China outlook
Separating the myth from the reality
Climbing the great wall of fear!

September 2011

Jim Lennon
Macquarie Capital (Europe) Limited
Level 7, 28 Ropemaker St, London, UK

+44 203 037 4271
jim.lennon@macquarie.com

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Overview of presentation

- Trends in Chinese supply and demand over the past decade
- Summary of our medium term supply and demand forecasts
- Short term Chinese volatility – why we are not worried about China in 2012 – a review of recent macro trends
- China’s “de-synchronisation” with rest of world – we explain why
China outlook – short-term slower but still “stronger for longer”

- China commodities growth is cyclical but in a steady upward direction – still plenty of growth to come as urbanisation and industrialisation trends continue.
- The Chinese authorities are as worried about bubbles/over-capacity/over-heating as anybody. China moves quickly to prevent them…as it is doing now.
- China opens and shuts capacity more quickly than anyone else.
- Per capita analysis and common sense suggest that there is still a lot more growth to come from China, at least out to 2015 and probably to 2020.
- 2011 has been a year of inventory destocking in China due to tight monetary policy – 2012 could see a strong 1H rebound in apparent demand, especially if the rest of the world slows.
It’s all been China for demand over the past decade…

**Average growth in consumption, 2000-2010**

**China’s share of global consumption**

Source: Antaike, ICSG, ILZSG, INSG, IAI, Brook Hunt, Macquarie Research, September 2011
Big jump decade on decade in demand, except for copper (wasn’t enough of it!)

Source: Antaike, ICSG, ILZSG, INSG, IAI, Macquarie Research, September 2011
Where supply came from: China dominates except in mining

Source: Antaike, ICSG, ILZSG, INSG, IAI, Brook Hunt, Macquarie Research, September 2011
China has met a lot of its own requirements, especially in smelting/refining

China has excelled in smelting/refining due to:

- Extremely low capital costs of building new smelters (1/4th to 1/3rd of rest of world)
- Short lead times to build – 12-18months vs. 3-4 years elsewhere
- Lower environmental standards (arguably now changing)
- Access to cheap finance and other incentives

Source: Antaike, ICSG, ILZSG, INSG, IAI, Brook Hunt, Macquarie Research, September 2011
Virtually ALL nickel and aluminium growth have come from China in recent years, based on cheap smelting capacity

- Chinese nickel pig iron and aluminium production near the top of global cash cost curves – extremely low capex means 1-3 year capital payback possible on investments
- Raw materials: bauxite and low-grade nickel ores (from Indonesia/Philippines) which are plentiful and easy to mine

Source: Antaike, INSG, Brook Hunt, Macquarie Research, September 2011
All growth in lead is from China – in zinc China is all the smelting growth

Chinese zinc mine production have average 13% a year since 2000, while rest of world production has averaged 10% a year; lead mine and zinc and lead refined production has not grown outside China
Copper supply tightness driven by lack of China supply response

→ China can meet only one-third of its copper demand (from concentrate and scrap)
→ Non-Chinese production has not responded to price incentive over past six years
Imports of raw materials and primary have soared.

Source: Antaike, ICSG, ILZSG, INSG, Brook Hunt, Macquarie Research, September 2011

Note: 2011 based on pro-rated YTD data.
We think that there is yet more growth to come, albeit slower in China than in the past decade.

Source: Antaike, ICSG, ILZSG, INSG, IAI, Brook Hunt, Macquarie Research, September 2011
Summary of demand forecasts to 2020 – still lots of growth

Copper demand growth by decade

nickel demand growth by decade

Zinc demand growth by decade

Lead demand growth by decade

China's share of global consumption

Source: Antaike, ICSG, ILZSG, INSG, Macquarie Research, September 2011
Per capita consumption still has some way to go

Source: Antaike, ICSG, ILZSG, INSG, IAI, world steel, World Bank, Macquarie Research, September 2011
More supply required over the next decade than in previous decades…and now mostly Greenfield…

Source: Antaike, ICSG, ILZSG, INSG, IAI, Brook Hunt, Macquarie Research, September 2011
China “normalises” monetary policy after 2009 stimulus – object to get CPI down

Source: NBS, Macquarie Research, September 2011
Chinese growth is still strong in 2011

Source: NBS, Macquarie Research, September 2011
Chinese investment spending (FAI)

Source: NBS, Macquarie Research, September 2011
Main demand indicators in China still growing strongly in 2011

- **Production of ships - % change YoY**
  - 2005: 42%
  - 2006: 22%
  - 2007: 32%
  - 2008: 86%
  - 2009: 47%
  - 2010: 53%
  - 2011 YTD: 29%

- **Production of passenger cars - % change YoY**
  - 2005: 32%
  - 2006: 34%
  - 2007: 25%
  - 2008: 7%
  - 2009: 43%
  - 2010: 27%
  - 2011 YTD: 11%

- **Production of white goods - % change YoY**
  - 2005: 10%
  - 2006: 14%
  - 2007: 21%
  - 2008: 9%
  - 2009: 19%
  - 2010: 24%
  - 2011 YTD: 14%

- **Housing: Square metres completed - % change YoY**
  - 2005: 15%
  - 2006: 9%
  - 2007: 10%
  - 2008: 0%
  - 2009: 5%
  - 2010: 13%
  - 2011 YTD: 15%

Source: NBS, Macquarie Research, September 2011
Power transformer and cable output has been growing up strongly year to July in 2011

Source: NBS, Macquarie Research, September 2011
A weaker ex-China just means more material available to China without the same level of inflation worry.

Chart shows year-on-year changes in monthly base metals demand (average of cu/al/zn/ni).

China and ex-China demand has been highly counter-cyclical.

Source: INSG, ICSG, ILZSG, IAI, Macquarie Research, Ecowin, September 2011
Chinese growth offset decline elsewhere in 2009

### Summary of metals/steel demand

<table>
<thead>
<tr>
<th>Metals/Steel</th>
<th>Jan-Dec 2009</th>
<th>Jan-Dec 2008</th>
<th>% Change Y-o-Y</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Aluminium (mt)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>China</td>
<td>14269</td>
<td>12202</td>
<td>16.9%</td>
</tr>
<tr>
<td>World Ex-China</td>
<td>19891</td>
<td>24460</td>
<td>-18.7%</td>
</tr>
<tr>
<td>Total World</td>
<td>34160</td>
<td>36662</td>
<td>-6.8%</td>
</tr>
<tr>
<td><strong>Copper (’000t)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>China</td>
<td>6550</td>
<td>5180</td>
<td>26.4%</td>
</tr>
<tr>
<td>World Ex-China</td>
<td>11713</td>
<td>12361</td>
<td>-5.2%</td>
</tr>
<tr>
<td>Total World</td>
<td>18263</td>
<td>17541</td>
<td>4.1%</td>
</tr>
<tr>
<td><strong>Zinc ('000t)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>China</td>
<td>4300</td>
<td>3845</td>
<td>11.8%</td>
</tr>
<tr>
<td>World Ex-China</td>
<td>6327</td>
<td>7429</td>
<td>-14.8%</td>
</tr>
<tr>
<td>Total World</td>
<td>10627</td>
<td>11274</td>
<td>-5.7%</td>
</tr>
<tr>
<td><strong>Lead ('000t)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>China</td>
<td>3470</td>
<td>2553</td>
<td>35.9%</td>
</tr>
<tr>
<td>World Ex-China</td>
<td>4857</td>
<td>5942</td>
<td>-18.3%</td>
</tr>
<tr>
<td>Total World</td>
<td>8327</td>
<td>8495</td>
<td>-2.0%</td>
</tr>
<tr>
<td><strong>Nickel ('000t)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>China</td>
<td>484</td>
<td>360</td>
<td>34.5%</td>
</tr>
<tr>
<td>World Ex-China</td>
<td>797</td>
<td>916</td>
<td>-13.0%</td>
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<tr>
<td>Total World</td>
<td>1282</td>
<td>1277</td>
<td>0.4%</td>
</tr>
<tr>
<td><strong>Steel (crude basis-mt)</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>China</td>
<td>538</td>
<td>475</td>
<td>13.3%</td>
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<tr>
<td>World Ex-China</td>
<td>171</td>
<td>176</td>
<td>-2.8%</td>
</tr>
<tr>
<td>Total World</td>
<td>1204</td>
<td>1350</td>
<td>-10.8%</td>
</tr>
</tbody>
</table>

### Changes in apparent demand, Jan-Dec 2009/2008

![Bar chart showing changes in apparent demand for various metals and steel](image)

- **Aluminium**: China +16.9%, World Ex-China -18.7%, Total World -6.8%
- **Copper**: China +26.4%, World Ex-China -5.2%, Total World +4.1%
- **Zinc**: China +11.8%, World Ex-China -14.8%, Total World -5.7%
- **Lead**: China +35.9%, World Ex-China -18.3%, Total World -2.0%
- **Nickel**: China +34.5%, World Ex-China -13.0%, Total World +0.4%
- **Steel**: China +13.3%, World Ex-China -2.8%

Source: Macquarie Research, INSG, ICSG, IAI, ILZSG, worldsteel, China Metals, September 2011
Chinese 2011 apparent demand has been slower than expected (except for Ni/Pb) due to destocking

Summary of metals/steel demand

<table>
<thead>
<tr>
<th></th>
<th>Jan-July 2011</th>
<th>Jan-July 2010</th>
<th>% Change Y-o-Y</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Aluminium (mt)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>China</td>
<td>10346</td>
<td>9223</td>
<td>12.2%</td>
</tr>
<tr>
<td>World Ex-China</td>
<td>14818</td>
<td>14318</td>
<td>3.5%</td>
</tr>
<tr>
<td>Total World</td>
<td>25163</td>
<td>23541</td>
<td>6.9%</td>
</tr>
<tr>
<td><strong>Copper ('000t)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>China</td>
<td>4082</td>
<td>4402</td>
<td>-7.3%</td>
</tr>
<tr>
<td>World Ex-China</td>
<td>7616</td>
<td>6882</td>
<td>10.7%</td>
</tr>
<tr>
<td>Total World</td>
<td>11698</td>
<td>11285</td>
<td>3.7%</td>
</tr>
<tr>
<td><strong>Zinc ('000t)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>China</td>
<td>3009</td>
<td>2953</td>
<td>1.9%</td>
</tr>
<tr>
<td>World Ex-China</td>
<td>4304</td>
<td>4222</td>
<td>1.9%</td>
</tr>
<tr>
<td>Total World</td>
<td>7313</td>
<td>7175</td>
<td>1.9%</td>
</tr>
<tr>
<td><strong>Lead ('000t)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>China</td>
<td>2542</td>
<td>2149</td>
<td>18.3%</td>
</tr>
<tr>
<td>World Ex-China</td>
<td>3134</td>
<td>3101</td>
<td>1.1%</td>
</tr>
<tr>
<td>Total World</td>
<td>5676</td>
<td>5250</td>
<td>8.1%</td>
</tr>
<tr>
<td><strong>Nickel ('000t)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>China</td>
<td>394</td>
<td>307</td>
<td>28.5%</td>
</tr>
<tr>
<td>World Ex-China</td>
<td>504</td>
<td>520</td>
<td>-3.1%</td>
</tr>
<tr>
<td>Total World</td>
<td>898</td>
<td>827</td>
<td>8.7%</td>
</tr>
<tr>
<td><strong>Steel (crude basis-mt)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>China</td>
<td>390</td>
<td>355</td>
<td>9.9%</td>
</tr>
<tr>
<td>World Ex-China</td>
<td>508</td>
<td>478</td>
<td>6.3%</td>
</tr>
<tr>
<td>Total World</td>
<td>898</td>
<td>832</td>
<td>7.8%</td>
</tr>
</tbody>
</table>

Source: Macquarie Research, INSG, IAI, ICSG, ILZSG, China Metals, September 2011
Why the inverse relationship between Chinese and rest of world growth?

- Chinese potential growth always exceeds the capacity for it to grow due to bottlenecks including energy and resources
- When the rest of world and China grow strongly together, inflationary pressures become a worry in China and the authorities move quickly to slow growth; when the rest of the world is weak, resource availability rises and inflationary pressures dissipate (the rest of the world “exports” disinflation pressures to China) and the Chinese authorities allow growth to accelerate again
- China responds more quickly than the rest of the world because:
  1. Monetary policy is direct (banks told directly to start and stop lending rather than via long lead-time interest rate changes)
  2. Infrastructure and other construction expenditures can be turned on and off quickly due to long term planning (engineering and planning for projects done years in advance), a flexible, mobile, non-unionised work force and “short-circuited approval” procedures for projects (for EIAs, getting finance, approving projects, clearing construction sites, etc)
So what did China do as the 2008/09 crisis unfolded?

- Chinese authorities, faced with rapid inflationary pressures in 1H 2008 had tightened to slow growth and then when the global financial crisis unfolded (exports collapsed), a sharp slowdown ensued in China; after a short period of panic, the authorities moved quickly to massively ease monetary and fiscal policy.

- Short-term collapse in commodity markets provided China with opportunities:
  - Shortages of key commodities that were bottlenecks in China’s growth process eased – Chinese government could accelerate its infrastructure build in a non-inflationary way – rest of world exported deflation to China
  - Chinese government and other market participants bought ‘cheap’ commodities for stockpile, in part replacing expensive domestic production
  - Chinese government encouraged restructuring of its own domestic industries by using availability of ‘cheap’ imports to close inefficient and dangerous small producers

Sounds familiar?!
Chinese producers are cost and price sensitive... the case of aluminium

Source: CNAI, Chinese Customs, LME, Macquarie Research, September 2011
The case of zinc…supply adjusts to price

Source: CNAI, Chinese Customs, LME, Macquarie Research, September 2011
...and for nickel

Source: CNAI, Chinese Customs, LME, Macquarie Research, September 2011
Medium term challenges and concerns

- Rising costs in China: China’s dominance in supply (except for copper) means that Chinese costs matter and we think that due to rising labour, energy, transport costs in RMB terms and a 3-5% a year revaluation of the RMB against the US dollar, Chinese costs can rise by 7-10% a year in US dollar terms (before offsetting efficiencies)

- Ongoing economic and political reform needed to sustain growth
Summary

- China has been dominant in supply and demand growth over the past decade – it will continue over this decade.

- Short term correction in Chinese demand is similar to previous ones and reflects prudent monetary and fiscal policy adjustment in China to make growth more sustainable.

- Marked inverse relationship between Chinese and non-Chinese growth – China will do its best to “save the commodities world” in 2012.
**Recommendation definitions**

**Macquarie - Australia/New Zealand**
- Outperform – return >5% in excess of benchmark return (>2.5% in excess for listed property trusts)
- Neutral – return within 5% of benchmark return (within 2.5% for listed property trusts)
- Underperform – return >5% below benchmark return (>2.5% below for listed property trusts)

**Macquarie - Asia**
- Outperform – expected return >+10%
- Neutral – expected return from -10% to +10%
- Underperform – expected < -10%

**Macquarie First South - South Africa**
- Outperform – return > 10% in excess of benchmark return
- Neutral – return within 10% of benchmark return
- Underperform – return > 10% below benchmark return

**Macquarie - Canada**
- Outperform – return > 5% in excess of benchmark return
- Neutral – return within 5% of benchmark return
- Underperform – return > 5% below benchmark return

**Macquarie - USA**
- Outperform (Buy) – return > 5% in excess of benchmark return
- Neutral (Hold) – return within 5% of benchmark return
- Underperform (Sell) – return > 5% below benchmark return

**Recommendation – 12 months**

**Note:** Quant recommendations may differ from Fundamental Analyst recommendations.

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**Volatility index definition**
- This is calculated from the volatility of historic price movements.

**Very high–highest risk** – Stock should be expected to move up or down 60-100% in a year – investors should be aware this stock is highly speculative.

**High** – stock should be expected to move up or down at least 40-60% in a year – investors should be aware this stock could be speculative.

**Medium** – stock should be expected to move up or down at least 30-40% in a year.

**Low–medium** – stock should be expected to move up or down at least 25-30% in a year.

**Low** – stock should be expected to move up or down at least 15-25% in a year.

* Applicable to Australian/NZ stocks only

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**Important disclosures:**

- **Volatility index definition**
  - This is calculated from the volatility of historic price movements.
  - **Very high–highest risk** – Stock should be expected to move up or down 60-100% in a year – investors should be aware this stock is highly speculative.
  - **High** – stock should be expected to move up or down at least 40-60% in a year – investors should be aware this stock could be speculative.
  - **Medium** – stock should be expected to move up or down at least 30-40% in a year.
  - **Low–medium** – stock should be expected to move up or down at least 25-30% in a year.
  - **Low** – stock should be expected to move up or down at least 15-25% in a year.

* Applicable to Australian/NZ stocks only

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**Financial definitions**
- All "Adjusted" data items have had the following adjustments made:
  - **Added back:** goodwill amortisation, provision for catastrophe reserves, IFRS derivatives & hedging, IFRS impairments & IFRS interest expense
  - **Excluded:** non recurring items, asset revals, property revals, appraisal value uplift, preference dividends & minority interests

- **EPS** = adjusted net profit /equivalent fully paid ordinary weighted average number of shares
- **ROA** = adjusted ebit / average total assets
- **ROA Banks/Insurance** = adjusted net profit /average total assets
- **ROE** = adjusted net profit / average shareholders funds
- **Gross cashflow** = adjusted net profit + depreciation

* All Reported numbers for Australian/NZ listed stocks are modelled under IFRS (International Financial Reporting Standards).

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**Recommendation proportions – For quarter ending 31 December 2009**

<table>
<thead>
<tr>
<th></th>
<th>AU/NZ</th>
<th>Asia</th>
<th>RSA</th>
<th>USA</th>
<th>CA</th>
<th>EUR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outperform</td>
<td>47.94%</td>
<td>60.52%</td>
<td>37.50%</td>
<td>43.42%</td>
<td>65.26%</td>
<td>41.60%</td>
</tr>
<tr>
<td>Neutral</td>
<td>35.58%</td>
<td>18.70%</td>
<td>53.13%</td>
<td>49.06%</td>
<td>29.11%</td>
<td>36.80%</td>
</tr>
<tr>
<td>Underperform</td>
<td>16.48%</td>
<td>20.79%</td>
<td>9.38%</td>
<td>7.52%</td>
<td>5.63%</td>
<td>21.60%</td>
</tr>
</tbody>
</table>

* (for US coverage by MCUSA, 3.76% of stocks followed are investment banking clients)

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