was last updated in April 2012 based upon date published in January 2012.

CRU operates at strict international standards of moral, legal and professional conduct. CRU guards its reputation for independence and confidentiality with great care. CRU has more than 40 years of commercial project experience in the metals and mining industry.

We have paid CRU a total of approximately RMB576,000 in fees for the preparation of the CRU Report. We believe that the fees are reasonable for the preparation of an industry report by an independent third-party consultant.

Others

We have not engaged USGS, GTIS, Asian Metals, Oxford Economics, NBS, International Titanium Association and Metallurgical Mines' Association of China, when preparing data quoted in this Prospectus. Data from these resources were not prepared on a commissioned basis by us.

INTRODUCTION TO IRON ORE

Iron ore and its main uses

The dominant use of iron ore is in steel making, about 98% of mined iron ore is used as a raw material in the fabrication of steel while the remaining 2% of mined ore is used in marine-grade concrete, and in chemical and industrial applications.

Iron ore is one of the key raw materials in the iron making process, a process which converts primary iron units (ore) to a product that is around 96% iron. The iron making process may take the form of the blast furnace method or the direction reduction furnace method. In a blast furnace pig iron will be produced, and in a direct reduction furnace Direct Reduced Iron (DRI) or Hot Briquetted Iron (HBI) is produced.

Types of iron ore products

Generally iron ore is produced from two types of iron ore mineral: haematite and magnetite. The amount of iron (Fe) contained in iron ore varies, haematite ores are usually with higher grade (>60% Fe) and magnetite lower grade (<30% Fe). Sometimes deposits can be a mixture of the two ores. Haematite ores typically produce lump and fines through crushing and screening. Magnetite ores require upgrading, and hence are beneficiated as well, this process decreases the grain size of the material and usually produces a pellet feed or fines product. In order for iron ore to be used in a furnace it must have an iron content of over 58% Fe.

Iron products can be grouped into different types according to the size (diameter) of the products, a description of the products obtained from both types of ore deposit, and their relative values is given below. Typical size intervals are given for the diameter of each product in brackets.

- **Sinter Fines (150μm-6.8mm):** This is the baseline product in the iron ore market, from which other products are priced. Fines are agglomerated into pebble-sized balls of ore called "sinter" at the sinter plant of a steel mill before use in a furnace. This process involves mixing the fines with a flux and baking; the resultant operating cost causing fines to have a lower relative value than lump ore and pellets, as the latter two can be directly charged to a furnace.

- **Lump (6.8mm-15mm):** Irregularly sized lumps of iron ore which can be charged directly into a furnace, enabling a steel producer to avoid the cost of sintering iron ore fines. Lump therefore is sold at a premium to fines. Generally this product is not obtained from magnetite ore.

- **Pellets (10mm):** Uniform size and composition give pellets the highest value in use, meaning they provide the most efficient source of iron units to a furnace, and as such they command a strong value position. Pellets are manufactured by the agglomeration of pellet feed.

- **DR grade pellets (10mm):** This grade of pellet contains lower than 2% combined silica and alumina, making it suitable for conversion to direct-reduced iron (DRI), a high value product used in certain types of steelmaking furnace. As such, it commands a 5-10% premium as of 2011 over conventional pellets (normally referred to as blast furnace or BF grade pellets).

- **Pellet feed (60μm[1] – 150μm):** Pelletising process required to convert the pellet feed into useable pellets. Approximately 1.02 tonnes of pellet feed are required to make one tonne of pellet.

Concentrates: Some iron ore products are referred to as "concentrates", which is a term used to describe a material that has undergone beneficiation at the mine, and can refer to as either "pellet feed" or "fines".

1 Pellet feed with a diameter of less than 60μm can present handling issues and increase transportation costs. Furthermore, pellet plants often prefer coarser grade pellet feed, as it can be ground to their own specifications.

OVERVIEW OF THE IRON ORE INDUSTRY

Global iron ore industry

Global iron ore reserves

Global iron ore resources are estimated to be approximately 800 billion tonnes (Bt) by the United States Geological Service ("**USGS**") and to contain approximately 230 Bt of iron. In 2010, global iron ore reserves were estimated to be approximately 180 Bt by the USGS with an iron content of approximately 87 Bt.

In 2010, crude iron ore reserves in Ukraine, Russia, China, Australia and Brazil collectively accounted for 72.8% of the world total iron ore reserves. The table below sets out the distribution of estimated raw iron ore reserves globally.

World Iron Ore Reserves by Country in 2010 (Mt)

	Raw Iron Ore		Contained Iron	
Country	**Reserves**	**% of World Total**	**Reserves**	**% of World Total**
Ukraine	30,000	16.7%	9,000	10.3%
Brazil	29,000	16.1%	16,000	18.4%
Russia	25,000	13.9%	14,000	16.1%
Australia	24,000	13.3%	15,000	17.2%
China	23,000	12.8%	7,200	8.3%
Other Countries	49,000	27.2%	25,800	29.7%
World Total	180,000	100.0%	87,000	100.0%

Source: USGS

Note: Relevant data for 2011 is not yet available

China accounted for approximately 12.8% of the world total crude iron ore reserves or approximately 23 Bt in 2010. However, the deposits in China are mostly low-grade ores, and require beneficiation and agglomeration for commercial use.

Global demand for iron ore products

Demand for iron ore products is driven principally by the production of steel. Steel is widely used in infrastructure development, construction, and manufacturing industries such as automotive, shipbuilding, railway, machinery and electronic appliances.

World crude steel production totalled almost 1,500 Mt in 2011, an increase of 7.0% year-on-year, after the collapse in demand led to a contraction of 8.0% in global steel output in 2009. Crude steel production grew at a CAGR of 4.7% per annum over 2005 to 2011, on account of growth in Chinese steel production of 91.7% over the same period. The world's largest steel producing countries/regions are China, Europe, the CIS and North America, producing about 681 Mt, 177 Mt, 113 Mt and 117 Mt of crude steel representing about 45%, 12%, 8% and 8% of the world's production of crude steel in 2011, respectively. Growth is 2011 returned to 7% year-on-year and total crude steel production was 1.51 Mt.

World crude steel production is expected to experience further growth of an average of 4.5% per year in the period to 2015, driven by strong growth in Asia, especially China. Asian crude steel production will add another 212 Mt to global output by 2015, around 74% of which will come from China.

The following table sets forth crude steel production data by region for 2005 through 2015:

Crude steel production, 2005-2016E (million tonnes)

	2005	2006	2007	2008	2009	2010	2011	2012E	2013E	2014E	2015E	2016E	CAGR 2010-2016
North America	126	130	131	123	82	110	117	121	126	130	134	135	3.5%
South America	46	46	49	48	39	45	50	54	56	59	61	63	5.7%
Europe	220	235	240	230	168	206	216	217	225	233	239	237	2.3%
CIS	113	120	124	116	98	108	113	119	125	129	132	133	3.4%
China	355	421	495	501	568	624	681	710	757	798	838	853	5.3%
Middle East & Africa	34	36	37	36	35	39	39	40	43	47	51	52	4.9%
Rest of Asia	246	256	271	272	233	274	292	302	317	334	347	349	4.1%
Oceania	9	9	9	8	6	8	7	6	6	6	6	6	(4.1%)
Total	**1,150**	**1,253**	**1,357**	**1,334**	**1,228**	**1,416**	**1,515**	**1,569**	**1,655**	**1,737**	**1,808**	**1,828**	**4.4%**

Data: CRU

Iron ore products consumption

For the period from 2000 to 2011, global consumption of iron ore products (pellet, sinter fines, and lump) increased at a CAGR rate of 4.1% to reach almost 1,800 Mt in 2011. In 2011, iron ore product consumption recovered from the previous year's level, growing 3.5% year-on-year, compared to a decline of 3.6% in 2009, as a result of the contraction in global steel production. China has been the leading driver of the world's iron ore product demand growth in 2011, accounting for 86.9% of the growth in iron ore consumption in 2011.

According to CRU, global consumption of iron ore products (pellet, sinter fines, and lump) is forecast to increase to more than 2,190 Mt in 2015. The table below sets forth the iron ore products consumption by major region/country historically for the period of 2005 to 2011 and forecast from 2012 to 2015:

Global consumption of iron ore products (pellets, sinter fines & lump) (Mt), 2005-2015E

	2005	2006	2007	2008	2009	2010	2011	2012E	2013E	2014E	2015E
North America	87	87	88	84	52	72	77	81	85	89	91
South America	72	72	75	68	49	57	65	72	75	78	82
Europe	131	136	137	131	94	121	122	124	129	132	134
CIS	137	145	148	138	121	131	132	140	149	157	161
China	497	575	700	705	826	894	975	1,035	1,102	1,159	1,213
Middle East & Africa	42	42	43	43	43	48	48	54	60	64	67
Rest of Asia	250	261	288	293	258	302	314	328	345	362	373
Oceania	9	10	9	9	6	9	8	5	5	5	6
of which: unaccounted imports/stock changes	72	66	63	80	45	97	83	60	63	64	66
Total	1,297	1,394	1,553	1,551	1,495	1,730	1,825	1,899	2,012	2,110	2,193

Data: CRU

Iron ore trade and competition

Total consumption of iron ore products imported from other countries totalled about 1,100 Mt in 2011, up about 4.1% from 2010 levels. In other words, about 62% of total consumption of iron ore products was met by ore imported from other countries. The largest importer of iron ore products in the world is China, which imported about 665 Mt in 2011, which accounted for about 58.7% of the total consumption of imported ore in that year.

The seaborne iron ore products market, namely iron ore products shipped to other countries, totalled about 1,079 Mt in 2011. The seaborne iron ore products market experienced rapid growth in recent years, growing at a CAGR of 8.0% per annum over 2005 to 2011. The main driver of the growth in the seaborne market has been China, which accounted for about 60.6% of the global seaborne market of iron ore products in 2011, compared to only about 40% in 2005 and about 16% in 2000.

The global iron ore industry is highly consolidated, and the main suppliers to the seaborne market are the "Big Three" iron ore producers, namely Vale, Rio Tinto and BHP Billiton. These three companies accounted for about 36% of the world's iron ore production and about 55% of the world's exports in 2010. The top ten major exporters of iron ore accounted for about 69% of world exports in 2010 which was largely unchanged in 2011.

The table below sets forth the top ten major iron ore exporters in 2010 and 2011:

Global exports of iron ore, top ten major exporters (Mt), 2010 and 2011

Company	**Iron ore exports in 2010**	**Iron ore exports in 2011**
Vale	251	261
Rio Tinto	189	191
– Hamersley Iron (100%)	*133*	*133*
– Robe River (53%)	*32*	*32*
– Hope Downs (50%)	*16*	*16*
– Iron Ore Company of Canada (IOC) (58.7%)	*9*	*10*
BHPB	133	152
Fortescue Metals Group (FMG)	42	45
Kumba	36	37
CSN	26	26
Samarco	23	23
LKAB-Sweden	19	20
ArcelorMittal Mines Canada	11	11
SNIM-Mauritania	11	12
Total iron ore exports of Top 10 companies	**741**	**777**
% of world total exports	**68%**	**69%**

Data: CRU

Note: Totals may not add up due to rounding errors

Australia and Brazil are the leading exporters of iron ore and second and third largest producers on a gross tonnage basis. In 2011, Australia exported about 462 Mt of iron ore, a 6.8% year-on-year increase from 2010 levels. Brazil exported about 325 Mt or iron ore in 2011, an increase of 4.3% year-on-year.

The seaborne market for iron ore is expected to grow from 1,000 Mt in 2011 to 1,400 Mt in 2015, spurred on by increased demand from China. Chinese imports of iron ore are forecast to grow at a CAGR of 9.9% per annum over 2011 to 2015, owing to a concurrent increase in consumption, plus a decline in domestic iron ore supply, on account of declining ore grades. By 2015, China is expected to account for about 68.1% of the global seaborne market.

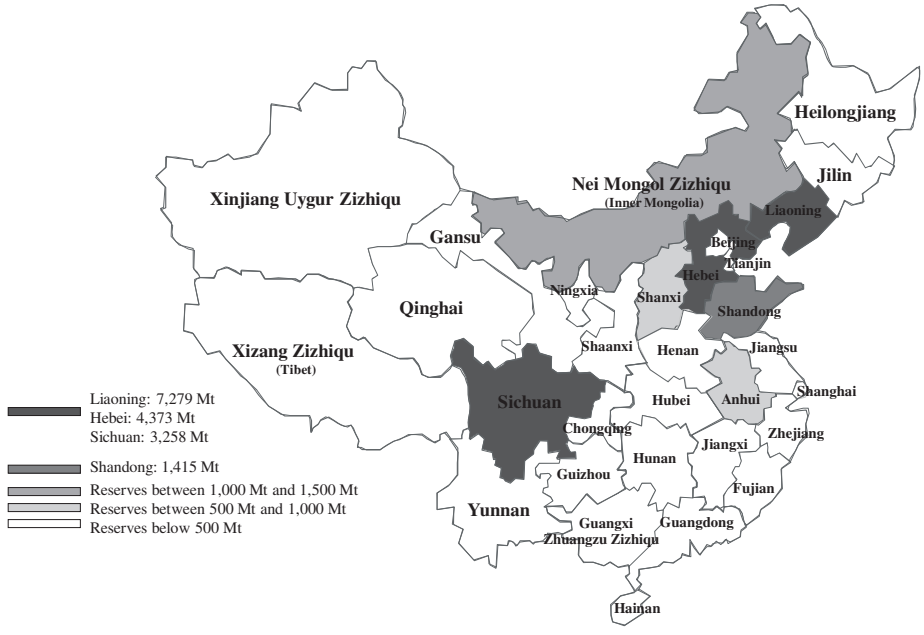
PRC IRON ORE INDUSTRY

PRC iron ore reserves

According to the USGS, China ranked fifth globally in terms of iron ore reserves, accounting for about 13%, or approximately 23,000 Mt of global iron ore reserves in 2010. In terms of contained iron this percentage falls to 8% due to the lower grade of most Chinese deposits. According to the National Bureau of Statistics of China ("**NBS**"), these reserves were primarily situated in the north-eastern and northern regions of China, which together accounted for about 61.1% of China's total iron ore reserves in 2010. Liaoning, Hebei and Shandong are the leading provinces in terms of iron ore reserves, accounted for about 31.4%, 18.9% and 6.0%, respectively, of the total Chinese iron ore reserves in 2010. Relevant data for 2011 is not yet available.

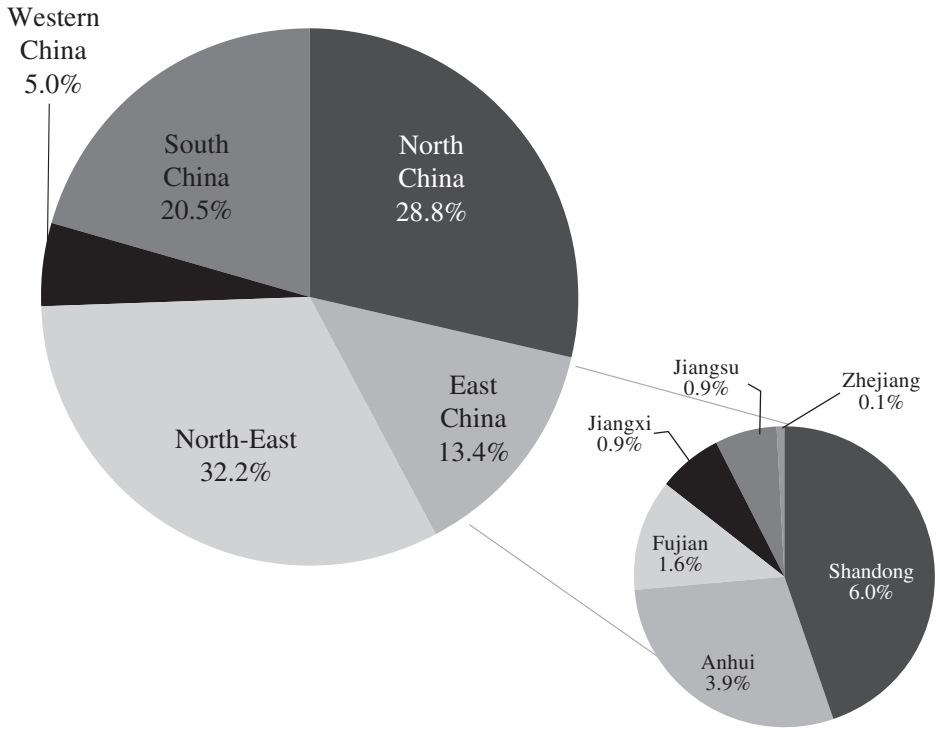
The following map and chart sets forth the estimated distribution of China's iron ore reserves in 2010:

Distribution of Chinese ore reserves 2010



Source: NBS, CRU

China's iron ore reserves by region in 2010



Source: NBS, CRU

As China's steelmaking is centred along the eastern seaboard, most Chinese iron ore production is also located there due to the proximity of end-users and also significant reserves of iron ore. In the more southerly provinces iron ore reserves tend to be lower which means that more iron ore needs to be imported from overseas or from other regions of China. According to CRU, the need to import material adds significantly to price achievable from local iron ore mines as prices must include the additional freight charges.

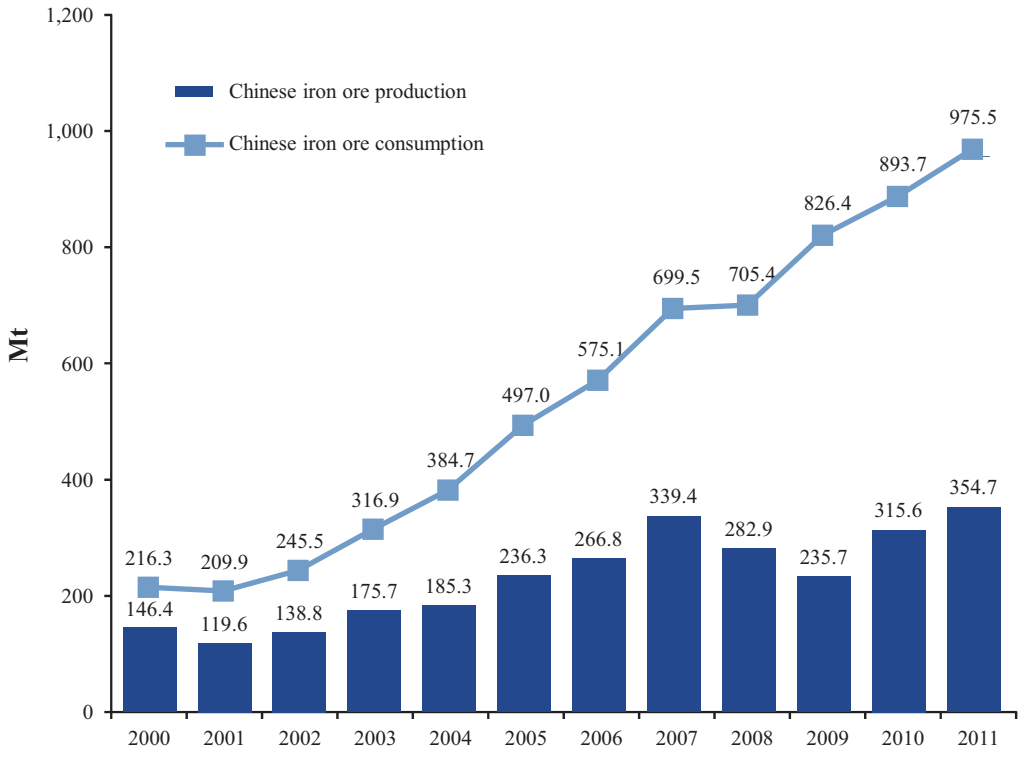
PRC iron ore production

Raw iron ore production in China reached approximately 1,326.9 Mt in 2011. Chinese iron ore mines typically have lower iron content compared to most mines serving the seaborne market. As a result, although China is the largest gross tonnage producer of iron ore, it does not produce the highest number of iron units.

A lack of iron ore supply on the seaborne market has seen China more than double its raw iron ore and iron ore product production since 2004 in order to satisfy the requirements of the domestic steel industry. In order to meet this demand, and attracted by historically high prices, many high-cost mines have opened in China, according to CRU. As supply increases in the seaborne market, CRU forecasts that those higher cost Chinese operations will close, leaving lower-cost Chinese producers to compete with the seaborne suppliers.

The following chart sets forth domestic production and consumption of iron ore products in China, for the period from 2005 to 2011:

Chinese iron ore production and consumption (Mt), 2000-2011



Source: CRU

The Chinese iron ore industry is highly fragmented, in comparison with the seaborne market, and had over 1,200 registered iron ore mines in 2010, according to CRU. The ten largest domestic raw iron ore producers produced about 169.9 Mt of raw iron ore and about 58.1 Mt of iron ore concentrates in 2010, accounting for about 19.5% of total raw ore production in China during the same period. The majority of the larger mines and mining companies are associated with the larger steel producers. This leaves a smaller pool of iron ore miners, with varying production costs, serving a dynamic market for iron ore products in China.

The following table sets forth the output of the ten largest iron ore producers in China in 2010:

Top ten Chinese iron ore companies in 2010

Rank	Company Name	Raw iron ore (Mt)	Iron Concentrates (Mt)
1	Anshan Steel	45.6	15.6
2	Hebei Iron and Steel Mining Company	26.4	9.8
3	Panzhihua Steel	20.9	7.5
4	Benxi Steel	17.7	6.5
5	Taiyuan Steel	13.8	5.5
6	Baotou Iron and Steel Group	13.4	4.9
7	Shougang Mining Company	10.8	4.6
8	Ma'anshan Steel	8.7	3.2
9	Hanxing Mining	7.0	2.7
10	Wuhan Steel	5.6	3.9
Total		**169.9**	**58.1**

Data: China Iron & Steel Association (CISA) and CRU estimates

Note 1: Raw iron ore production refers to the amount of material collected at the mine, also known as run-of-mine production; concentrates refers to a saleable product for use in the steel industry after beneficiation.

Note 2: Relevant data for 2011 is not yet available.

The following chart shows Chinese iron ore production by province in 2011. Production is dominated by the Hebei and Liaoning provinces which are also the largest steel producing areas in China. According to CRU Report, Shandong province accounted for about 2.1% of iron ore production in China in 2010 while it accounted for about 8.4% of Chinese steel output. This means that Shandong province faces second largest shortfall in iron ore supply after Hebei province. Shandong province accounted for about 1.4% of iron ore production in China in 2011, and once again faced the second largest shortfall in iron ore supply after Hebei province.

Chinese iron ore production by Province (Mt), 2011
Total Production = 1,326.9 Mt

Province	Iron ore production (Mt)	Percentage of total Chinese iron ore production (%)
Hebei	556.0	41.9
Liaoning	143.0	10.8
Sichuan	125.8	9.5
Inner Mongolia	92.3	7.0
Shanxi	66.1	5.0
Anhui	35.6	2.7
Fujian	24.9	1.9
Xinjiang	24.6	1.9
Shandong	18.1	1.4
Beijing	18.5	1.4
Yunnan	20.8	1.6
Guangdong	19.8	1.5
Other	181.4	13.7
Total	1,326.9	100.0

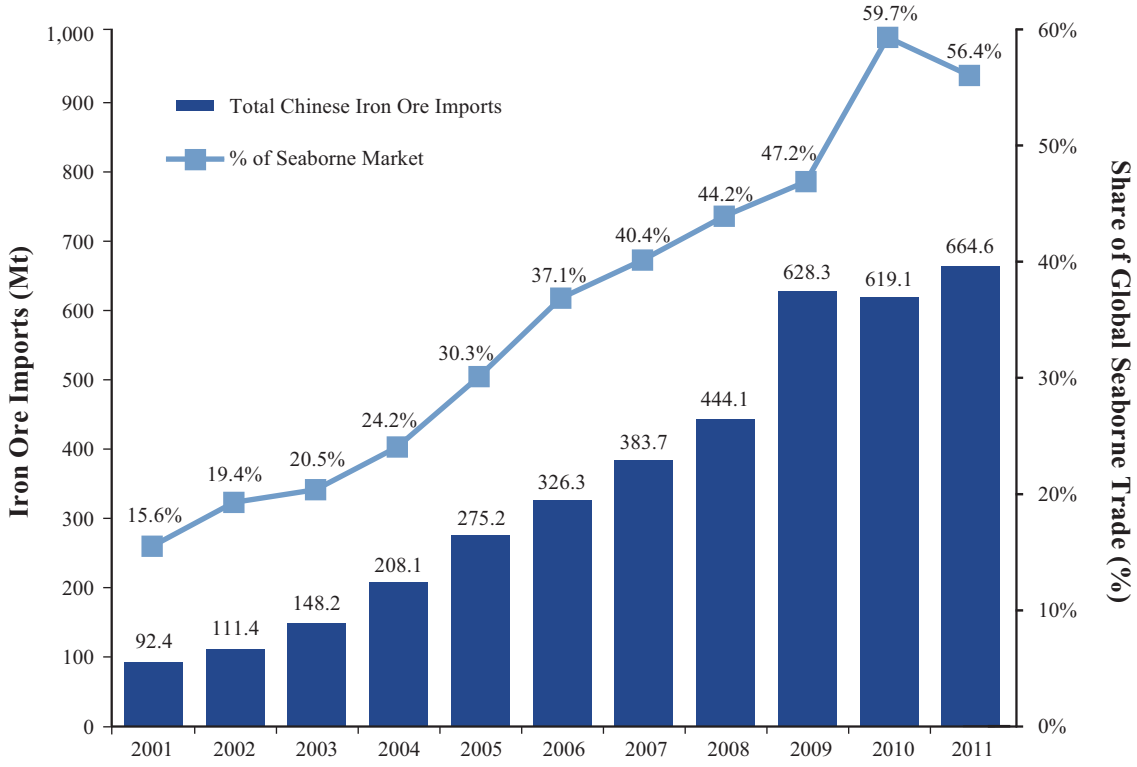
Source: CRU, NBS

Imports of iron ore to the PRC

As China's steel production has expanded, the domestic industry has not been able to keep up with rising demand. This has lead to an increase in the import requirement as shown in the chart below. Chinese imports increased by about 572.2 Mt in the period between 2001 and 2011, an increase of 619.2%.

CRU forecast that the Chinese import requirement for iron ore will continue to grow by a CAGR of 9.9% up to 2015, reaching about 988.3 Mt in 2015.

Chinese imports of iron ore from 2001 to 2011



Source: CRU, Global Trade Information Services (GTIS) – imports of sinter fines, lump, pellet and pellet feed

China is also by far the largest importer of iron ore accounting for about 58.6% of imports in 2011, followed by Japan with 11.3%, South Korea with 5.5% and Germany with 3.6% of global imports.

The following table shows the location of major import partners shipping iron ore into China in the years 2008, 2009 and 2010. This shows that Australia remains the largest import partner, which is reflective of both the size of Australia production levels and also its geographical advantage in shipping material over Brazil, which is better placed to export to the European market.

Chinese imports of iron ore by country (Mt), 2008-2010

	2008		2009		2010	
	Import volume (Mt)	Percentage of total PRC imports (%)	Import volume (Mt)	Percentage of total PRC imports (%)	Import volume (Mt)	Percentage of total PRC imports (%)
Australia	184	41.4	262	41.7	265	42.9
Brazil	101	22.7	143	22.7	131	21.1
India	91	20.5	108	17.1	97	15.6
South Africa	15	3.3	34	5.4	30	4.8
Other	54	12.1	82	13.1	96	15.6
Total imports	445	100.0	629	100.0	619	100.0

Source: CRU, GTIS – imports of sinter fines, lump, pellet and pellet feed

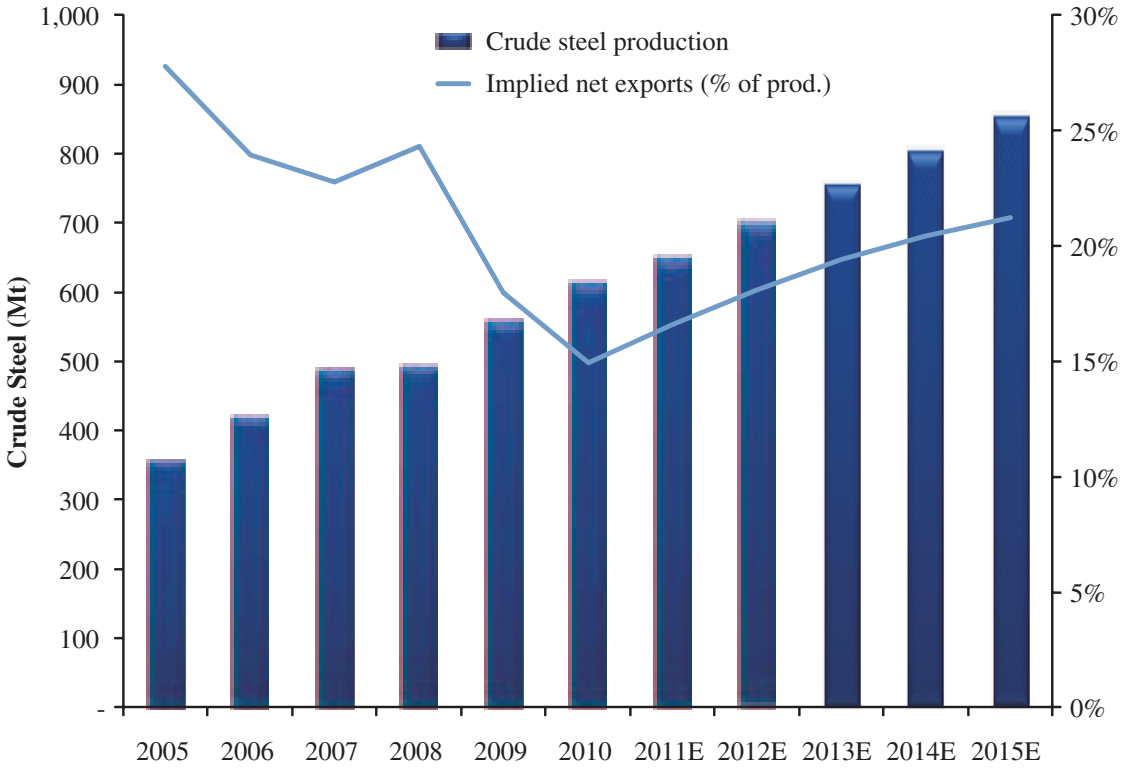
Note: Relevant data for 2011 is not yet available

PRC iron ore demand

China is the largest and fastest growing steel producing country, and also the fastest growing in terms of iron ore demand. According to CRU, Chinese iron ore consumption has grown by a CAGR of 8.7% over 2005 to 2011, to reach 975.5 Mt in 2011. This figures refers to iron ore consumed in the iron making process in a more concentrated form equivalent to 62% iron. For any comparison with Chinese iron ore production, this is equivalent to more than 2,800 Mt of Chinese raw iron ore, assuming an average grade of 21% iron content in raw iron ore, or more than twice current domestic raw iron ore production. Moreover, the period is forecast to see domestic ore production being offset with higher tonnages of imported material due to the marginalization of higher-cost iron ore production in China.

The following chart sets forth the Chinese crude steel production for the period from 2005 to 2011 and forecast from 2012 to 2015:

Chinese crude steel production versus implied net exports, 2005-2015, million tonnes



Source: NBS, CRU. Note net exports are production minus consumption and do not take into account potential stock changes, potential under-reporting of production and yield loss during production of finished steel.

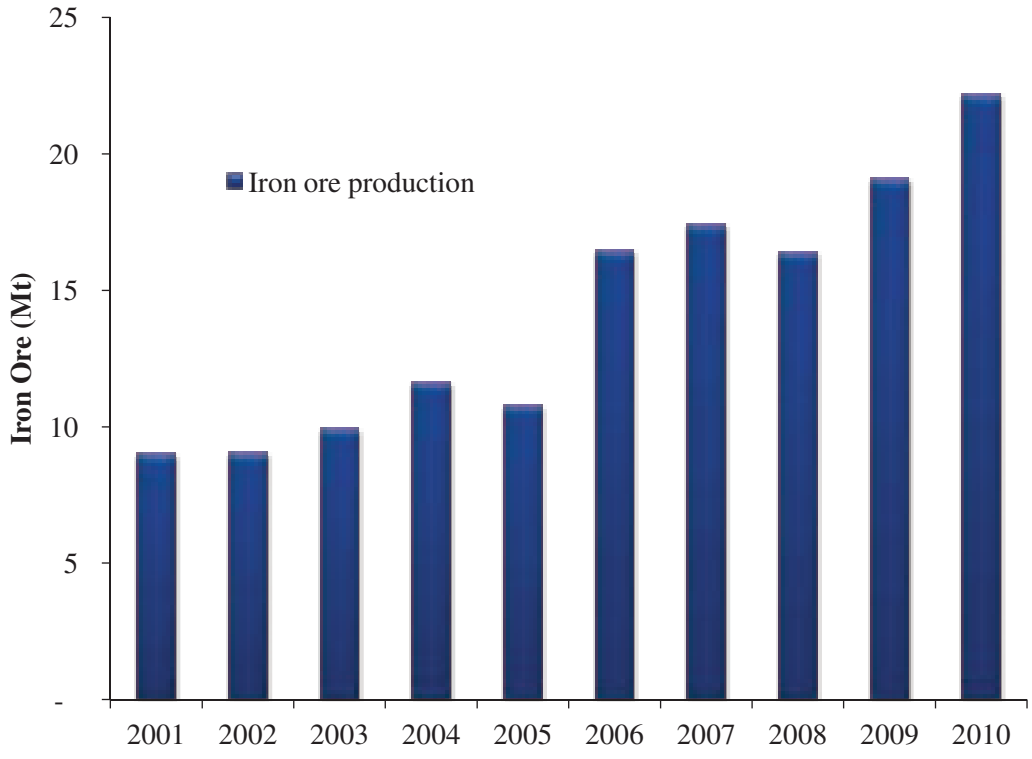
SHANDONG IRON ORE INDUSTRY

Shandong iron ore production

The iron ore production industry in Shandong is well consolidated with 80% of supply in the hands of the top ten producers. Production of raw ore has risen from 9.0 Mt in 2001 to 22.18 Mt in 2010; and increase of 146.4% over ten years. The largest producer in the province is the Laiwu Iron and Steel Group Company Limited at an estimated 3.46 Mt in 2010, followed by the Luzhong Metallurgical and Mining Group Company Limited at 2.72 Mt.

The chart below highlights the production growth in iron ore reported on a run-of-mine basis from 2001 to 2010. Despite this growth Shandong has become increasingly important dependent over the past decade.

Shandong iron ore output 2001-2010 (Mt)



Source: NBS

Note: Relevant data for 2011 is not yet available

Competition

Comparison by reserves and resources

Shandong iron ore reserves are estimated by CRU to total 1,415 Bt in 2010 based upon NBS data, equating to approximately 6.0% of the PRC total while Shandong accounts for around 13.0% of PRC demand for iron ore from steel making. Company by company reserve data is not publicly available in Shandong province however the below table shows the reserve status of companies in Shandong and of some major iron ore mines in Shandong. Shandong Ishine's JORC compliant reserves total 676.9 Mt which represents a significant proportion of the known reserves for Shandong province. As of 2010, CRU estimate that the reserves of Shandong Ishine would have totalled 47.8% of the total known reserves in the province and 2.9% of the PRC total. According to CRU, Shandong Ishine has the largest known iron ore reserves in Shandong province as of 2010. Relevant data for 2011 is not yet available.

Iron ore mines reserves and resources in Shandong by mine, Company data for Iron and Titanium deposits

Company/Mine Name	Reserves (Mt)	Resources (Mt)	Production 2010 (Mt)
Shandong Ishine	**676.85**	**825.16**	**1.97**
Luzhong Mining	129.12	112.44	2.72
Shandong Jinling	60.09	N/A	2.04
Laigang Laiwu	51.12	31.29	3.46
Jigang Mining	4.16	1.21	N/A

Data: CRU 2010, Competent Persons Report, Metallurgical Mines' Association of China 2009

Comparison by production

Shandong province had 41 operating iron ore mines in 2010, 23 of which produced less than 300,000 tonnes of iron ore. The table below indicates estimated iron ore production in Shandong from 2008 until 2010 for the largest ten companies:

The information below comes from a variety of sources, such as company websites, and has not been independently verified by CRU.

Iron ore processed in Shandong (million tonnes of raw ore)

	Company name		2008	2009	2010
1	Laiwu Iron & Steel Grp. Co., Ltd.	State-owned	2.56	2.97	3.46
2	Luzhong Met. Min. Grp. Co., Ltd.	State-owned	2.01	2.34	2.72
3	Jinan Iron and Steel Group	State-owned	1.86	2.16	2.51
4	Shandong Jinling Iron Mine	State-owned	1.51	1.75	2.04
5	**Shandong Ishine**	**Private-owned**	**1.81**	**1.98**	**2.04**
6	Zibo Jinshunda Ent. Grp. Co.	Private-owned	0.98	1.14	1.32
7	Zibo Beijing Group Co., Ltd.	Private-owned	0.82	0.96	1.11
8	Jinan Iron & Steel Grp – Shimen	State-owned	0.71	0.82	0.95
9	Zibo Hualian Mining Co., Ltd.	State-owned	0.70	0.82	0.95
10	Zaozhuang Jinzheng Min. Co.	Private-owned	0.67	0.78	0.90
	Total top ten		**13.62**	**15.71**	**18.00**
	Total Shandong		**16.40**	**19.08**	**22.18**

Data: CRU, Competent Persons Report, Metallurgical Mines' Association of China, Company Websites

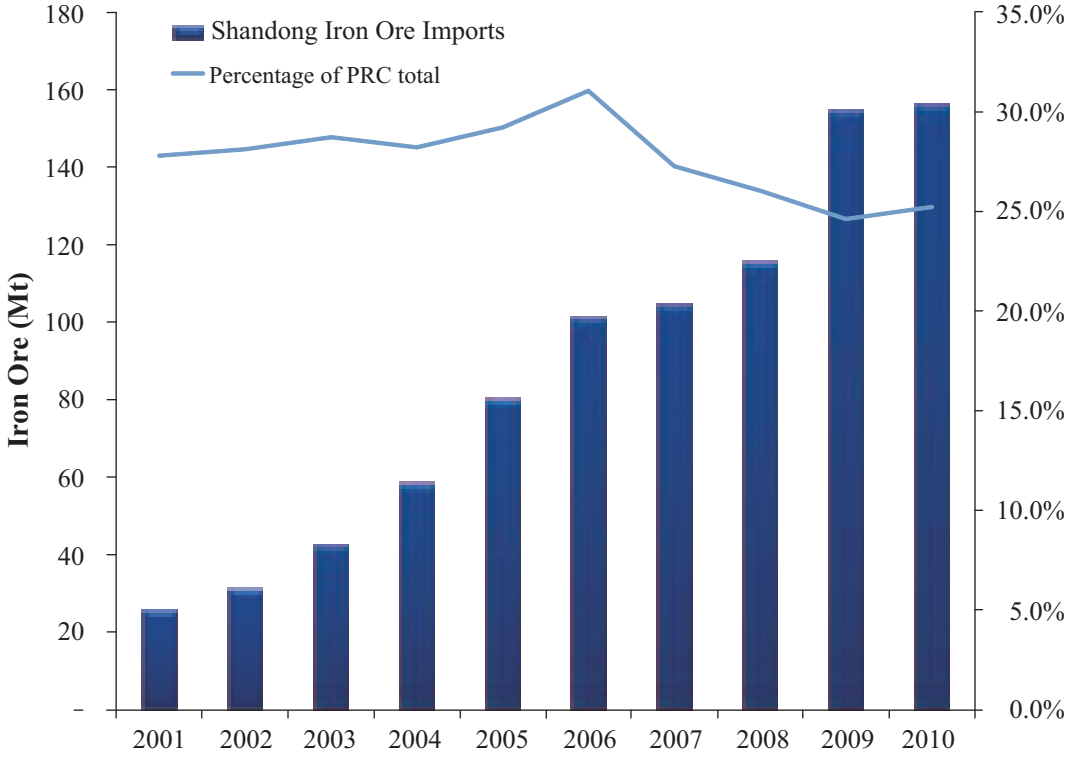
Note 1: The above data refers to the raw iron ore processed at our Company rather than the iron ore concentrates produced or sold. Levels of concentrates sold will vary depending upon the iron content of the ore.

Note 2: Relevant data for 2011 is not yet available.

Shandong iron ore imports

The chart below shows imports to Qingdao district in Shandong Province from 2001 to 2010. The data shows that on average 27.6% of Chinese iron ore imports have arrived in Qingdao, although much of this will have subsequently been shipped to other provinces within China. In 2010 Qingdao district imported 156.2 Mt of iron ore, equivalent to 25.2% of total imports.

Shandong's iron ore imports 2001-2010 (Mt)



Source: GTIS, CRU

Note: Relevant data for 2011 is not yet available

Shandong crude steel production

Shandong's production of crude steel accounted for 8.4% of the country's total crude steel output in 2010 despite the fact that total crude steel output in 2010 was 52.6 Mt which is 45.4 Mt higher than the total crude steel output in 2001, representing an increase of 627%. Since 2001, Shandong's steel production has grown by a CAGR of 24.7%, the fifth fastest growth seen in the PRC and also equating to the third largest increase in tonnage terms as shown in the table below.

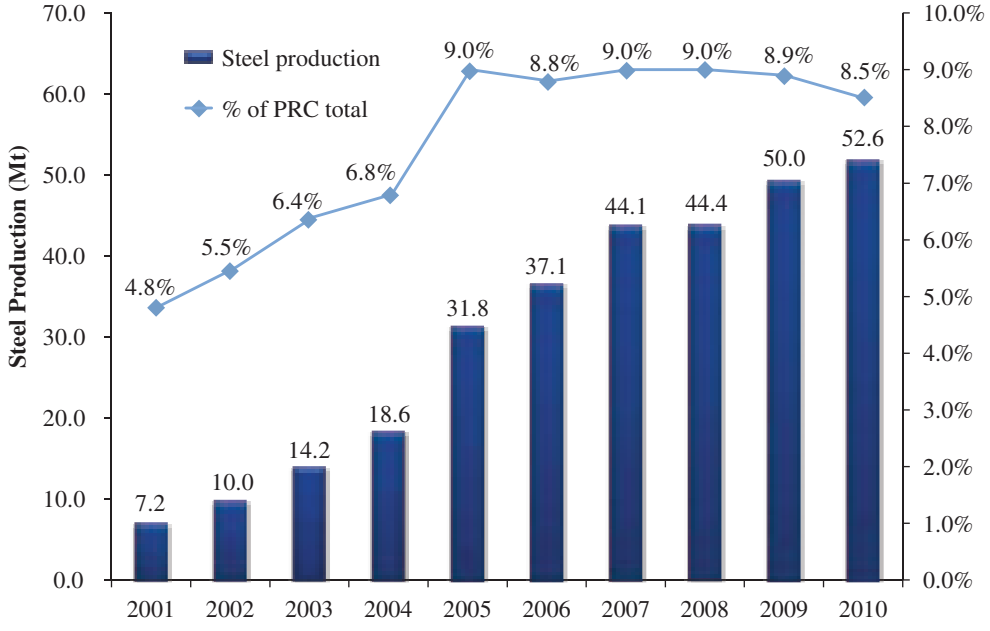
PRC Crude Steel Production, Top 5 Provinces, 2001-2010 (Mt)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Net-Growth 2000-2010	CAGR 2000-2010
Guangxi	1.3	1.7	2.1	3.4	5.0	6.3	7.7	7.9	10.0	12.0	10.7	28.2%
Shanxi	0.7	0.9	1.8	2.3	3.1	3.9	4.0	3.0	5.3	6.0	5.4	27.2%
Jiangsu	8.5	13.3	17.4	25.7	33.0	42.0	47.2	48.6	55.1	62.4	53.9	24.8%
Hebei	19.7	26.6	40.7	57.0	74.2	91.0	105.7	115.9	138.3	144.6	124.9	24.8%
Shandong	**7.2**	**10.0**	**14.2**	**18.6**	**31.8**	**37.1**	**44.1**	**44.4**	**50.0**	**52.6**	45.3	**24.7%**

Data: CRU, NBS

Note: Relevant data for 2011 is not yet available

Shandong's steel output 2001 – 2010 (Mt)



Source: NBS, CRU

Note: Relevant data for 2011 is not yet available

The steel industry in Shandong Province is dominated by Shandong Steel Group, itself owned by the Shandong Provincial government. Shandong Steel Group was formed in March 2008 with the merger of Jinan Iron and Steel Company and Laiwu Steel Corporation. In September 2009, Shandong Steel Group further expanded by taking a 67% share in Rizhao Steel Holding Group. In 2010, Shandong Steel Group produced 23.2 Mt, 44.1% of the provinces total and making Shandong Steel Group the ninth largest steel maker in the world. Shandong also has a number of smaller steel makers, a selection of which are listed in the table below:

Major Shandong Steel Works Annual Capacity in 2010 (Mt)

Ownership	**Annual capacity** *(Mt)*
Shandong Steel Group	21.8
Weifang Steel	5.0
Qingdao Steel	3.3
Taishan Steel	3.0
Shandong Jiuyang	2.0
Xiwang Steel	0.5

Data: CRU

Note: Relevant data for 2011 is not yet available

IRON ORE PRICES

International iron ore prices

International iron ore prices are generally negotiated directly between buyers and sellers and are mostly set on a quarterly basis, although spot, monthly and annual pricing mechanisms are also common. The benchmark level for annual price negotiations was historically set by the first major sinter fine contract signed and announced by one of Vale, BHP Billiton or Rio Tinto with either a major European or Asian steel maker. In 2010 the annual pricing system for iron ore was discontinued and prices have since been primarily set against a daily index price for iron ore sinter fines delivered China on either a spot, monthly or quarterly basis. Iron ore is priced in US cents per "dry metric tonne unit" (US c/dmtu).

Starting around 2004 and becoming particularly intense by 2008, the rapid growth of Chinese steel production, combined with the limited upside production potential available for the local mining industry, caused demand to exceed the production capabilities of the major exporters. This caused large increases in the price of iron ore, both domestically in China and on the international market. For example, the price of Pilbara blend (formerly Hamersley) fines, fob Dampier, selling to Japanese steel makers was US 60c/dmtu in 2005, rising to reach 140c/dmtu in 2008. The global economic slowdown from late 2008 hit industrial production

and steelmaking particularly hard, and iron ore prices fell significantly. The benchmark Pilbara blend fines price fell to 94c/dmtu in 2009. A strong recovery in steel, and hence iron ore demand, saw prices rising in 2010. The 2010 benchmark price Pilbara blend fines was 214c/dmtu.

The following table sets forth the movement of international iron ore benchmark prices from 2005 to 2011:

Historical international iron ore prices, benchmark prices, 2005-2011 (US c/dmtu)

	2005	2006	2007	2008	2009	2010	2011
Itabira fines 65% Fe, contract price *(US cents/dmtu fob)*	63	74	81	134	97	164	251
Pilbara blend fines 62% Fe, contract price *(US cents/dmtu fob)*	60	71	78	140	94	179	260

Data: CRU, June 2011

Note: Values are in nominal US dollars. Fiscal year data, April-March. Pilbara Blend fines based on 62% Fe, Vale fines based on 65% Fe content.

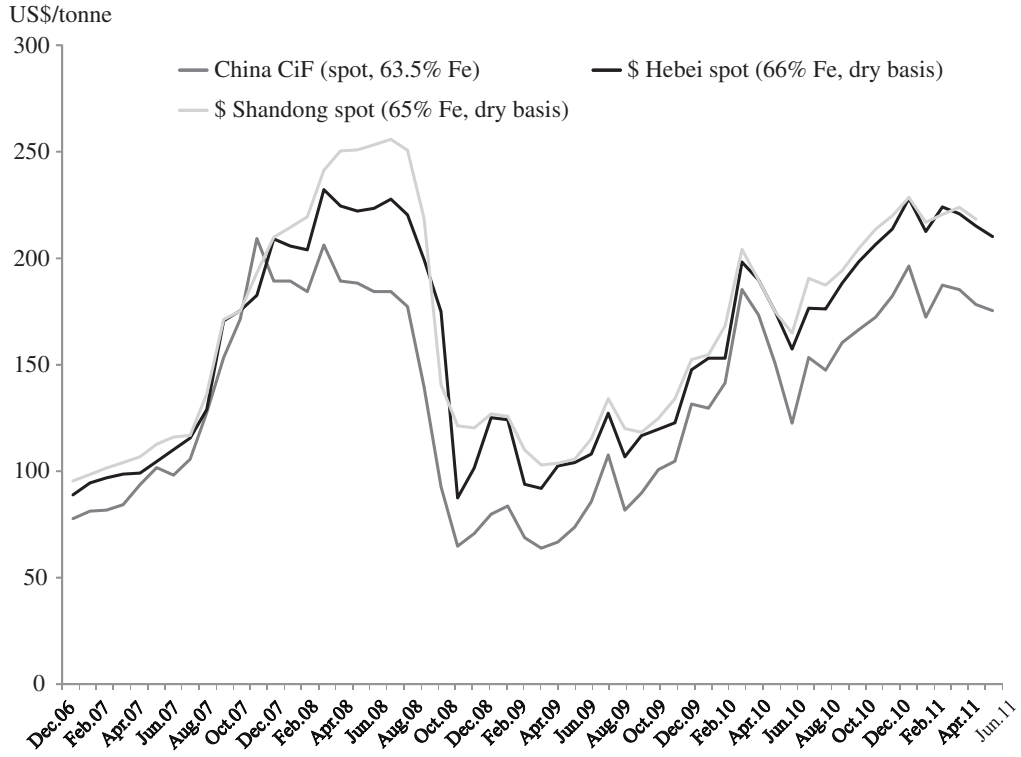
PRC iron ore prices

A large percentage of iron ore products imported into China are purchased on spot prices, or against an index of spot prices. Domestic prices of iron ore products across all provinces in China are influenced by imported ore prices, especially those imported on a spot basis.

With the recovery in economic growth in late 2009 to 2010, spot prices for iron ore products increased sharply. The upward trend commenced in October 2009 and, by April 2010, spot prices for iron ore products were as high as US$186/tonne (fines C&F China 63.5% Fe). A moderation in steel output in the second half of 2010 led to a slight weakening in ore prices, but a rally at the end of the year and into 2011 has led to spot prices in Q1 and Q2 2011 reaching close to historically peak levels.

The chart below shows monthly Chinese iron ore prices for different grades of concentrates in different geographical locations. This also highlights that while there are different grades of iron ore traded, the underlying trends in prices remain the same. It also highlights that iron ore prices in Shandong, such as the Shandong Ishine's, were traded at a premium to other domestic markets.

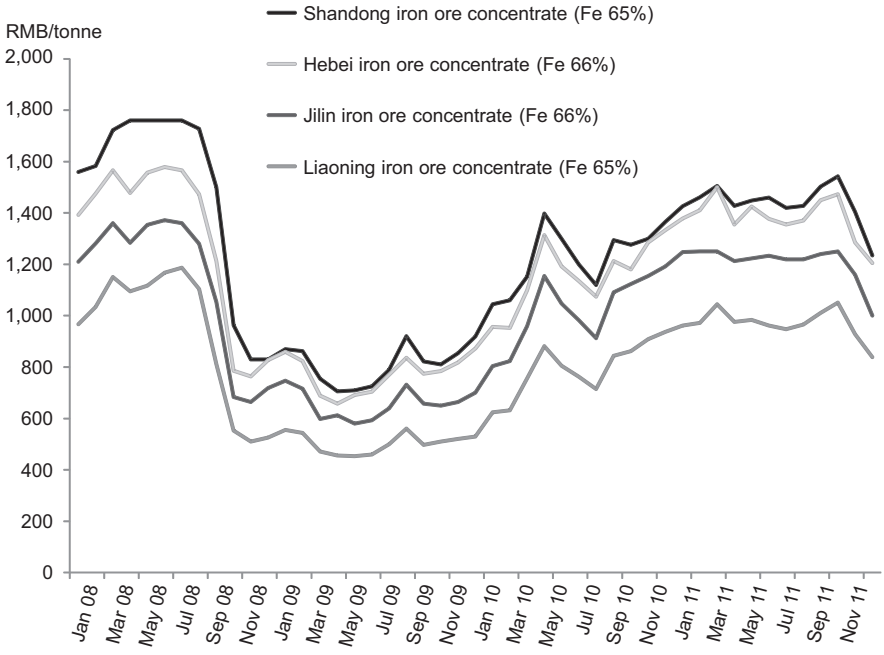
Monthly Chinese iron ore spot prices (US$/tonne)



Source: CRU

The chart below further illustrates that Shandong province has historically recorded premiums over other domestic markets in monthly iron ore spot prices:

Monthly Chinese Iron Ore Spot Prices (RMB/tonne)



Source: Mysteel, CRU

In 2011 demand for iron ore increased further, with the demand from China remaining strong in particular, as supply struggled to keep up. In the first half of 2011, the supply of imported iron ore into China from India remained constrained, whilst announced increases in Australian and Brazilian supply did not fully meet the supply gap. Instead, the production of Chinese iron supply has risen to meet demand.

Prices are expected to moderate over the period to 2015, as new supply comes on stream, predominantly from Australia and Brazil. By tracking the production schedules of a large number of newly expanded or commissioned mines in Australia and Brazil, it is forecasted by CRU that production volumes of iron ore in Australia and Brazil will increase by approximately 220.1 Mt and 157.2 Mt respectively per year by 2015. Such additional production volume is forecasted to represent excess volume over their domestic consumption, which will be exported to the global seaborne market. However, prices should remain well above historical standards. Strong demand growth, especially in Chinese seaborne demand, combined with highly consolidated supply, will ensure that high cost ore supply continues to be in demand, especially as we expect Indian exports to decline.

The following table shows historical and forecast prices for fines products imported into China over 2008 to 2015E:

Chinese imported and domestic iron ore prices (2008-2015e), US cents/dmtu

	2008	2009	2010	2011	2012e	2013e	2014e	2015e
Imported 62% Fe fines, delivered China port, inc VAT	245	133	245	284	249	263	258	247
Shandong Concentrates, 65% Fe fines, including VAT	356	199	307	369	349	372	363	348

Source: CRU, nominal, calendar year, prices include VAT at 17% (13% in 2008). Imported 62% fines assumes 6% moisture and Shandong Concentrates assume 8.7% moisture

POLICIES AND REGULATIONS SUPPORTING GROWTH IN THE PRC MINING AND STEEL INDUSTRIES

Facing the rapid development of China's steel and mining industries, the PRC Government has focused on establishing and implementing policies to regulate the development of these industries, as well as their impact on the environment and international trade.

Policies for the Development of the PRC Iron and Steel Industry

Development policy for the PRC iron and steel industry

Since 2003, China has imposed adjustments and controls at a micro level over the steel industry. The State Council promulgated the *Interim Provisions for Promoting Adjustment on the Industrial Structure* (Guo Fa [2005] No. 40) (《促進產業結構調整暫行規定》 (國發[2005]40號)) in 2005 and the *Notice of State Council on Accelerating and Pushing the Structural Adjustment of Industries with Excess Capacity* (Guo Fa [2006] No. 11) (《國務院關於加快推進產能過剩行業結構調整的通知》 (國發 [2006]11號)) in 2006 and the NDRC issued the *Development Policy for Iron and Steel Industry* (NDRC Decree No. 35) (《鋼鐵產業發展政策》 (國家發改委第 35號令)) in 2005 ("Development Policy").

The Development Policy provides that the State shall restrict the export of primary products that consume high units of energy and result in a large amount of pollution, such as coke, ferrous alloy, pig iron, scrap, steel billets and ingots. The Development Policy encourages iron and steel enterprises to manufacture high-strength steel and hot rolled ribbed bars of Grade III (400 Mtpa) and above.

China's State Council approved the *Steel Industry Support Plan* in principle on 14 January 2009 and promulgated the *Adjustment and Revitalization Plan for the Steel Industry* (《鋼鐵產業調整和振興規劃》) on 20 March 2009 to support the steel industry. The details of the plan include the following: (i) steel consumed in construction projects in China is expected to constitute approximately 50% of total steel consumed; (ii) emphasis on promoting corporate restructuring and promote industry consolidation; and (iii) focus on the exploration of iron resources and ensuring production safety to improve domestic iron production.

Policies for the Development of Mine Exploration and Mining

Policies and regulation of mine exploration and mining

In addition to the development of the iron and steel industry, the Development Policy also gives directives related to raw materials. The Development Policy encourages large-scale steel enterprises to explore and develop iron ore resources, although a mining permit must be obtained for the mines. New mining projects with iron ore reserves of 50 Mt or more are subject to verification or approval by the NDRC.

In 1999, the Ministry of Finance and the MLR jointly issued the *Measures on Administration of the Use Fee and Payment for Exploration Rights and Exploitation Rights* (《探礦權採礦權使用費和價款管理辦法》), which provides that the exploration rights utilization fee must be calculated for the year of exploration and paid annually according to the block area at a price of RMB100 per km^2 each year starting from the first year of exploration through to the third year of exploration. In addition, RMB100 per km^2 for every additional year starting from the fourth year of exploration must be paid, up to RMB500 per km^2 each year. The mining rights utilization fee must be paid annually according to a mine area of RMB1,000 per km^2.

As early as September 2000, six ministries, including the MLR, jointly issued the *Several Opinions about Further Encouraging Foreign Investment in Exploitation and Mining of Non-oil-or-gas Mineral Resource* (《關於進一步鼓勵外商投資勘查開採非油氣礦產資源的若干意見》), which provides for the further development of the exploration and mining rights market of domestic non-oil-or-gas mineral resources and the encouragement of foreign investment in exploration and mining of non-oil-or-gas mineral resources, particularly in the western regions of China.

In December 2003, the Information Office of the State Council issued the white book, *China's Policy on Mineral Resources* (《中國的礦產資源政策》), and mentioned that China will mainly rely on the development of domestic mineral resources to meet the demand of modern construction requirements. The PRC Government encourages the exploration and development of mineral resources demanded by the market, particularly mineral resources found in the western regions of China, in order to improve the availability of domestic mineral products.

In January 2004, the State Council officially issued the *Regulations on Production Safety Permits* (the State Council's Decree No. 397) (《安全生產許可證條例》) (國務院令 (第397號)), which stipulates that the State has adopted the requirement for production safety permits for certain enterprises. Mining enterprises are not permitted to engage in any production activities until production safety permits have been obtained.

The State Council issued in 2006 the *State Council's Decision on Enhancing Geological Work* (Guo Fa [2006] No. 4) (《國務院關於加強地質工作的決定》) (國發 [2006]4號), which further expresses that China will enhance the exploration and mining of mineral resources.

While continuously enhancing the exploration and mining of mineral resources, the State has also issued, from time to time, policies to regulate the development and utilization of mineral resources.

The MLR issued in December 2007 the *Notice on Adoption of Uniform Numbering of Exploration Rights across the Country* (《關於實行全國探礦權統一配號的通知》), which stipulates that as of 1 January 2008, the creation, modification, extension and continuance of exploration rights, as well as geological investigation, are subject to the registration and approval by the exploration rights registration authority after which an exploration permit number is electronically generated.

On 3 March 2008, the State Council published the *Regulation on Administration of Qualification for Geological Exploration* (中華人民共和國國務院令 (第520號)《地質勘查資質管理條例》), which became effective on 1 July 2008 and stipulates that the geological exploration units are not permitted to conduct any geological exploration activities for their consignors until the relevant mineral resource exploration or mining permits have been duly obtained.

On 3 March 2008, the MLR issued the notice on *National Plan on Geological Exploration* (《全國地質勘查規劃》), containing the objectives planned for geological exploration in China by 2010 including major breakthroughs in mineral exploration, large increases in the availability of domestic mineral resource, establishment of backup areas in the western regions of China for the exploration and development of important resources and increases in newly-identified iron ore reserves by 5,000 Mt.

The MLR officially issued the *National Mineral Resources Plan (2008-2015)* (《全國礦產資源規劃》) on 31 December 2008 in an attempt to promote the substitutability of mineral resources. The *National Mineral Resources Plan (2008-2015)* stipulates that the national newly-added iron ore ensured reserve will amount to 3,000 Mt from 2008 to 2010 and further expand to 6,000 Mt from 2011 to 2015. Meanwhile, iron ore production will increase to 940 Mt in 2010 and to 1,100 Mt in 2015.

12th Five-year Plan

The 12th *Five-Year Plan* of the PRC ("**PRC Plan**") was approved by the fourth session of the Eleventh National People's Congress on 14 March 2011. The PRC Plan recognises the importance of the mineral resource industry and aims to increase production efficiency and enhance the comprehensive utilization of mineral resources. Under the PRC Plan, the PRC Government will promote the geological exploration, conservation and reasonable exploitation of mineral resources in the pursuit of forming strategic and sustainable resources, and establishing a reserve system for key mineral resources.

Shandong Stimulus

The Shandong's provincial government has announced a number of plans to over the 2011-2015 period with the intention of achieving 9% GDP growth per annum over the forecast period. This is 2% higher than the central government's stated target of 7% GDP growth per annum.

In relation to the iron and steel industry a stated aim of the provincial government is to develop the state-owned Shandong Steel Group to be a top 10 global steel group with 38 million tonnes per annum of crude steel production. Shandong Steel Group produced 23.2 Mt of steel in 2010, making Shandong Steel Group the 9th largest steel producer in the world. The provincial government also plans to develop several specialised steel groups with 1-5 Mt per annum of crude steel capacity.

Other developments in the industry refer to modernising and reducing the environmental impact. These include upgrading over 70% of blast furnaces to be larger than 1,000 m^3 and converters larger than 120 tonnes; production of flat rolled products to reach over 55% of the total crude steel production; coal consumption to be reduced to 596kg/tonne; waste gas emission to be reduced to below 1kg/tonne and SO_2 emission to be reduced to below 1.8kg/tonne.

The table below shows comparative provincial GDP levels and growth rates over the past ten years. At 12.2% CAGR Shandong province has witnessed the fourth fastest rate of growth and the third largest increase in total GDP growth within the PRC.

PRC Provincial GDP Growth (Bn 2005 RMB)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Net-Growth 2000-2010	CAGR 2000-2010
Guangdong	1121	1239	1393	1599	1835	2094	2379	2723	2943	3158	3458	2337	11.9%
Jiangsu	939	1035	1156	1314	1508	1727	1963	2247	2479	2726	2996	2056	12.3%
Shandong	922	1014	1133	1285	1483	1705	1935	2202	2414	2650	2909	1987	12.2%
Zhejiang	675	747	841	964	1104	1246	1404	1604	1729	1842	2010	1335	11.5%
Henan	573	624	684	757	861	983	1113	1270	1394	1512	1656	1083	11.2%
Hebei	546	594	651	726	820	929	1043	1172	1263	1359	1489	942	10.5%
Shanghai	489	540	601	675	771	859	957	1099	1180	1249	1340	851	10.6%
Liaoning	439	478	527	588	663	747	844	967	1074	1188	1323	884	11.7%
Sichuan	404	440	485	540	609	686	770	878	954	1069	1201	797	11.5%
Hunan	374	408	444	487	546	612	684	783	873	971	1085	711	11.2%
Hubei	376	410	447	491	546	612	685	782	869	964	1080	704	11.1%
Fujian	365	397	437	488	545	609	691	793	878	964	1071	706	11.4%
Beijing	366	409	456	506	577	647	723	825	881	950	1022	656	10.8%
Anhui	302	329	361	395	447	497	553	629	694	767	857	554	11.0%
Heilongjiang	309	338	373	411	459	512	568	634	693	756	830	521	10.4%
Inner Mongolia	165	182	206	243	293	363	427	507	585	669	750	586	16.4%
Tianjin	188	211	237	273	316	363	412	474	540	615	705	517	14.1%
Shaanxi	209	229	254	284	321	365	412	475	541	601	672	463	12.4%
Guangxi	222	240	265	293	327	370	416	477	526	587	654	432	11.4%
Jiangxi	217	236	261	295	334	377	419	472	523	579	644	427	11.5%
Jilin	203	221	242	267	300	336	382	442	502	558	619	417	11.8%
Shanxi	210	232	261	300	346	393	438	506	538	554	616	406	11.3%
Chongqing	192	209	230	257	288	322	358	413	463	521	595	403	12.0%
Yunnan	209	224	244	265	295	321	355	397	430	471	516	307	9.4%
Xinjiang Weiwuer	150	163	176	196	218	242	266	297	323	341	368	218	9.4%
Guizhou	113	123	135	148	165	186	208	238	259	282	311	197	10.6%
Gansu	108	118	130	144	161	180	198	222	239	258	281	173	10.1%
Hainan	52	56	62	68	75	83	93	108	116	127	144	92	10.8%
Ningxia	34	37	41	46	51	57	63	71	78	86	95	61	10.9%
Qinghai	29	32	36	40	45	50	57	64	71	77	86	58	11.7%
Tibet (Xizang)	13	15	16	18	21	23	26	29	32	35	38	25	11.5%

Data: CRU, NBS

INTRODUCTION TO TITANIUM MINERALS

Titanium minerals and their main use

Around 95% of titanium minerals are used in the production of pure titanium dioxide, TiO_2, according to the International Titanium Association. Titanium dioxide can be used as a pigment to provide whiteness and brightness to paints, ink, papers, cosmetics, plastics, food products, and other materials. It is also used as a strengthening agent in graphite composite sport instruments, such as fishing rods and golf clubs.

Titanium dioxide pigments are expected to continue to dominate the titanium market for the foreseeable future. Demand for titanium dioxide pigments is broadly expected to track total GDP growth on a country by country basis, as the titanium dioxide pigments are used as coating or colourant in a range of applications, from children's toys to car paint. As a result, titanium demand is set to benefit from the gradual recovery in world economic growth after the negative effects of the global downturn in 2009.

Only around 5% of titanium minerals are used to manufacture titanium metal (often referred to as titanium sponge metal due to its porous appearance), according to the International Titanium Association. Titanium offers strength and resistance to corrosion, whilst also being lightweight. As a result, it is used as an alloying element with other metals, such as iron, aluminium, molybdenum, and vanadium, to produce strong and lightweight mill products. The alloys produced are utilised in applications where their high strength to weight ratio is crucial including sectors of aerospace and defence (for example aircraft parts or armoured vehicles), automotive, and medicine and other applications.

Another use of titanium minerals are used to produce titanium-iron pellets, which can be used in steel making blast furnaces to temporarily increase the temperature of the furnace. While this reduces the efficiency of the furnace for that particular melt it has the benefit of helping to clean the refractory lining of the furnace, therefore increasing efficiency in future melts and reducing the need for maintenance or replacement of refractory linings and the associated downtime.

Titanium supply

The two titanium ore forms which are most common and commercially exploitable occurring in nature are rutile and ilmenite. Ilmenite supplies about 91% of the world's demand for titanium minerals.

USGS estimates that the world's ilmenite and rutile reserves totalled to 690 Mt of contained titanium dioxide, whilst world resources of anatase, ilmenite, and rutile total to more than 2 billion tonnes of contained titanium dioxide. The countries endowed with most titanium minerals reserves are China, Australia, India, South Africa, and Brazil.

The following chart sets forth the estimated global distribution of titanium minerals production and reserves in terms of ilmenite and rutile:

World Titanium Production and Reserves in 2010 by country

	Ilmenite		**Rutile**	
	Mine production *(thousand tonnes)*	**Reserves** *(thousand tonnes)*	**Mine production** *(thousand tonnes)*	**Reserves** *(thousand tonnes)*
United States	200	2,000	Note	Note
Australia	1,070	100,000	280	18,000
Brazil	43	43,000	3	1,200
Canada	700	31,000	N/A	N/A
China	600	200,000	N/A	N/A
India	420	85,000	20	7,400
Mozambique	350	16,000	2	480
Norway	320	37,000	N/A	N/A
South Africa	1,120	63,000	130	8,300
Sierra Leone	N/A	N/A	67	3,800
Ukraine	300	5,900	57	2,500
Vietnam	410	1,600	N/A	N/A
Other countries	225	66,000	18	400
World Total (rounded)	5,800	650,000	580	42,000

Note 1: United States rutile production and reserves data are included with ilmenite

Note 2: Relevant data for 2011 is not yet available

Source: USGS

Global mine production is estimated by the USGS to have totalled about 6.3 Mt of contained titanium dioxide in 2010, up 9% from 2009. The main producing countries in 2010 were Australia and South Africa, accounting for around one-fifth each. Other producing countries were Canada, China, India, Mozambique, Norway, Vietnam, and the Ukraine.

The largest importer of titanium ores and concentrates was China, which imported about 2 Mt in 2010[3]. The second largest importer was the USA which imported about 0.8 Mt of titanium ores and concentrates in 2010, primarily from Australia, South Africa and Mozambique. The largest exporter of titanium ores and concentrates was South Africa which exported about 1 Mt of titanium ores and concentrates in 2010. Other important exporters were Australia[4], India, Ukraine, and Mozambique.

3 *Trade data for titanium ores and concentrates is based on data from Global Trade Information Services under the HS code of 261400.*

4 *CRU notes that exports of ores and concentrates reported by Australia are less than 55,000 tonnes, but imports reported by other countries from Australia are far in excess of this level. For example, the cumulative reported imports into China, Japan, the USA from Australia equal 0.8 Mt in 2010. In reality CRU believes it is a significant exporter of titanium minerals.*

Global titanium sponge metal production is estimated to have totalled around 145,000 tonnes in 2010, based on USGS. This resulted in a global utilisation rate of around 61%. China accounted for around 37% of this production, whilst Russia and Japan represented around a fifth of production each. Other countries producing titanium sponge metal include the USA, Kazakhstan and the Ukraine.

Global titanium dioxide pigment capacity is estimated to have been 5.7 Mt in 2010. Over a quarter (26%) of this capacity was located in the USA. China is also an important pigment producer, with a production capacity of about 1.1 Mt in 2010. Other important countries/countries for the manufacture of titanium pigments include Japan, Australia, Western Europe, Mexico, Ukraine and Russia.

The table below sets forth the world's titanium sponge metal production and titanium sponge metal and titanium dioxide pigment production capacity in 2010:

World's sponge metal production and sponge and pigment production capacity in 2010 (tonnes)

	Sponge metal production	Sponge metal production capacity	Pigment production capacity
USA	13,250	24,000	1,480,000
Australia	–	–	281,000
Belgium	–	–	74,000
Canada	–	–	90,000
China	53,000	80,000	1,100,000
Finland	–	–	130,000
France	–	–	125,000
Germany	–	–	440,000
Italy	–	–	80,000
Japan	30,000	60,000	309,000
Kazakhstan	15,000	26,000	1,000
Mexico	–	–	130,000
Russia	27,000	38,000	20,000
Spain	–	–	80,000
Ukraine	6,500	10,000	120,000
UK	–	–	300,000
Other Countries	–	–	900,000
Total	**144,750**	**238,000**	**5,660,000**

Note 1: US sponge metal production is based on apparent product ion derived from USGS figures, as actual production data is withheld. This figure represents and implied utilisation of around 61%.

Note 2: Relevant data for 2011 is not yet available.

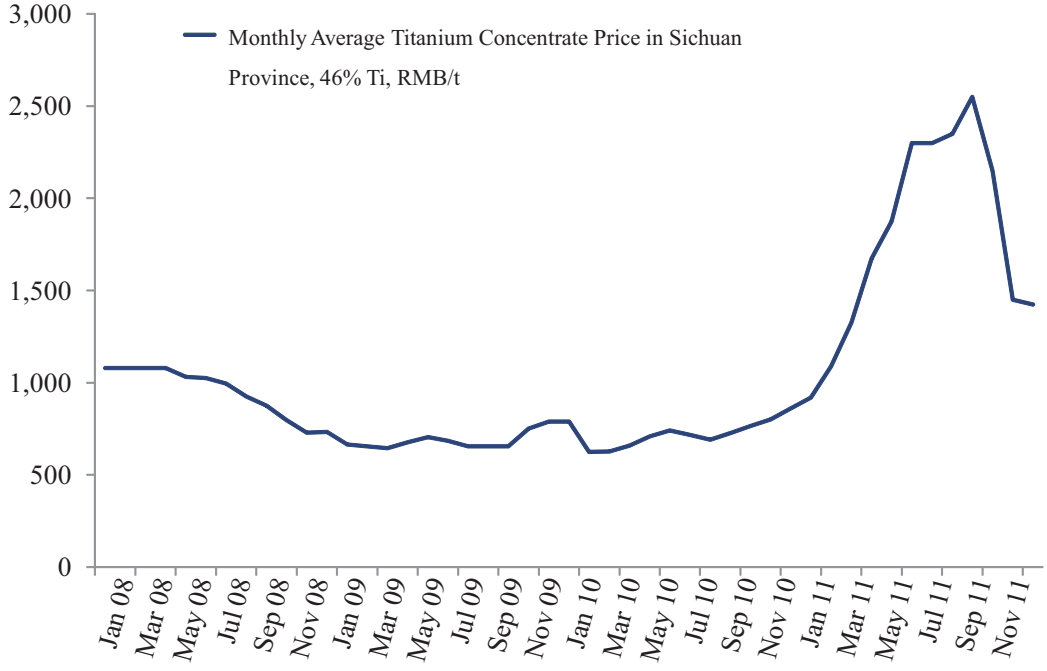
Data: USGS, compiled by CRU

Titanium prices

Titanium prices are based on spot market transactions and longer term contracts, and there is no exchange market to determine benchmark prices. Spot price transactions are published by various market research bodies such as Asian Metal and Metal Bulletin.

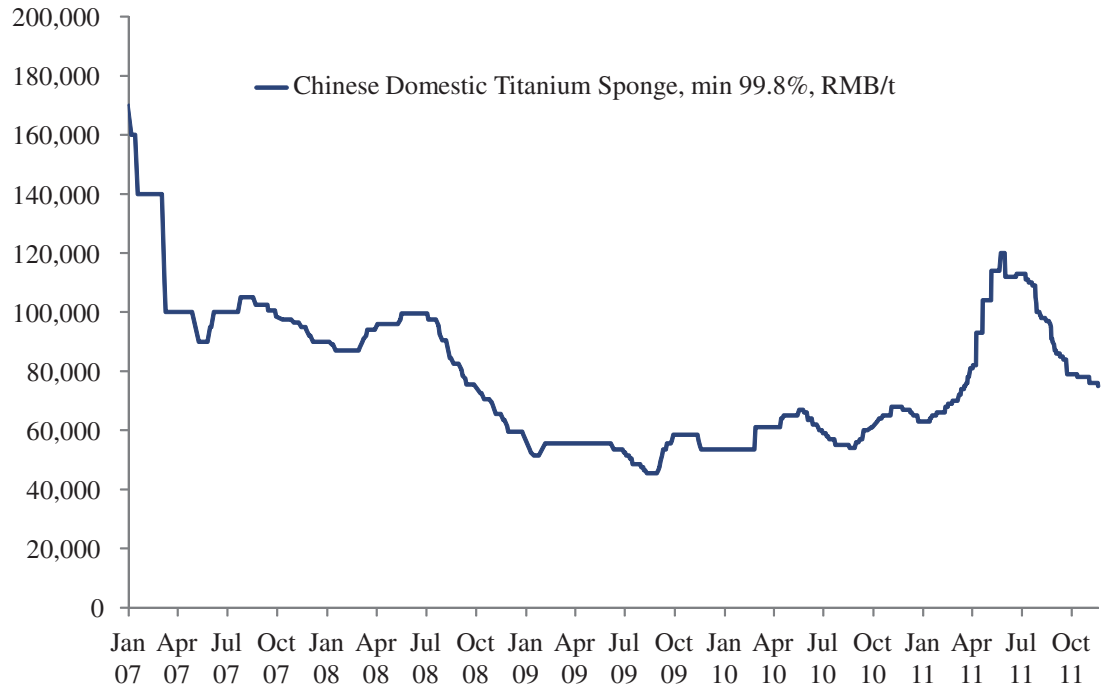
Concentrates prices for rutile are generally higher than those for ilmenite because rutile has a higher titanium content and requires less processing. The charts below show a selection of titanium prices for titanium concentrates and also for high purity titanium sponge metal.

Titanium concentrates price, RMB/t



Source: Asian Metals

Chinese titanium sponge metal prices, RMB/t



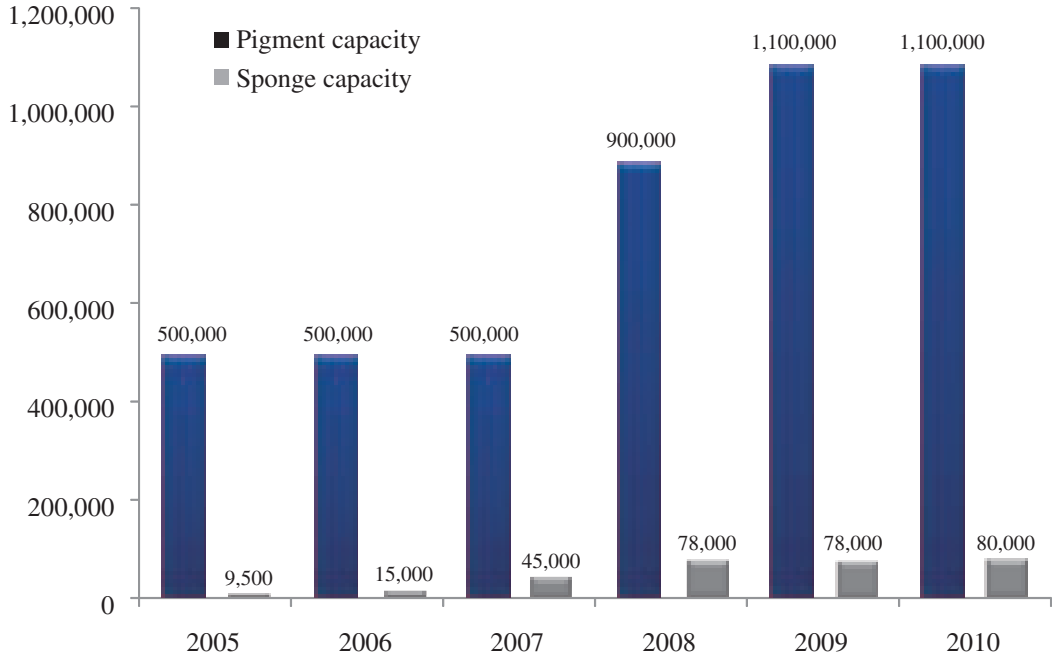
Source: Asian Metals

Overview of the Chinese titanium market

Chinese ilmenite mine production totalled 600,000 tonnes of contained titanium (Ti) in 2010, according to USGS. Prior to 2009, Chinese mine production had been steadily growing, for example, ilmenite output was 400,000 tonnes Ti in 2003, and by 2008 had reached 600,000 tonnes Ti, according to USGS estimates. In 2009, however, a reduction in global demand for titanium products led to a reduction in output to 500,000 tonnes Ti, but with improvements in demand output is believed to have recovered to 600,000 tonnes Ti in 2010.

The charts below set forth the titanium sponge metal and titanium dioxide pigment production capacity of China from 2005 to 2010 and Chinese mine production during the same period:

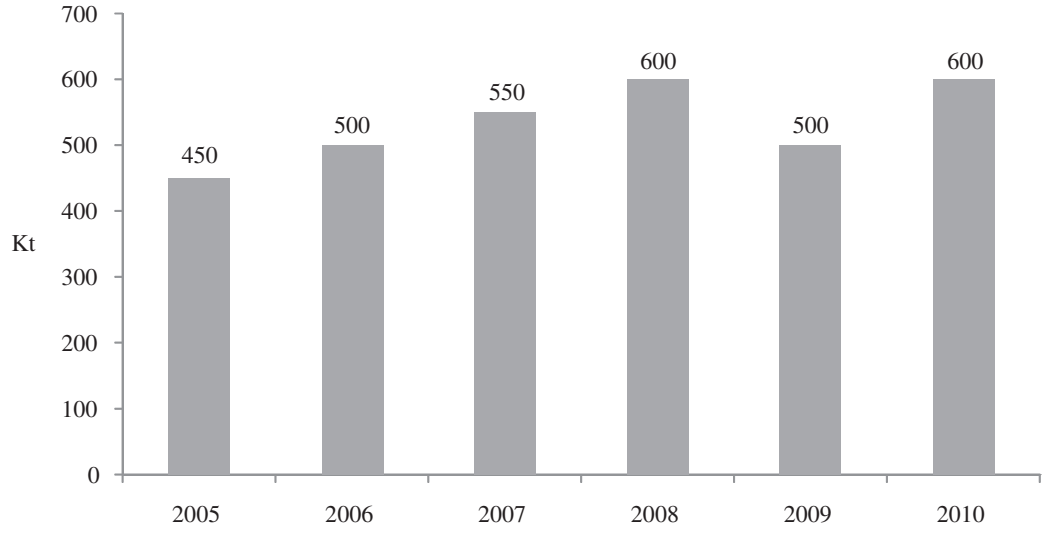
Chinese titanium sponge metal and titanium dioxide pigment capacity, tonnes, 2005-2010



Source: USGS

Note: Relevant data for 2011 is not yet available

Chinese titanium mine production (ilmenite only), contained TiO_2, 2005-2010



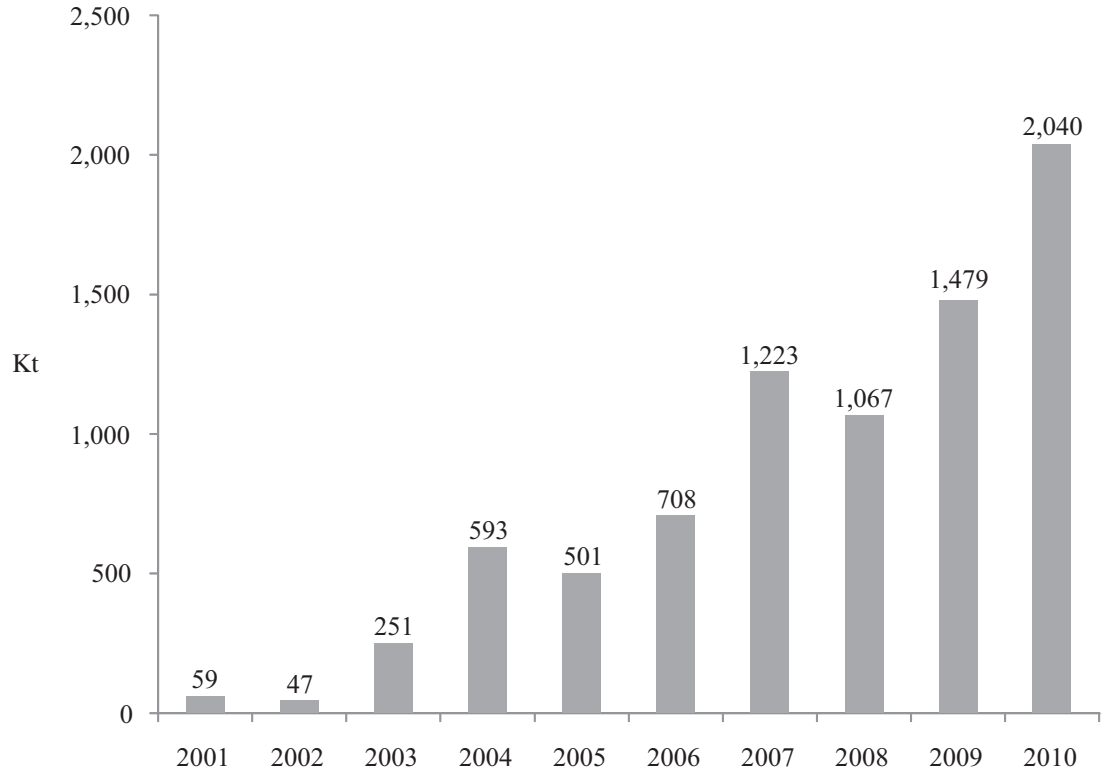
Source: USGS

Note: Relevant data for 2011 is not yet available

Chinese imports of titanium ores and concentrates have increased markedly in recent years, rising fourfold from about 0.5 Mt in 2005 to about 2 Mt in 2010. Its main sources of ores and concentrates were from Vietnam (0.8 Mt in 2010), Australia (0.4 Mt in 2010), and India (0.4 Mt in 2010).

The chart below shows the growth in Chinese reliance on imported titanium concentrates from 2001 to 2010:

Chinese imports of titanium concentrates, 2001-2010



Source: CRU, GTIS

Note: Relevant data for 2011 is not yet available