Impact of “Stronger for longer” on global iron ore

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Global steel production has followed a high growth path since 2001. The past ~5 years has seen a remarkable pick up in global steel and pig iron output, compared to the previous period. This has seen BF based BOF steel’s share reach 2/3 of total production.

**BOF share of total steelmake**

- **Crude steel**
  - 1995-2001: 2%pa
  - 2001-2006a: ~7%pa

- **Pig iron**
  - 1995-2001: 2%pa
  - 2001-2006a: ~8%pa

*Note: 2006 annualised data*

*Source: IISI, BHP Billiton*
China has been the driver of this high growth rate.

Chinese steel production has risen by over 210 million tonnes since 2001 at ~25%pa, and now corresponds to ~32% of total production. Pig iron has risen >183 million tonnes at ~22%pa and now corresponds to ~42% of global production.
Global economic conditions are very robust, thus predictions for steel consumption growth are more positive for 2006/7 than for 2005; ROW expected to see significant growth to complement China – the majority of growth in 2005.

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<th>2005</th>
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<tr>
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<tr>
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<td><strong>1013</strong></td>
<td><strong>1087</strong></td>
<td><strong>1150</strong></td>
<td><strong>74</strong></td>
<td><strong>7%</strong></td>
</tr>
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</table>

Source: IISI, BHP Billiton
For steel and iron ore China is the key can high growth continue?

Chinese economic growth has consumed significant amounts of steel and iron ore, recent revisions to GDP determinations have shown a more sustainable growth path – growth drivers remain strong.

- China’s growth drivers remain strong
  - Urbanisation
  - Demand for infrastructure
  - Growth in working age population
  - Rising middle class lifting domestic demand
  - Productivity and closing quality gap

- Strong savings rate
- Large trade surplus and foreign reserves
- Pro-growth policies
- Rapid ability to de-bottleneck

Source: World Bank, NBS, BHPB Estimates
Demand from China will drive iron ore demand

China makes up the bulk of future growth in seaborne demand, consequently China’s share of the seaborne iron ore market is also increasing, from 34% in 2004 to 41% in 2005 and to ~44% in 2006.

China's iron ore demand growth

Source: AME, China customs, industry forecasts, BHP Billiton
Iron ore demand and supply dynamics are complex. The rapid demand growth has seen a strong growth in higher cost imported and domestic ores, the majority of which are sold as “spot”.

2005 Chinese iron ore consumption

- **Benchmark import and domestic tonnes**
- **Spot** (53%)
- **Captive** (24%)
- **“LTC”** (23%)
- **Captive domestic linked with logistics**


Carbon Steel Materials - Market Intelligence Group
Iron ore supply sources struggling to match demand

Supply dynamics are determined by mine, port and rail constraints, although additional iron ore can be mined the shear size of increases required pose major challenges in the current mining boom.

- South Africa (expanding)
  - Lump, fines
- South Africa (expanding)
  - Lump, fines
- Ukraine – domestic demand
  - Pellets, conc.
- Russia – domestic demand
  - Pellets, fines, conc
- Australia (expanding)
  - Fines, lump
- Australia (expanding)
  - Fines, lump
- Canada
  - Pellets, conc, fines
- USA
  - Pellets, conc
- Brazil (expanding)
  - Pellets, fines, lump, conc
- Mauritania
  - Lump, fines
- China – domestic demand
  - Pellets, fines, conc
- Sweden – (expanding)
  - Pellets, conc
- Portugal – domestic demand
  - Pellets, fines
- Brazil (expanding)
  - Pellets, fines, lump, conc
- India (expanding)
  - Fines, lump, pellets
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  - Fines, lump, pellets
- China – domestic demand
  - Pellets, fines, conc
- Sweden – (expanding)
  - Pellets, conc
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Seaborne iron ore supply outlook

Capacity to meet the rapidly growing demand will come from the traditional suppliers of Australia and Brazil. India has challenges meeting its own future demand and may result in falling exports.

Seaborne Iron Ore Supply Capacity

Source: Customers statistics, AME, Tex, industry forecasts, BHP Billiton
Growth challenge – rising construction costs

Whilst capital investment has risen sharply in mining, rising costs and exchange rates continue to pose problems in meeting strong demand for minerals including iron ore.

Construction Projects in Western Australia
Impact of Escalation and Exchange Rate Movement 2001–05

Escalation
AUD
Q4 / 01  Q4 / 05

50%

Exchange Rate
USD per AUD
Q4 / 01  Q4 / 05

46%

Escalation & Exchange Rate
USD
Q4 / 01  Q4 / 05

118%

Source: Westpac, BHP Billiton
Stronger for longer – set to remain

Balancing supply and demand is likely to take longer than originally thought as delays in additional supply and stronger absolute demand have seen stronger for longer become the norm.

- Challenges including rising costs are impacting and delaying the delivery of new capacity from traditional low cost producers.
- Supply gap has been met by high cost producers – India, domestic China, others.
- Rising Indian domestic demand is seeing local shortages and pressure to reduce exports.
- China’s domestic growth, whilst spectacular, raises environmental concerns and is of very low ROM grades.
- Smaller producers lack volumes to significantly impact the overall supply demand balance.

Seaborne Iron Ore Market Balance

- Illustrative supply capacity is constrained to industry average.
- Balancing supply and demand is likely to take longer than originally thought as delays in additional supply and stronger absolute demand have seen stronger for longer become the norm.

Demand:
- Weak demand
- Strong demand

Supply:
- Slow supply response
- Rapid supply response

Balance:
- Oversupply
- Undersupply

Million Tonnes
Benefits of seaborne raw materials

- **Iron Ore**
  - Generally higher Fe content
  - Improved sinter and BF performance – lower slag and fuel rates
  - Increased flexibility with direct charge material – lump, pellets

- **Met Coal**
  - Higher CSR and strength values in coke
  - Improved utilisation of generally poorer domestic coals
  - Resultant superior coke results in higher BF productivity and lower fuel rates

- **Ferroalloys**
  - Higher Mn content and improved Mn/Fe ratio
  - Lower trace elements eg P
Concluding remarks

• Global steel outlook remains very positive

• China’s growth is predicted to continue at a strong pace in the medium term, driving pig iron and iron ore demand

• Iron ore producers are aggressively seeking to expand but are facing significant challenges due to costs and shortages

• Bring global seaborne iron ore back into balance is therefore likely to take longer leading to a prolonged “stronger for longer” environment

• Using seaborne raw materials gives a range of benefits to the steelmaker which will see continued growth in the seaborne market