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I Main Risks

II Main Opportunities

III Conclusions
Risk # 1: Increasing Royalties and Taxation

- It is not a trend anymore, it’s a global reality:
  - Australia – supertax of 30% from 2012 onwards
  - Chile – in process to approve new royalties of up to 9% from 4%
  - Brazil – new mining code and comparison with oil royalties
    - Main president candidates support increase in royalties
    - Disconnection between foreign and local investors on magnitude
    - Potential benefit to minerals to be processed in the country

### Vale – Iron Ore Royalties Scenarios, Effects on TP

<table>
<thead>
<tr>
<th>Iron Ore Royalty</th>
<th>Vale 2011 YE Target Price</th>
<th>Amount to be paid in 2012</th>
<th>% of 2012 EBITDA</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.0%</td>
<td>US$37.00</td>
<td>US$0.75 billion</td>
<td>2.31%</td>
</tr>
<tr>
<td>5.0%</td>
<td>US$35.50</td>
<td>US$1.88 billion</td>
<td>5.76%</td>
</tr>
<tr>
<td>7.5%</td>
<td>US$34.30</td>
<td>US$2.82 billion</td>
<td>8.64%</td>
</tr>
<tr>
<td>10.0%</td>
<td>US$33.00</td>
<td>US$3.76 billion</td>
<td>11.53%</td>
</tr>
<tr>
<td>15.0%</td>
<td>US$30.70</td>
<td>US$5.65 billion</td>
<td>17.29%</td>
</tr>
</tbody>
</table>

Source: Santander estimates
Risk # 2: Non Accretive M&A Actions

- Excess cash generation may lead to:
  - M&A in detriment of organic growth and dividends
  - Consolidation towards 2nd tier companies/assets at high prices
  - Becoming bigger for the sake of being bigger, not value creation
  - Risk for leaders, opportunity for juniors
Risk # 3: Lower Profitability of Clients

- Downstream sectors are usually not consolidated as the mining industry
  - Main examples: steel, automotive
  - Margin compression can imply in lower utilization rates (steel @ 75%)

Iron Ore and Steel Prices US$ per Ton, 2008 to Sep-10

Sources: Santander estimates and Bloomberg.
Risk # 4: Weaker US$

- BRL, AUD, CAN may remain stronger for longer versus USD
  - Most of capex/opex is in local currencies
  - Margin compression in ST
  - Lower IRR in new projects in LT

Vale COGS Breakdown By Currency

- BRL 75%
- USD 14%
- CAN 6%
- IDR 3%
- Others 2%

Source: Company reports
Risk # 5: Lower Grades / Product Quality

- Higher product prices in ST implying in:
  - Faster depletion
  - Lower grades and higher costs with concentration
  - Development of more complex reserves in complex regions
  - Higher capex per ton due to extra processing facilities/logistics
  - Predominance of greenfield projects
Risk # 6: Organic Growth Execution

- Delays will happen mainly due to:
  - Stricter environmental licenses/permits
  - Infrastructure bottlenecks
  - Management challenge
  - Mining equipment suppliers may not be able to attend demand

<table>
<thead>
<tr>
<th>Iron Ore Expansion Projects (Million Tons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Company / Year End</td>
</tr>
<tr>
<td>VALE</td>
</tr>
<tr>
<td>Rio Tinto</td>
</tr>
<tr>
<td>BHP</td>
</tr>
<tr>
<td>Anglo American</td>
</tr>
<tr>
<td>Anglo American - Kumba</td>
</tr>
<tr>
<td>CSN</td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
</tbody>
</table>

- % World Iron Ore Consumption: 51.8% 55.1% 63.0%
- % Chinese Iron Consumption: 79.0% 84.4% 93.5%

Source: Company reports and Santander estimates
I Main Risks

II Main Opportunities

III Conclusions
Opportunities: Short Term

- Emerging Markets Economic Growth
  - China is expected to remain leading the developing world leap
  - Brazil, India and Russia also growing
  - Developed world: downside seems limited

Source: IMF.
Opportunities: Medium Term

- Tight supply will prevail until 2013 at least
- Execution risk is also an opportunity for market leaders
- Iron ore and cooper are consolidated markets

### Iron ore and copper supply demand scenario

<table>
<thead>
<tr>
<th>Millions of Tons</th>
<th>2010E</th>
<th>2011E</th>
<th>2012E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase in Global Demand</td>
<td>178.6</td>
<td>96.1</td>
<td>89.7</td>
</tr>
<tr>
<td>Increase in Top Producers Supply</td>
<td>57.6</td>
<td>62.0</td>
<td>90.0</td>
</tr>
<tr>
<td>China increase in Production</td>
<td>119.7</td>
<td>20.0</td>
<td>-20.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Millions of Tons</th>
<th>2010E</th>
<th>2011E</th>
<th>2012E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mining Production</td>
<td>15.9</td>
<td>16.6</td>
<td>17.3</td>
</tr>
<tr>
<td>Global Demand</td>
<td>19.5</td>
<td>20.3</td>
<td>21.1</td>
</tr>
<tr>
<td>Deficit / Scrap Supply</td>
<td>-3.6</td>
<td>-3.7</td>
<td>-3.7</td>
</tr>
</tbody>
</table>

|-------------------------------------|--------|--------|--------|

<table>
<thead>
<tr>
<th>Copper price (US$/lb) - Avg:</th>
<th>US$3.33</th>
<th>US$3.65</th>
<th>US$3.65</th>
</tr>
</thead>
</table>

Sources: Santander estimates and Bloomberg.
Opportunities: Long Term

- Substitution of High Cost Competitors
  - Riders of ST market tightness will gradually disappear
  - Clear example in the iron ore industry

High-Cost Producers/Low-Cost Producers

- Consolidation Towards New Segments
  - Fertilizers on the spot now; consolidation will take place in next years
  - Opportunity to diversify from infrastructure boom to human development process: increasing demand for food and improving diet
I Main Risks

II Main Opportunities

III Conclusions
Conclusions

- Investment returns are at risk in the long run
  - Mining is still a cyclical sector: market downturns and extra supply will arrive
  - Higher taxation and project delays are a reality

- World class assets (first quartile in costs) are key to generate decent returns

- Newcomers / Junior companies have a challenging mission
  - Lower financial strength to face downturns
  - Less access to world class assets and efficient logistics
  - Investment community increasingly critical about it: more difficult to raise equity

- China was, has been, and will continue to be the engine of demand
## Sector Team

<table>
<thead>
<tr>
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