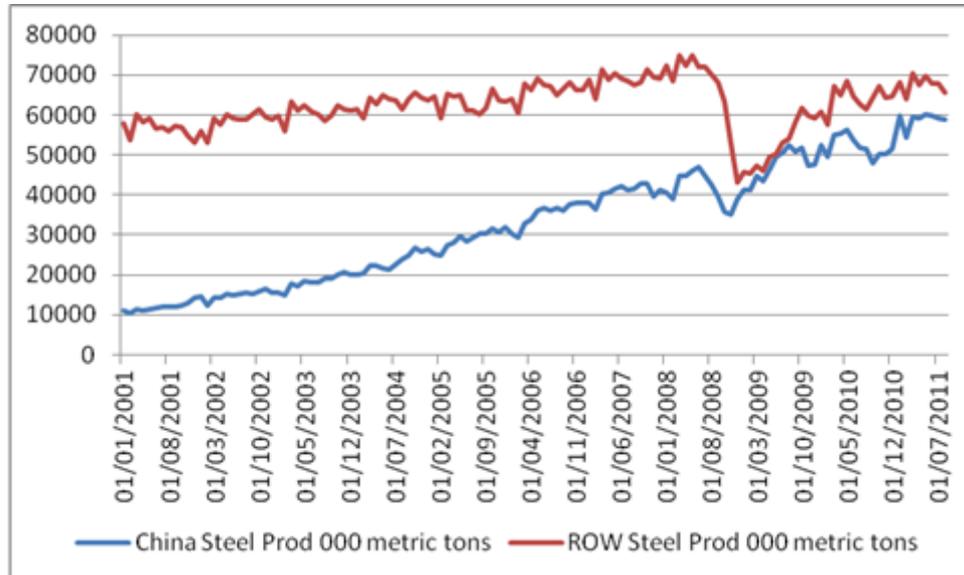


IRON ORE



Iron ore is an essential ingredient in making steel. It is also the 4th most abundant element in the Earth’s crust. China is the largest producer of iron ore, but due to massive ramp up in Chinese steel production, it has had to buy ever larger amounts from overseas producers in Australia and Brazil. For any investors in the mining sector, it has been hard not to be exposed to iron ore.

**Chinese Steel Market**



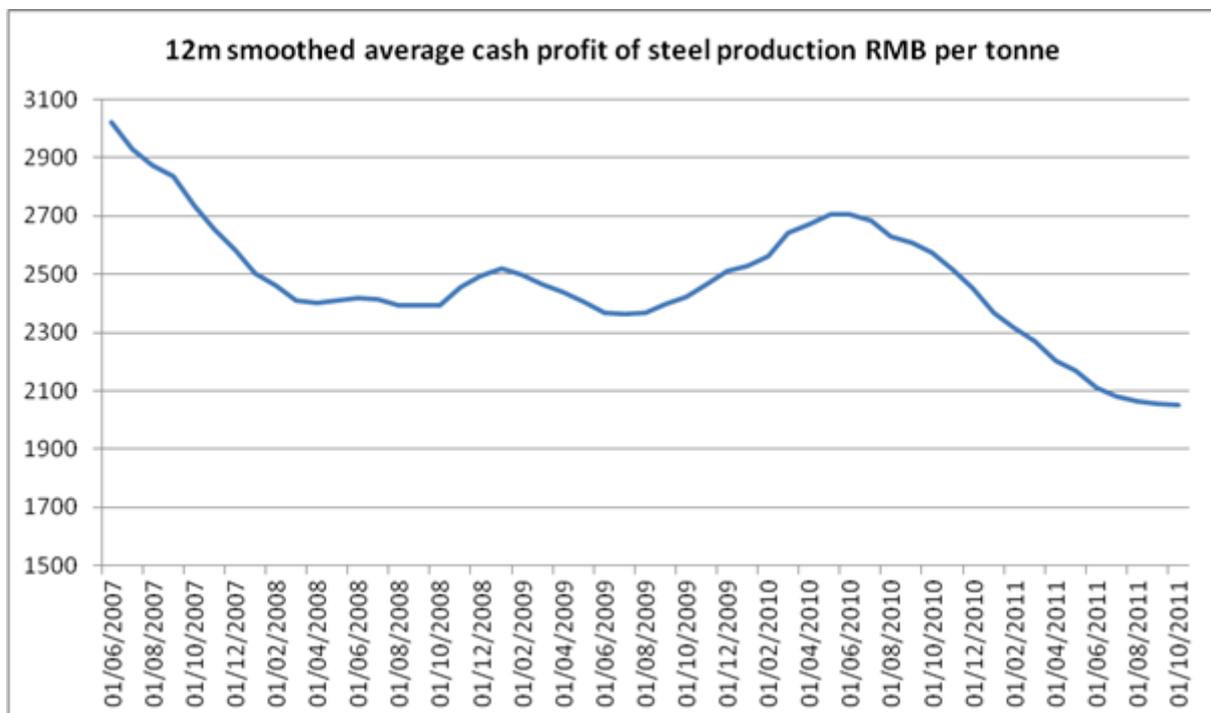
China has gone from being less than 20% of the world’s steel market to nearly 50%. This has been a huge boom to the iron ore exporters of the world. Vale, the biggest producer of iron ore, has expanded from 120m tonnes of production in 2000 to 400m tonnes in 2010. Its stock price has risen by over 1000% during that period.

Vale, Rio Tinto, BHP Billiton and Fortescue Metal Group have all announced large expansion plans with the intention to increase production. Vale has plans to expand production to 500m tonnes and Fortescue has announced plans to increase production to 350m tonnes. All of these plans are based on Chinese steel production continuing to increase at around 10% a year. These assumptions are based on the level of steel consumption seen in other East Asian nations such as Japan, South Korea and Taiwan.

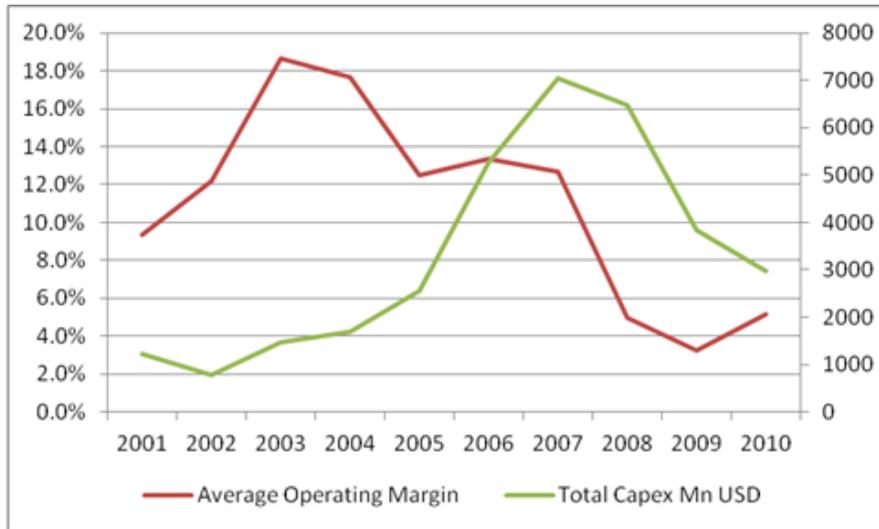
|   | Population* | Steel Prod m** | Per Cap Prod |
|---|-------------|----------------|--------------|
| China   | 1343        | 56,700         | 507          |
| Japan   | 126         | 8,882          | 845          |
| S. Korea  | 49          | 5,478          | 1,344        |
| India   | 1205        | 5,950          | 59           |
| Taiwan  | 23          | 1,800          | 935          |
| USA   | 316         | 7,190          | 273          |
| Brazil  | 206         | 2,807          | 164          |
| Mexico  | 115         | 1,597          | 167          |
| Canada  | 34          | 1,040          | 364          |
| EU  | 400         | 14,971         | 449          |
| Russia  | 138         | 5,760          | 501          |
| Ukraine   | 45          | 2,780          | 741          |
| Turkey  | 80          | 2,997          | 451          |
| South Africa  | 49          | 550            | 135          |
| *US Census Bureau and IMF estimates for 2012 population |             |                |              |
| ** IISI monthly data on steel production                |             |                |              |

The above chart looks at per capita steel consumption. If China does emulate Japan, Korea and Taiwan, then its steel production could continue to increase. However should China see a peak in steel production that is similar to other continental economies like the US and Europe, then the scope for further increase in production looks much more limited. In any case it seems highly likely that the rate of growth in Chinese steel production will slow down.

Secondly, the Chinese steel market is extremely sensitive to profitability. When profits are high, capacity is added quickly; when profits are low capacity is taken off.

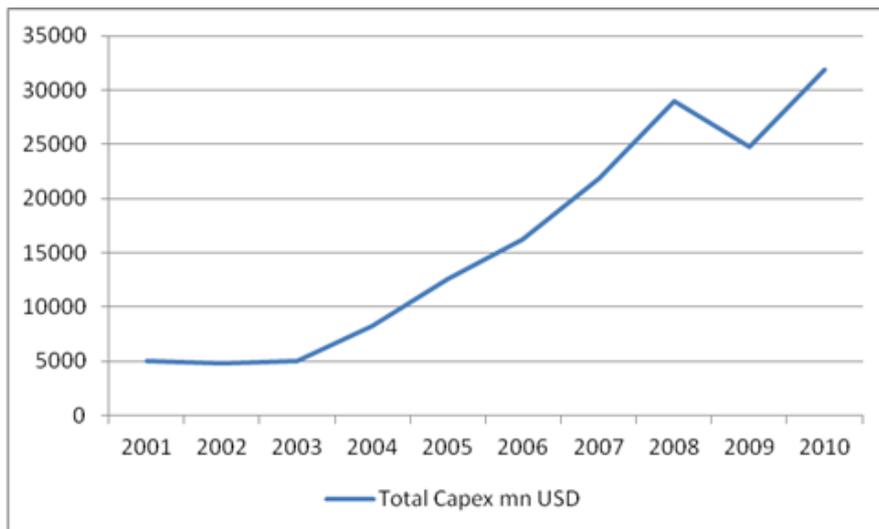


Profitability in the Chinese industry has been declining since 2010, and recent results have shown major steel producers are posting losses. Chinese steel producers are beginning to reduce capex.

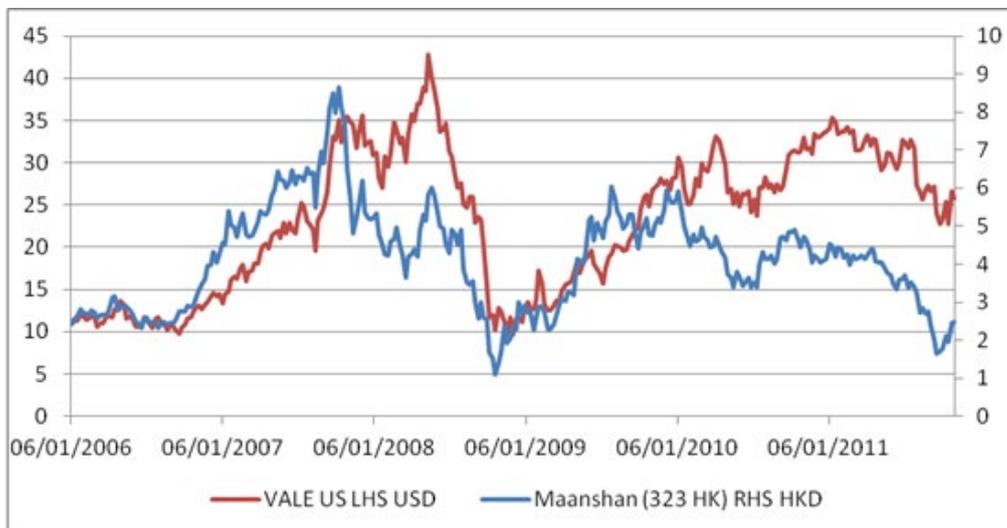


Above is the average margin of three large listed Chinese steel companies, Baoshan, Angang and Maanshan. As we can see capital expenditure is no longer increasing as margins have contracted.

From the reported results of the 4 biggest iron ore miners, BHP Billiton, Rio Tinto, Vale and Fortescue Metal Group, we can find total capital expenditure. This ignores announced future increases in capital expenditure.



This huge divergence in capital expenditures between the two industries has been reflected in the share prices as well.



Typically when suppliers continue to expand beyond their customers' willingness to purchase, eventually pricing becomes an issue and margins come under pressure. Currently, iron ore exports enjoy net margins in excess of 30%. Unless the Chinese steel industry stages a remarkable recovery in profitability, iron ore producers are going to have to share some pain. This process has already started. Given the difference in capital expenditures we have seen, I suspect iron ore markets are heading for a prolonged bear market.



## INFORMATION

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