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QUARTERLY COMMODITY INSIGHTS BULLETIN

Iron Ore | Aluminum | Copper | Diamond | Gold | Metallurgical Coal | Nickel | Platinum | Potash/Phosphates | Rare Earth Elements | Thermal Coal | Uranium

KPMG
cutting through complexity

Q4 – 2012

Iron Ore

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Faith

With an almost doubling experienced in the quarter, accurate short term prediction of iron ore pricing is more art than science. Yet many financial institutions and mining companies are making decisions on projects with 10 year development time and 30 year life with this price volatility front of mind.

The continuing urbanization of the world's population is driving the consumption of steel, with demand expected to double by 2050. Changes in technology, impact of carbon pricing and increased generation of scrap steel will moderate the proportional demand for iron ore, but most analysts agree it will be above current levels. At this level of demand without new projects both the Australia's Pilbara and Brazil's Minas Gerias current known reserves will be exhausted by 2050.

As low cost hematite deposits run out, sources of iron requiring greater capital investment and operating costs for infrastructure and/or processing will be needed and change the price point.

Just as Chinese steel mills destocking gives insight into the effects on short term price of changes in demand, the continued crackdown on illegal mining in India, has given the industry an insight into the dynamics when a substantial proportion of the global trade of iron ore is removed.

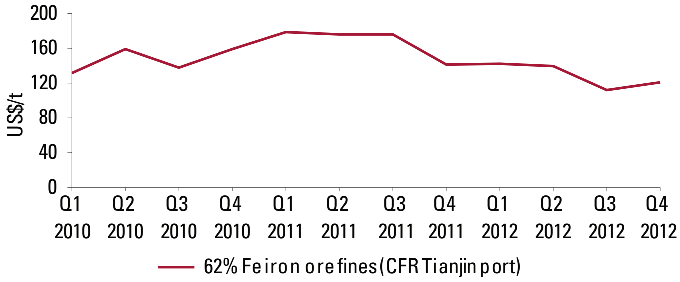
Seasonal effects, short term mismatch between supply and demand, commercial decisions all influence spot price, we must have faith that the urbanization trend will continue to drive demand, and profitable long term growth.

Commodity outlook

Spot iron ore prices (62 percent Fe content), which were on a downward path since 4Q11, saw an increase during 4Q12. In the previous year, the prices started to first fall in 4Q11 when the industry witnessed a 20 percent drop from a peak of US$175 – 180/t, which it had achieved during the first nine months of 2011. In 4Q12, the prices increased to an average of US$121/t – marking an 8 percent increase on q-o-q basis, although 14 percent lower on a y-o-y basis.

China, the largest steel producer in the world, is expected to continue as the most important factor guiding the global iron ore market prices. Sluggish steel production in Chinese steel mills; re-routing of iron ore exports to China that were originally destined for Europe, Japan and Korea; continued destocking by Chinese steel mills and overall weak macroeconomic fundamentals led to a decline in iron ore prices during the first three quarters of 2012. However, prices rose in 4Q12 driven by increased iron ore demand from Chinese steel mills. China's steel production rose in 2012 driven by the construction of railways, roads and bridges. Further, with China ending its steel destocking cycle in 1Q13 and moving toward anticipated higher imports, the iron ore prices could rise from December 2012 through March 2013.[1]

Figure 1: Spot prices of China's iron ore imports (1Q10–4Q12)



Source: IMF Monthly commodity prices February 2013

Iron ore prices are likely to remain on the downward path for the coming years after increasing during 1Q13. Downward pressure on the iron ore price is expected in 2H13 due to a combination of anticipated lower steel output and continuous supply growth from the major iron ore miners. The global seaborne export volumes are expected to reach a very high level, which is expected to pull down the prices of iron ore. Consequently, the average consensus prices are expected to moderate, with price expected to be US$124/t in 2013, US$115/t in 2014 and US$105/t in 2016. In the longer-term, the same themes still exist in the iron ore market with execution on supply projects continuing to disappoint, and increased expectation from Chinese iron ore imports required to balance the global sea-borne markets.[2]

On the supply side, production from two of the major iron ore producing regions in the world is expected to decline in 2013 due to regulatory and political uncertainty in those regions.

- Production and exports of iron ore from India are expected to decline in 2013 due to continued restriction on illegal mining. With the MB Shah commission expected to

[1] Pete Sweeney and Langi Chiang "China approves $157-billion infrastructure spending", *Reuters*, 7 September 2012; "China Iron Ore Imports Increase 8.4% to Record on Steel Output", Bloomberg, 10 January 2013; Credit Suisse – Commodity forecasts: Back to the future, 03 January 2013, via Thomson Research/Investext, accessed 12 February 2013

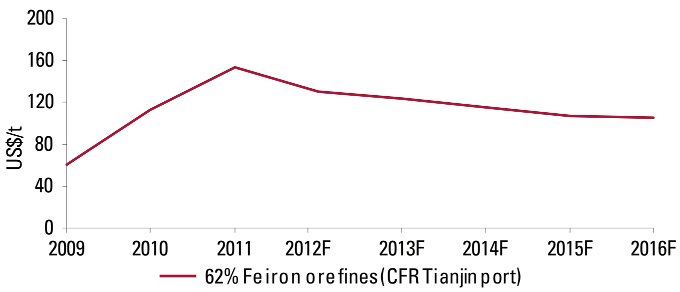
[2] Macquarie Commodities Research – Commodities compendium: Inventories the differentiator in 2013, 17 January 2013, via Thomson Research/Investext, accessed 12 February 2013

release its report on Odisha in early 2013, the exports from the country are expected to be further affected.

- The West African region, which was being dubbed as 'the new Pilbara' and was being considered as one of the most-important regions for iron ore production in the world, saw Vale's Simandou project being put on hold and Rio's Simondou project slowing amid existing political uncertainty in the region.

In the medium-term, the growth in supply is expected to outpace that in demand, due to mine expansions and increased production capacity in Australia, Brazil and West Africa (Mauritania, Gabon, Cameroon and Guinea).[3]

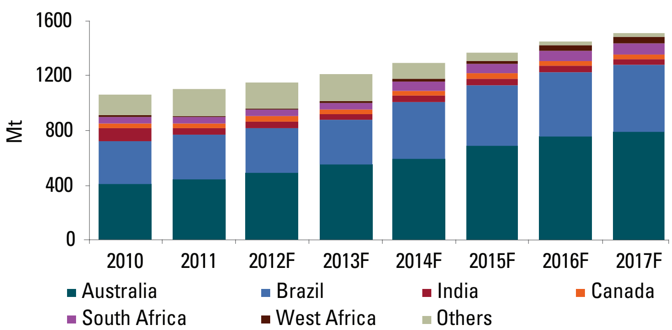
Figure 2: Prices of iron ore (2009–16F)



Source: Credit Suisse, Morgan Stanley, Canaccord Genuity Macquarie Research, KPMG analysis February 2013

Supply and demand

Figure 3: Global exports of iron ore (2010–17F)



Source: BREE, KPMG analysis February 2013

- Australian iron ore exports are expected to have increased 10 percent y-o-y to 481Mt in 2012, supported by capacity expansions at a number of major projects owned by key iron ore producers, such as Rio Tinto and BHP Billiton. During 2013, Australia's iron ore exports are forecasted to increase 13 percent to 543Mt due to reaffirmed commitments to expansion of projects that appeared much less certain during 3Q12. Some of the projects that are expected to support growth in Australia's production and exports in 2013 include: Fortescue Metal Group's Chichester Hub (annual capacity of 40Mt) and Firetail deposit at Solomon Hub (20Mt), CITIC Pacific Mining's Sino Iron Project (28Mt) and Rio Tinto's Hope Downs 4 (15Mt).[4]

- Brazilian iron ore exports are expected to have increased 1 percent y-o-y to 327Mt in 2012. The aggregate exports from Brazil are expected to remain constant at 327Mt in 2013. This is primarily due to anticipated lower exports from the country's largest supplier, Vale, to Europe. The company expects that the balance supply from Europe could be diverted to emerging nations and specifically to China which is expected to be the company's major demand driver during 2013. It expects industrial production to grow by about 7 percent in emerging markets in 2013.[5]

- Indian iron ore exports, which remained stable at 2011 export levels in 2012, are expected to decline by about 26 percent in 2013. This is expected in response to continued government measures against illegal mining. Production from the state of Goa was stopped in 2012 based on the recommendations from the MB Shah Commission. The Commission will now release its report on illegal mining in the state of Odisha in early 2013 which is expected to lead to decline in production from the state. This anticipated decrease in iron ore production could provide an opportunity to other major iron-ore-exporting economies who could export to Indian steel mills located on the coastal regions at competitive rates.[6]

- South Africa recently overtook India as the third-largest exporter of Iron ore to China, after Australia and Brazil. The iron ore exports from the country are expected to have increased 12 percent y-o-y to 48Mt in 2012 despite violent labor unrest which led to numerous deaths as well as severe losses for mining companies during the year. The Anglo American subsidiary Kumba lost 2.2Mt of finished iron ore as a result of a strike by 300 workers demanding increased wages. The country's iron ore exports are forecasted to further increase by 4 percent y-o-y to 50Mt in 2013.

- Iron ore exports from West Africa, which was being considered as one of the most important growth regions in the world, are expected to have increased 9 percent y-o-y to 12Mt in 2012. However, given the current risks and political uncertainty surrounding the development of iron ore mining activities, the region's iron ore exports are expected to remain constant at 12Mt in 2013. Also, Vale recently put on hold its plans for its US$5 billion Simandou project in Guinea.[7]

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3 "Shah Commission to visit Odisha on Feb 22, hear mine owners", Zee News, 31 January 2013; Macquarie Commodities Research – Commodities compendium: Inventories the differentiator in 2013, 17 January 2013, via Thomson Research/Investext, accessed 12 February 2013

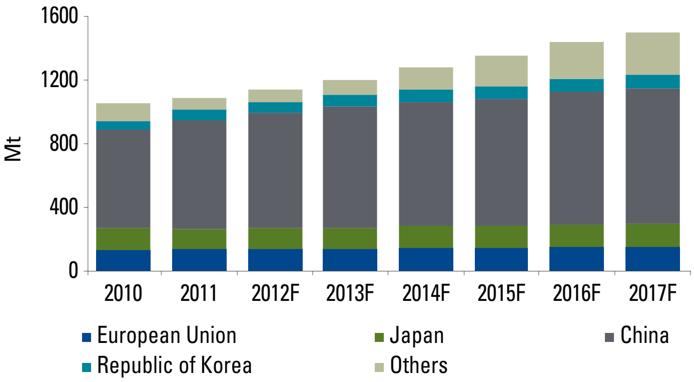
4 "Resources and Energy Quarterly, December Quarter 2012", Australian Government – Bureau of Resources and Energy Economics, December 2012, p26

5 "Resources and Energy Quarterly, December Quarter 2012", Australian Government – Bureau of Resources and Energy Economics, December 2012, p25; Laura Superneau "Brazilian iron ore export revenues rise in Jan despite lower prices", *Bnamericas.com*, 4 February 2013; "Brazil Vale sees 2013 iron ore demand coming from emerging markets", *Reuters*, 29 January 2013

6 "Resources and Energy Quarterly, December Quarter 2012", Australian Government – Bureau of Resources and Energy Economics, December 2012, p25; "Shah Commission to visit Odisha on Feb 22, hear mine owners", *Zee News*, 31 January 2013

7 Marc Howe "South Africa becomes China's third biggest iron ore supplier", *Mining.com*, 22 January 2013; Michelle Wiese Bockmann "West Africa Seen Driving Growth as Ore and Coal Exports Double", *Bloomberg business week*, 28 September 2012; Clara Ferreira-Marques "BHP questions West Africa's iron ore ambitions", *Reuters*, 26 October 2012

Figure 4: Global imports of iron ore (2010–17F)



Source: BREE, KPMG analysis

Global trade of iron ore in 2012 is expected to have increased 5 percent y-o-y to 1,143Mt in 2012 driven primarily by an increase in the Chinese imports. The global iron ore trade is further expected to increase 5 percent y-o-y to 1,202Mt in 2013 driven again by an increased demand from china.

- Chinese iron ore imports are expected to have increased 6 percent y-o-y to 730Mt in 2012, primarily due to increased steel production driven by the construction of railways, roads and bridges, even though growth in the world's second-largest economy slowed. While its iron ore imports from South Africa increased by 12 percent y-o-y to 40.6Mt in 2012, the country's Indian imports declined by 55 percent y-o-y to 33Mt in 2012. However, overall, its iron ore imports are forecast to further increase 5 percent y-o-y to 769Mt in 2013. This growth is expected due to robust steel production, certain high-cost domestic iron ore operations closing or scaling-back production in response to lower iron ore prices, and declining average iron content of domestically mined ore.[8]

  China is expected to continue as the world's largest importer of iron ore in the coming years. The country's iron ore reserves possess relatively lower average iron ore content of about 33 percent, compared to Australian (63 percent) and Brazilian iron ore (55 percent). Since efforts to increase the average grade of produced steel in the country are under way, there is need to use higher-grade iron ore. Additionally, as the steel mills are located near coastal areas, iron ore can be imported at a lower cost as compared to sourcing it from domestic producers. Thus, BREE expects imports to China to increase at an average annual growth rate of 5 percent, to reach 854Mt by 2017.[9]

- The Japanese iron ore imports are expected to have increased 2 percent y-o-y to 131Mt in 2012. Almost 60 percent and 30 percent of these imports were sourced from Australia and Brazil, respectively. Iron ore imports into Japan are forecast to increase 1 percent y-o-y to 132Mt in 2013.

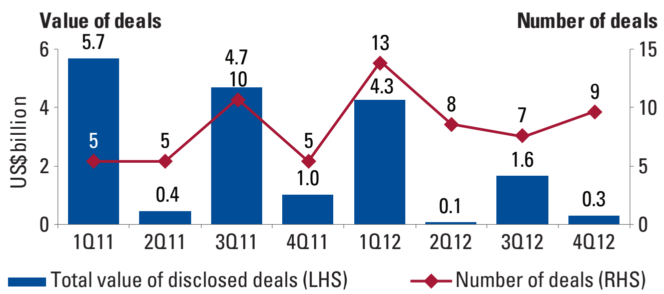
- Iron ore imports into the Republic of Korea are expected to have increased 3 percent to 67Mt in 2012 and expected to increase 4 percent y-o-y to 70Mt in 2013. The imports into these countries in 2013 are expected to grow in tandem with their forecast growth in steel production. Iron ore imports into the EU are expected to remain relatively unchanged at about 136Mt due to anticipated lowered steel production in 2012 and 2013 (forecasted).[10]

Key developments

Ownership changes[11]

During 4Q12, the total value of major deals announced in the iron ore industry was US$0.28 billion, down 72 percent y-o-y and 83 percent q-o-q. (refer to Figure 5). The number of deals announced in the quarter increased to nine, against five in 4Q11. Of the nine deals, two have been successfully closed.

Figure 5: Value of major deals announced in iron ore industry



Source: Factiva, Mergermarket, KPMG analysis

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[8] "China's iron ore imports from India drop 55% – South Africa overtook India to become China's third-biggest iron ore supplier in 2012", *Business standard*, 21 January 2013; "Resources and Energy Quarterly, December Quarter 2012", Australian Government – Bureau of Resources and Energy Economics, December 2012, p24; Leslie Hook "China iron ore imports hit fresh high", *Financial Times*, 10 January 2013

[9] "Resources and Energy Quarterly, September Quarter 2012", Australian Government – Bureau of Resources and Energy Economics, September 2012, p97

[10] "Resources and Energy Quarterly, December Quarter 2012", Australian Government – Bureau of Resources and Energy Economics, December 2012, p25; "A peep into Japanese iron ore imports in 2012", *Scrap Monster*, 04 February 2013

[11] Mergermarket database, accessed December/2012

Table 1: Top iron ore deals in Q4 2012

Date announced	Target	Nation of target	Acquirer	Nation of acquirer	Status	Value of transaction (US$ million)	Stake (%)
24-Dec-12	Lee Steere iron ore project	Australia	Iron West Resources Pty Ltd	Australia	Announced	1.1	55
20-Dec-12	Western cluster Ltd	Liberia	Sesa Goa Ltd	India	Closed	33.5	49
20-Dec-12	China Hankings Holdings Ltd	China	Northeastern Lion Limited	British virgin islands	Announced	49.6	70
19-Dec-12	Fields Find Tenement Package	Australia	Mount Gibson Iron Limited	Australia	Announced	0.5	100
17-Dec-12	Interest in EL 25688 from Tianda Resources	Australia	Western Desert Resources Limited	Australia	Announced	N.A.	30
13-Dec-12	Baffinland Iiron mines Corporation	Canada	Nunavut Iron Ore Inc.	Canada	Announced	N.A.	20
10-Dec-12	Iron mask property	Canada	Wallbridge Mining Company Ltd	Canada	Announced	0.2	100
10-Dec-12	Nullagine Iron Ore joint venture	Australia	BC Iron Nullagine Pty Ltd	Australia	Closed	199.2	25
6-Dec-12	KWR Iron Sprl	Democratic Republic of Congo	Randgold Resources Ltd.	UK	Announced	N.A.	65

Source: Intierra, Mergermarket, KPMG analysis

Regulatory updates

During 4Q12, the new regulations were aimed at introducing changes in the taxation structure.

Table 2: Recent regulations in iron ore industry

Country/ Region	Regulation/Topic	Description
Mozambique[12]	Capital gains tax increased	• The country has imposed a 32 percent capital gains tax on the future sales of assets owned by foreign companies in Mozambique. • The tax will be effective from January 2013 and is inapplicable retroactively to previously closed deals.
Brazil[13]	Extraction tax reduced by two thirds	• Brazil's northern state of Para has reduced the extraction tax on mining activity from three (Standard tax unit) to one UPF for each extracted tonne of ore.
South Africa[14]	Introduction of Export Tax	• The country is considering the introduction of an export tax on iron ore and steel. • The country also plans to strengthen its control on scrap exports.
India[15]	MB Shah commission report on illegal mining in Odisha	• The MB Shah commission is expected to release its report on illegal mining in Odisha in early 2013.

[12] Agnieszka Flak and Pascal Fletcher "UPDATE 1-Mozambique to tax capital gains at fixed rate of 32 pct * Amended capital gains tax law becomes effective Jan 1", *Reuters*, 17 December 2012

[13] "Brazilian state of Pará reduces extraction tax by two thirds", *Metal Bulletin*, 25 October 2012

[14] Lynley Donnelly, "Government may impose export tax on iron ore, steel", Mail & Guardian–AFRICA'S BEST READ, 06 December 2012

[15] "Shah Commission to visit Odisha on Feb 22, hear mine owners", *Zee News*, 31 January 2013

Project updates[16]

Table 3: Cross-section of major Iron Ore projects[1]

Project	Country	Owner/Operator	Capex (US$ million)	Potential start year	Full capacity (Mtpa)	Type	Progress and updates
WAIO Jimblebar Mine Expansion	Australia	BHP Billiton (96%)	3,438*	1Q14	55	Brown	The project is on schedule and within budget. It increases the mining and processing capacity to 35 mtpa with incremental debottlenecking opportunities to 55 mtpa.
Samarco Fourth pellet Plant	Brazil	BHP Billiton (50%) Vale (50%)	3,500	1H14	30.5	Brown	The project is on schedule and within budget. It increases the iron ore pellet production capacity by 8.3 mtpa to 30.5 mtpa.
WAIO Orebody 24	Australia	BHP Billiton (85%)	821	4Q12	NA	Brown	Delivered first production in Q4 2012, as planned. The project maintains iron ore production output from the Newman Joint Venture operations.
WAIO Port Hedland Inner Harbour Expansion	Australia	BHP Billiton (85%)	2235*	4Q12	220	Brown	Increases total inner harbor capacity to 220 mtpa. Debottlenecking opportunities that are expected to add substantial, low cost capacity are being evaluated.
WAIO Port Blending and Rail Yard Facilities	Australia	BHP Billiton (85%)	1647*	2H14	NA	Brown	Optimises resource and enhances efficiency across the WAIO supply chain.
Two phased expansion of Iron Ore Company of Canada (IOC)	Canada	Rio Tinto (58.7%), Mitsubishi Corporation (26.2%), and the Labrador Iron Ore Royalty Income Corporation (15.1%)	800	PThase I complete. Phase II expected in 1H13	23.3	Brown	Phase one commissioning is now complete. Phase two is progressing with first production expected in the first quarter of 2013. Increase production from 18 to 22 mtpa and then to 23.3 mtpa
Expansion of the Pilbara mines, ports and railways	Australia	Rio Tinto (100%)	9,800	Phase I by 3Q13	290	Brown	Completion of the phase one expansion to 290 mtpa has been brought forward to the third quarter of 2013. Dredging and piling at Cape Lambert is complete
Expansion of the Pilbara port and rail capacity	Australia	Rio Tinto (100%)	5,900	Phase II by 1H15	360	Brown	The phase two expansion to 360 mtpa is expected to come onstream in the first half of 2015. This includes the port and rail elements which are now fully approved and an investment in autonomous trains. The key component of the project still requiring approval is further mine production capacity
Development of Hope Downs 4 mine	Australia	Rio Tinto (50%) and Hancock Prospecting Pty Ltd (50%)	2,100	2013	15	Green	Approved in August 2010, first production is expected in 2013. The new mine is anticipated to have a capacity of 15 mtpa. Rio Tinto is funding the $0.5 billion for the rail spur, rolling stock and power infrastructure. It will help in sustaining production at 237 mtpa
Phase two of the Marandoo mine expansion	Australia	Rio Tinto (100%)	1,100	NA	15	Brown	Approved in February 2011, the mine will extend Marandoo at 15 mtpa by 16 years to 2030. It will help in sustaining production at 237 mtpa

16 [BHP Billiton], September 2012 exploration and development update, [BHP Billiton news release] accessed February/2013; Intierra, Vale S.A. October 2012 6-K, 29 October 2012

Project	Country	Owner/Operator	Capex (US$ million)	Potential start year	Full capacity (Mtpa)	Type	Progress and updates
Investment to extend the life of the Yandicoogina mine	Australia	Rio Tinto (100%)	1,700	NA	56	Brown	Approved in June 2012, the investment includes a wet processing plant to maintain product specification levels and provide a platform for future potential expansion. It will extend the life of mine to 2021 and expand its nameplate capacity from 52 mtpa to 56 mtpa
Carajás Additional 40Mtpy	Brazil	Vale (100%)	3,475	2H13	40	Brown	The construction of an iron ore dry processing plant at Carajas is 76 percent complete
Serra Leste	Brazil	Vale (100%)	478	1H13	6	Green	The civil engineering work and assembly of metallic structures of the beneficiation plant is under progress. 54 percent of physical progress completed
Vargem Grande – Itabiritos	Brazil	Vale (100%)	1,645	1H14	10	Brown	Installation license for the power transmission line obtained. Assembly of metallic structures for the screening building in progress
Conceição Itabiritos	Brazil	Vale (100%)	1,174	2H13	12	Brown	The project is on time and within budget, with 93 percent completion
Carajás Serra Sul (mine S11D)	Brazil	Vale (100%)	8,039	2H16	90	Green	Vale received preliminary environmental license (LP) for the project, which is 37 percent completed.
Conceição Itabiritos II	Brazil	Vale (100%)	1,189	2H14	19	Brown	Of the project, 50 percent has been completed.
Cauê Itabiritos	Brazil	Vale (100%)	1,504	2H15	24	Brown	Of the project, 12 percent has been completed.

* Excludes announced pre-commitment funding
[1] The list is not exhaustive and contains only a limited number of projects
Source: Intierra, Company data, BREE

The above analyses include projects of BHP Billiton, Rio Tinto and Vale.

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