

Iron Ore Review: High Prices and Tight Markets to Continue Until 2013?

By Magnus Ericsson, Anton Löf and Olle Östenson



Global iron ore production rose by more than 17% in 2010, reaching a record level of 1.8-plus billion mt. Shown here are mining activities in the Green Pit at Fortescue Metals Group's Cloudbreak iron ore operations in Australia's Pilbara district. (Photo courtesy of Fortescue Metals Group)

The world iron ore market in 2010 was dominated by a resurgence after the stimuli packages, put in place in 2009 following the global financial crisis, took effect. However, the industry experienced rough times in 2009 and the resulting changes following the economic slump produced effects that probably will live on as permanent features. Trading patterns have been transformed, and Chinese dominance has become even more massive.

Steel Production: Up Globally, Growth Slower in China

World crude steel production increased to 1.396 billion mt in 2010 from 1.201 billion mt in 2009, a change of 6.2%, driven by the recovery of the world economy and rising industrial production, mainly in emerging countries but also in the OECD area. Production was well above the 2007 peak.

While China accounted for the entire increase in 2009, production recovered dramatically in the rest of the world in 2010, and it increased at a higher rate than in China. Crude steel production in China increased by 10.4%, a lower rate than the 13.5% achieved in 2009. Production in the rest of Asia increased by a strong 20.5% and has now regained pre-crisis levels, although it is still lower than the peaks attained in 2005–2006. In Europe, production rose by 18.7% but is still 10% below that of 2008. In the Americas, production grew by 30%, but was well below the level reached before the recession. All major producers experienced large increases in production.

Monthly world crude steel production had regained the pre-crisis peak by May 2010. This was however almost entirely due to China, where previous peaks in monthly production were

matched already in April 2009. The rest of the world had still not reached pre-crisis production rates in May 2011. The recovery is well under way and appears to be solidly based, although growth rates have declined from the very high numbers reached in the early stages of the upswing.

Record Iron Ore Production

A new all-time high for iron ore production was achieved in 2010, at 1.827 billion mt (See Table 1). Production grew by 17.6% over 2009's level and well above 2008's previous high of 1.682 billion mt. Output increased in most regions and countries except Africa and Asia, excluding China, where production in 2010 remained relatively constant. Europe and North America (Canada and United States) experienced the highest growth rates, approaching 50%. Among the major producers

Australian, Brazilian and Chinese production was increased by 9.8%, 23% and 41.6%, respectively. Indian production declined somewhat to just above 210 million mt. Production in the CIS countries grew by 14.4%.

Developing countries accounted for 58.6% of world iron ore production in 2010 (up from 57.8% in 2009), the CIS republics for just over 11.1% and the industrialized economies for almost 30.3%. The increase in the share of the developing countries was due mainly to growth in Brazil—up more than 70 million mt—and China, up 96 million mt. Chinese production, on a comparable grade basis, was 315 million mt, or 17.3% of total world production in 2010, up from 14.3% in 2009 but below the top level in 2007 of 370 million mt.

World pellet production rose by 32% in 2010 to 388 million mt up from 296 million mt in 2009 reaching a new record level. This reflects a sharp increase in demand for pellets in most countries except the U.S. World exports

were 145 million mt, an increase of 46% over 2009. The share of pellets in total iron ore production rose to 21% in 2010. Worldwide, several new pellet plants are being planned or are under construction.

Higher Demand Drives Record Iron Ore Trade

In 2010, international iron ore trade reached a new record level as exports increased for the ninth year in a row and reached 1,053 million mt, up 12%. The increase was the result of higher demand in the wake of the recession. However, most countries have not regained their 2008 import levels. Developing countries accounted for 49% of total iron ore exports in 2010, developed countries accounted for 51%, including the CIS republics at about 7%. Australia's exports increased by 11% to 403 million mt in 2010. With important markets in Europe and the Americas picking up pace, Brazilian exports, which fell in 2009, recovered and increased 17% in 2010 to 311

million mt, up from 266 million mt. Indian exports fell for the first time in 11 years but the country is still at 96 million mt, the third most important exporter. Ukraine, Kazakhstan and Russia increased their exports in 2010; China has become an important market for all three countries, but transport capacity has been a limiting factor for further expansion.

China is the world's largest iron ore importer. In 2010, its imports were 619 million mt, a slight decrease compared with 2009—but still representing 59% of total world imports. Almost everywhere else, imports rose. Japan's imports increased by 27% to 134 million mt, and the Republic of Korea's by 34% to 56 million mt. European imports (excluding the CIS countries), increased by 40% in 2010, reaching 134 million mt. Seaborne trade in iron ore reached a new high at 995 million mt in 2010.

Pricing: Higher Volatility Ahead

The demise of the annual benchmark pricing system was confirmed in 2010. Currently, annual prices are still negotiated between a small number of mining companies, most importantly LKAB in Sweden, and steel mills. The impact of the disappearance of benchmark prices on market transparency is mixed. On one hand, there is very little information about prices actually agreed-to by identified parties. Full details about the quarterly pricing system used by Vale, for instance, have still not been published, although the prices applied are relatively widely known. On the other hand, the introduction of at least three competing price indices (Metal Bulletin, Platts and The Steel Index) has made it somewhat easier for market participants to follow price movement and trends.

Hedging opportunities have multiplied rapidly and there are now several marketplaces for the clearing of OTC iron ore swaps. Two existing futures contracts for iron ore (at the Indian Commodity Exchange (ICEX) and the Multi Commodity Exchange of India (MCX)) will shortly be joined by a third, at the Singapore Mercantile Exchange (SMX), which will provide additional hedging opportunities as well as a possibility for investors to participate,

Table 1—Iron Ore: World Production (million metric tons)

Country	2008	2009	2010
Sweden	23.8	17.7	25.3
Sub-total Europe excl. CIS	28.5	21.6	31.8
CIS	191.4	177.1	202.5
Sub-total Europe	219.9	198.7	234.3
Canada	33.4	33.0	37.5
USA	53.6	26.7	49.5
Brazil	346.0	305.0	375.0
Venezuela	21.5	14.9	14.0
Sub-total Americas	482.9	407.3	509.2
Mauritania	11.2	11.4	11.3
South Africa	49.0	55.4	56.9
Sub-total Africa	63.3	70.1	70.8
India	223.0	218.6	212.0
Sub-total Asia excl. China	262.7	259.2	262.6
China (1)	301.2	222.7	315.4
Sub-total Asia	563.9	481.9	578.0
Australia	349.8	394.1	432.8
Sub-total Oceania	351.2	396.2	434.9
Total World	1,681.8	1,554.1	1,827.6

1) Iron ore production figure converted to represent global average Fe content.

Note: China's ore production (unconverted): 824.0 880.2 1,064.7

Source: UNCTAD 2011

something that should improve market liquidity and give better assurance to hedgers. In spite of the rapid growth in the range of possible derivatives trades, both iron ore mining companies and steel mills have so far been relatively slow to begin using the hedging facilities. Based on experiences from other markets, however, it is likely that modern price risk management will play an increasingly important role also in the iron ore market.

When considering the future of iron ore pricing, it is however also important to understand that most iron ore is still sold on long-term contracts and that buying iron ore is not like buying other metal concentrates. One of the most important considerations for steel mills is the consistency of quality of the iron ore.

The full effects of the new pricing mechanisms are not clear, but it is unlikely the new model will have any major effect on price levels. It is, however, clear volatility will increase. Moreover, steel companies from all parts of the world will have added incentive to increase captive production. Chinese steel mills will invest heavily in both domestic and overseas projects. The contradictions building between Vale, Rio Tinto and BHP Billiton—the Big 3—and the Chinese will not be resolved in the near future. It will most likely take a few years to settle them and the end could very well be quite dramatic.

Except for a short decline in April–June 2010, spot prices in China



Vale, the leading iron ore producer, accounted for almost 17% of world iron ore output last year. Pictured here is construction of Vale's newest iron ore beneficiation plant, located in the Itabira region of Brazil. (Photo courtesy of Vale)

have increased almost continuously since early 2009. During the first half of 2011, prices stagnated somewhat, although they remain at levels that must be characterized as extremely high in a historical perspective.

Corporate Concentration Remains Stable

Vale, Rio Tinto and BHP Billiton together controlled 35% of world production in 2010 (See Table 2). However, their current market share is still lower than the peak in 2005 at 36.4%. The decline is the result of new production being started in many countries as iron

ore prices returned to previous high levels and in particular many of the small Chinese producers restarted their production in late 2009 and early 2010.

Brazil's Vale once again confirmed its position as the world's largest iron ore producer by increasing output by 54 million mt to reach an all-time high of 309 million mt and a market share of 16.9%. The second largest producer, Rio Tinto, has a market share of 9.9%. BHP Billiton increased its production by 12 million mt to reach 149 million mt in 2010.

Vale increased its market share and is by far the top producer. Corporate

Table 2—Corporate Control in Iron Ore Mining, 2010

Company/Controlling Interest	Country	Controlled Production (million mt)	Share of Total World production (%)
1. Vale	Brazil	309.0	16.9
2. Rio Tinto	United Kingdom	181.0	9.9
3. BHP Billiton	Australia	149.0	8.2
4. State of India (1)	India	56.1	3.1
5. ArcelorMittal	Luxemburg	49.7	2.7
6. Anglo American	United Kingdom	46.2	2.4
7. Fortescue Metal Group	Australia	38.8	2.1
8. Cliffs Natural Resources	United States	37.4	2.0
9. Metalloinvest	Russia	37.0	2.0
10. System Capital Management	Ukraine	31.2	1.7
Total, 10 largest		935.0	51.0
Total, World		1,827.0	100.0

1) State of India includes SAIL and NMDC.

Source: Raw Materials Data Iron Ore, Stockholm 2011.

True Reliability - AHLSTAR Pumps



The Heart of Your Process

SULZER

Sulzer AHLSTAR is a pump so reliable and with minimum maintenance that you can almost forget it. AHLSTAR reduces significantly the energy consumption compared to what was previously possible. Just install and let it run!

Many years of experience and leading-edge innovative expertise are behind the latest AHLSTAR solution to meet the needs of demanding applications in the metal industry, today and tomorrow.

Sulzer Pumps

Sulzer Pumps Finland Oy
P.O. Box 66, FI-48601 Kotka
Tel. +358 10 234 3333
Fax +358 10 234 3331
metals-info.pumps@sulzer.com
www.sulzerpumps.com

consolidation decreased marginally both at the level of the three largest and the 10 largest companies. The trend between 2005 and 2008 of decreasing concentration has been broken and we see a consolidation among the top 10 producers. Corporate concentration will resume its growth when prices fall and many small Chinese producers are forced to close.

To measure corporate control at the production stage underestimates the concentration of the iron ore sector because large amounts of production do not enter the market, but are produced in captive mines or mines which have a protected or restricted market. An alternative way to measure the control is to monitor the share of global seaborne trade of the leading companies. Measured this way, the shares of the major companies are considerably higher. Vale alone controls 26% of the total world market for seaborne iron ore. With the market shares of Rio Tinto and BHP Billiton dropping in 2010, the overall share controlled by the Big 3 fell from 60% in 2009 to 58% in 2010.

New Capacity Onstream by 2013

New iron ore mining capacity that went onstream in 2010, as identified at the individual project level, reached 90 million mt globally. This is up by 25 million mt compared with 2009. The total project pipeline in May 2011 included 815 million mt of new production capacity that will come onstream between 2011 and 2013. Of this total, around 340 million mt falls into the "certain" category, 195 million mt "probable" and 280 million mt "possible."

Looking at the certain-category projects, 43% can be found in Oceania, 27% in Latin America, 6% in North America, 16% in Europe and 9% for Africa. The Raw Materials Group has produced these estimates for a number of years, and over this period an average of some 75% of the total, including all categories, has been recorded as completed. This figure fell to 50% in 2011 as the effects of the financial crisis limited new capacity coming onstream in both 2009 and 2010. Despite the uncertainties of each individual project it may be assumed with a reasonable degree of confidence that at least 500 million mt and probably over

600 million mt of new capacity will come onstream in the period up to and including 2013. In the three-year period following 2013, more than 325 million mt of additional iron ore capacity is listed with a completion date.

Given present circumstances and extreme optimism in the market, most of the projects in the pipeline will advance and many new ones will be announced. Were it not for the ability of the Big 3 to regulate the pace at which their projects are moved into operation, the danger of reaching overcapacity would seem considerable, particularly if there are any hiccups in the growth of steel production in the next three years.

Outlook: Big Producers Gain More Leverage

The world economic outlook remained uncertain as of mid-2011 and appears less favorable than at this time last year. The World Steel Association's latest short-term forecast for world steel use, presented in April 2011, anticipated a rise in steel use by 5.9% in 2011, following the sharp increase by 13.2% in 2010. The increase in 2010 was higher than expected, due to the unexpectedly good performance of the world economy.

The industry experienced rough times in 2009 and the changes that took place brought on some effects that probably will live on as permanent features, mainly that the Chinese dominance has now become even more massive. It seems as if the Chinese economy is capable of changing direction toward internal growth and is in the process of doing so, meaning it will be less dependent on world demand for its manufactured exports. Domestic Chinese iron ore production is highly sensitive to prices; domestic producers will probably not be able to increase output much beyond present levels and production will drop precipitously when iron ore prices start to fall.

The new pricing system gives major producers more leverage. While the international steel industry is not cohesive and producers do not act in unison, the three large iron ore producers don't have to collude in order to exercise considerable control over the market and ensure that they are pursuing mutually consistent strategies. Their

objective is obvious—to maximize profits—and their method of achieving the objective equally so: keeping prices high enough to pay for new investment but low enough so that new entrants do not become realistic alternative sources of product. The control exercised by the Big 3 will, to some extent, counteract the tendency to greater price instability that will result from the new pricing methods.

The Raw Materials Group estimates iron ore use will increase from 1.818 billion tons in 2010 to about 1.910 billion tons in 2011 and 1.990 billion mt in 2012.

Despite a massive pipeline of investment projects, the market will remain tight over the next few years because large iron ore producers can implement their expansion plans with a great deal of flexibility, and a considerable segment of the Chinese iron ore mining industry—probably representing as much as 200 million mt in annual capacity—would shut down if prices were to fall much below present levels. Accordingly, we believe that while the market is certainly moving toward a balanced supply and demand situation, equilibrium will be reached in 2013 at the earliest, and quite possibly not until beyond that date. Prices, while declining slowly, will stay sufficiently high to keep the Chinese iron ore mining industry operating at lower, but not disastrously low, output. Thus, prices will remain at levels that must be considered high from a historical perspective, with a floor at around \$110-\$120/mt delivered in China.

Magnus Ericsson is a professor at the Luleå University of Technology and a senior partner and co-founder of Raw Materials Group, Stockholm, Sweden (www.rmg.se). Anton Lóf is a research analyst with RMG, specializing in the global iron ore trade. Olle Östensson is a senior adviser at RMG.

The background material for this article is extracted from *The Iron Ore Market 2010-2012*, published by UNCTAD in July 2011. This study was researched and compiled by Raw Materials Group for UNCTAD, and can be ordered by e-mail at ironore@unctad.org, or by fax from Amelie Zethelius Mermet at +41-22 9170509.