

World Steel Dynamics (WSD) is a leading steel information service in Englewood Cliffs, N.J. WSD's steel experience, steel database and availability of steel statistics are the principles for performing steel forecasts, studies and analysis for international clients. WSD seeks to understand how the "pricing power" of steel companies the world over will be impacted by changes in the steel industry's structure.



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Q. Why have spot iron ore prices remained so high, and what is WSD's outlook for spot iron ore prices in 2011?

A. The factors that kept iron ore prices high in 2010 include:

- Reduced deliveries from India in recent months due to an unusually extended monsoon season and export restrictions by the State of Karnataka (a major iron ore exporting region). In September 2010, shipments of iron ore from India amounted to 4.7 million tonnes versus 8.4 million tonnes in September 2009. (Note: Peak deliveries were 13.5 million tonnes in March 2010.) Our contacts in India claim that much of the iron ore delivered to China is low-grade – less than 60% Fe – and that, when this product is not mined and shipped to China, this also restricts the production of high-grade lump ore (which has caused a tight supply of this material to develop).
- The major iron ore producers have the option to ship more iron ore to other countries, including Japan, when they suspect that an excess supply is developing in China.
- Iron ore traders in China probably think that the price will be up in the future; hence, they are perhaps adding to inventory all this time. (Note: An implication of this theoretical inventory build is the potential negative impact once traders decide to pare inventory.)
- Some cutback in local Chinese iron ore production when the steel mills in the region reduced their output (based on the government mandate). These iron ore mines don't have the option on a short-term basis to divert their deliveries to more distant steel mills.
- The high cost to produce iron ore in China. (Note: This argument also does not "compute" from WSD's view-

point because most of the high-cost mines in China probably don't have a cost of more than \$125 per tonne, which compares to the current price in China of 1,280 RMB per tonne delivered, including the 17% VAT, or \$192 per tonne with the RMB at 6.63 per U.S. dollar, and \$164 per tonne excluding the VAT.)

WSD believes that the record-high iron ore spot prices are unsustainable. Here is why we expect the price to fall in 2011:

- Investment in Chinese iron ore mines in 2010 will be about \$13.2 billion. Concentrate capacity in 2010 is rising to about 460 million tonnes versus 415 million tonnes in 2009, including upgrades of many mines.
- The average Fe content of the mines is rising as more higher-grade underground mines are replacing often-lower-cost and lower-grade surface mines. Hence, as the production of direct shipping ore rises in China, the gross ore-to-concentrate ratio should be rising.
- In September, based on WSD's assessment, the supply of iron ore based on domestic production and foreign deliveries exceeded the requirement for iron ore by 167 million tonnes annualized. In October, the surplus was 72 million tonnes annualized.
- Ocean freight rates are fairly low, which adds to competition in China from offshore sources. ♦

– Peter F. Marcus, managing partner, World Steel Dynamics, pmarcus@worldsteeldynamics.com, (201) 503-0902

– Philipp Englin, manager – special projects, World Steel Dynamics, penglin@worldsteeldynamics.com, (201) 503-0908

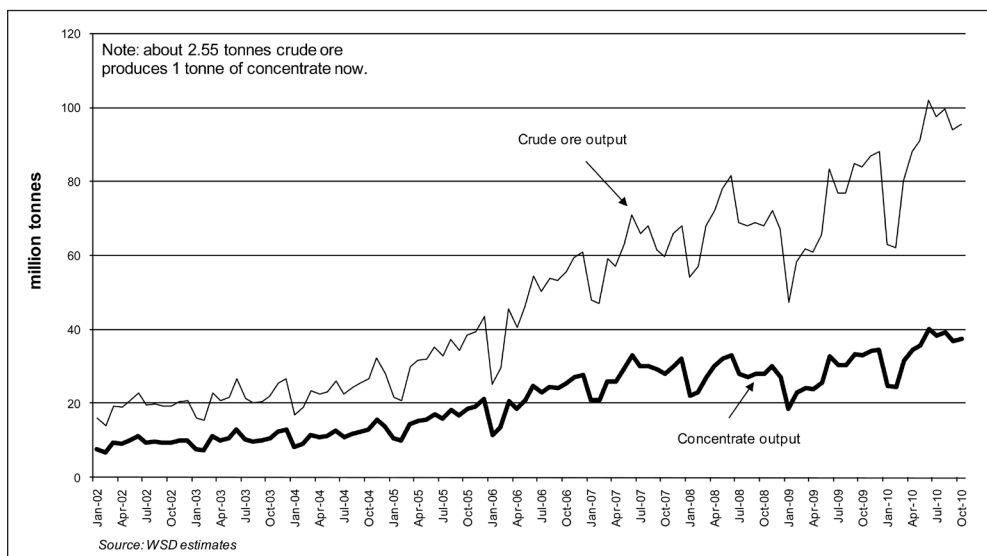


Figure 1 — Chinese monthly crude ore and iron ore concentrate production. Source: CISA and WSD estimates.

China Iron Ore Demand and Supply Balance in Recent Months (in million tonnes)

	Steel production	Pig iron production	Ratio pig/steel	Iron ore usage	Total ore supply	Of which: crude ore production	China concentrate production	Iron ore imported	Ore inventory change*	Reported inventory change at seaports	Reported inventory at seaports
Jan-10	52.5	49.7	0.947	82.0	71.2	62.8	24.6	46.6	-10.8	2.2	67.4
Feb-10	50.4	47.5	0.942	78.4	73.5	61.5	24.1	49.4	-4.9	1.5	68.9
Mar-10	55.0	52.2	0.949	86.1	90.3	79.7	31.3	59.0	4.1	0.4	69.3
Apr-10	55.4	51.6	0.931	85.1	89.8	88.1	34.5	55.3	4.7	1.1	70.4
May-10	56.1	52.6	0.938	86.8	87.6	91.1	35.7	51.9	0.8	-0.8	69.6
Jun-10	53.8	49.8	0.926	82.2	87.0	101.6	39.8	47.2	4.9	0.5	70.1
Jul-10	51.7	47.6	0.921	78.5	89.5	97.6	38.3	51.2	10.9	5.4	75.5
Aug-10	51.6	48.8	0.946	80.5	83.7	99.6	39.1	44.6	3.1	-3.7	71.8
Sep-10	47.9	45.7	0.954	75.4	89.3	93.6	36.7	52.6	13.9	0.0	71.8
Oct-10	50.3	46.8	0.930	77.2	83.2	95.5	37.5	45.7	5.9	1.3	73.1
Nov-10E	52.0	49.0	0.942	80.9	84.5	97.0	38.0	46.5	3.7	-1.0	72.1
Dec-10E	54.0	52.0	0.963	85.8	85.4	98.0	38.4	47.0	-0.4	-1.0	71.1
2010 total	630.7	593.3	0.941	978.9	1,015.1	1,066.1	418.1	597.0	36.1	5.9	
2011E total	655.0	625.0	0.954	1,031.3	1,021.0	1,150.0	451.0	570.0	-10.3		

* Estimated inventory change for the steel mills at the mines and at all seaports. In general, only inventory at the main seaports is reported.

Source: WSD estimates

Chinese Iron Ore Market Analysis (in million tonnes)

	2006	2007	2008	2009	2010e	2011e	2012e	2013e	2014e	2015e
Imported iron ore prices (\$ per tonne, with VAT)										
Benchmark 63.5% Fe contract price, FOB Brazil	47	51	89	61	117 ⁽²⁾	105 ⁽³⁾	110 ⁽⁵⁾	80 ⁽⁶⁾	75 ⁽⁶⁾	75 ⁽⁶⁾
Delivered to Chinese port from Brazil	98	170	160	108	172 ⁽⁴⁾	159 ⁽⁴⁾	165 ⁽⁴⁾	127 ⁽⁴⁾	121 ⁽⁴⁾	121 ⁽⁴⁾
Delivered to Chinese port from Western Australia	115	99	128	90	155 ⁽⁴⁾	142 ⁽⁴⁾	159 ⁽⁴⁾	111 ⁽⁴⁾	105 ⁽⁴⁾	105 ⁽⁴⁾
Delivered to Chinese port from India	144	221	171	112	164 ⁽⁴⁾	152 ⁽⁴⁾	162 ⁽⁴⁾	118 ⁽⁴⁾	112 ⁽⁴⁾	112 ⁽⁴⁾
China domestic market price (\$ per tonne, with VAT)										
	85	176	184 ⁽¹⁾	116	160	148	156	120	115	115
Capital outlays on iron ore (US\$ billion)										
	4.6	5.9	9.6	11.9	13.2	12.0	11.0	8.0	6.0	4.0
<i>Year-to-year % change</i>		28.3%	62.7%	24.0%	10.9%	-9.1%	-21.4%	-33.3%	-45.5%	-50.0%
China iron ore production capacity										
Cost: \$120 per tonne and up	—	—	—	5	10	10	10	10	10	10
Cost: \$110 to \$120 per tonne	—	—	5	20	30	40	40	40	40	40
Cost: \$100 to \$110 per tonne	—	10	15	25	40	60	80	90	90	90
Cost: \$90 to \$100 per tonne	30	35	45	55	80	110	120	130	140	140
Cost: \$70 to \$90 per tonne	90	95	110	120	115	105	95	90	85	85
Cost: less than \$70 per tonne	180	195	195	190	185	175	165	160	155	155
Total	300	335	370	415	460	500	510	520	520	520
Chinese iron ore production by cost (6)										
Cost: \$120 per tonne and up	—	—	—	—	—	—	—	—	—	—
Cost: \$110 to \$120 per tonne	—	—	—	—	15	—	—	—	—	—
Cost: \$100 to \$110 per tonne	—	10	15	5	38	40	40	10	10	10
Cost: \$90 to \$100 per tonne	30	35	35	45	80	110	120	130	140	140
Cost: \$70 to \$90 per tonne	90	95	110	120	115	105	95	90	85	80
Cost: less than \$70 per tonne	170	195	195	185	180	170	165	160	155	140
Total	290	335	355	355	428	425	420	390	390	370
Average production cost, US\$ per tonne										
	75.7	76.9	77.7	78.0	81.2	85.9	86.5	83.8	84.5	85.1

Notes: (1) September 2008. (2) Benchmark price up 90% in 2010–2011. (3) If average price of imported ore is down 10% in 2011. (4) Includes \$11 (from WA to China) or \$26 (from Brazil to China) per tonne in ocean freight and insurance expense, \$6 per tonne in ship, unloading fees and 17% VAT. Does not include the estimated \$13 per tonne transportation fee from Chinese port to the steel mill. (5) If average price of imported ore is down 27% in 2013, down 6% in 2014 and no change in 2015. (6) If average price of imported ore is up 5% in 2013.

Source: WSD estimates

To submit your questions for WSD, e-mail WSD@aist.org.

Please include your full name, company name, mailing address and e-mail in all correspondence.