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Nickel pig iron update

Presentation to INSG

April 2009

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Main themes for nickel pig iron

- ➔ Nickel price fall to $4-5/lb has made it very difficult for the Chinese nickel pig iron industry
- ➔ Nickel market expected to be in surplus for foreseeable future, with Macquarie forecasting 36,000t surplus in 2009 and 33,000t surplus in 2010 and $4.50/lb and $5.00/lb nickel in each year respectively.
- ➔ $6-7/lb nickel will see capacity turn back on – from 30-40,000tkpta output could easily get back to 150,000-200,000tpa within 6-9 months.
- ➔ Takeaway for producers is not to get complacent that nickel pig iron is gone forever

Background: the emergence of NPI

- ➔ China’s nickel shortage / high nickel prices
- ➔ Shortage of stainless steel scrap and ferronickel in China made iron units in NPI valuable to stainless steel makers
- ➔ Ability to bring on NPI reflected:
  - ➔ Availability of low-cost (low-grade) nickel ores in Philippines, Indonesia and New Caledonia (for a while)
  - ➔ Availability of excess blast furnace and electric arc furnace capacity in China (low or no capital costs)

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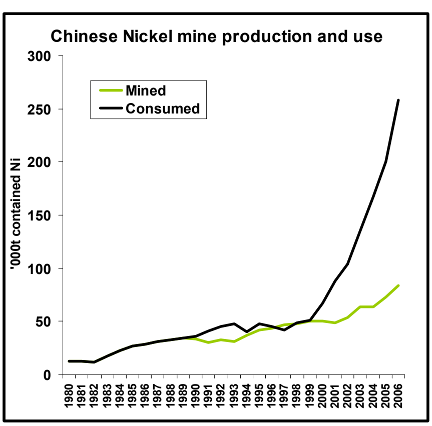
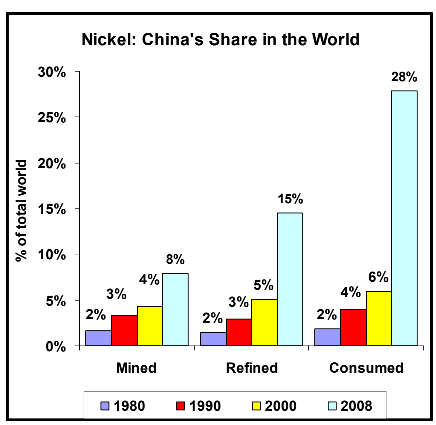
China’s major domestic nickel shortage





Source: Macquarie Research, April 2009

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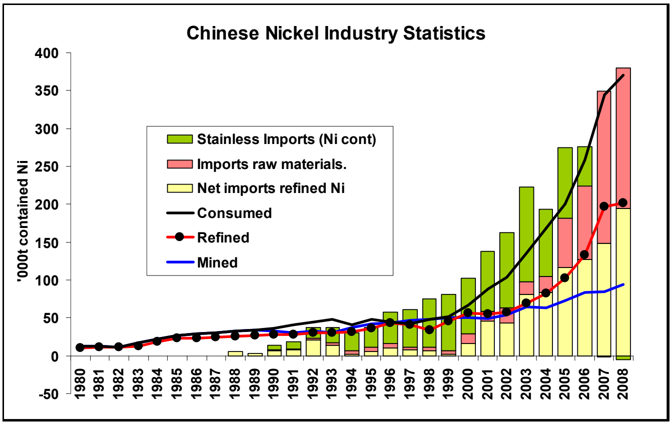
Meeting the shortage – large imports of refined nickel and nickel raw materials



Source: Macquarie Research, April 2009

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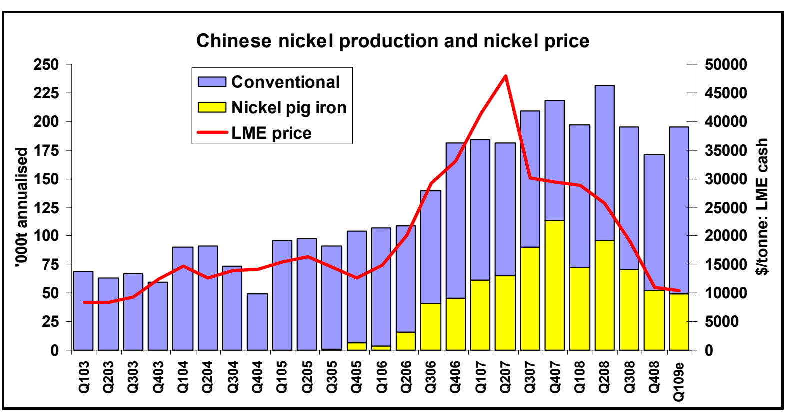
NPI drove Chinese unit nickel output growth in 2006/07, switch to conventional nickel thereafter



Source: Macquarie Research, April 2009

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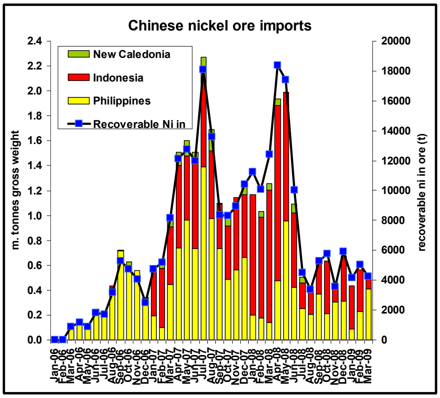
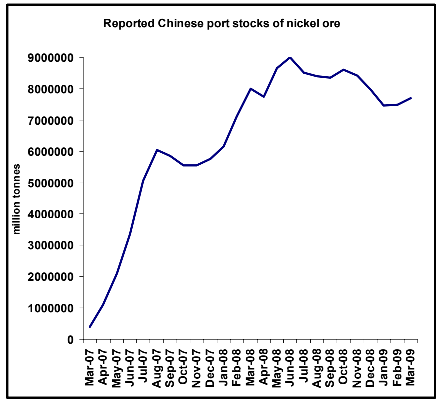
Low-grade ore imports take off – nickel pig iron helped plug the gap…when there was one





Source: CRU, Trade statistics, Macquarie Research, April 2009

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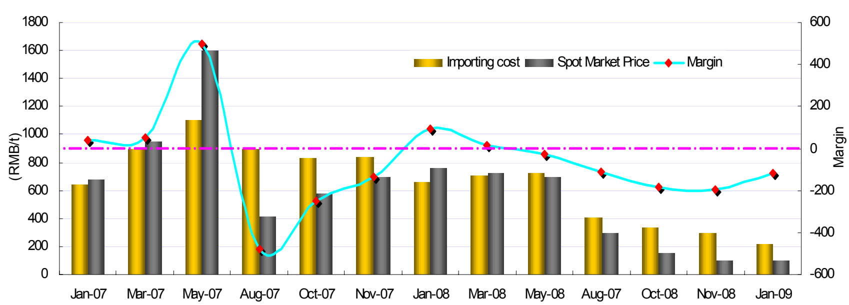
Chinese 1.6% grade nickel ore import arbitrage



Source: Tsingshan stainless steel.

Import Cost & Market Price of Nickel Ore: Ni = 1.6%, moisture = 30

Import cost at unloading port = FOB + sea freight + VAT + port charges;

The Chinese NPI industry is enduring a tough 2008/09

- ➔ Over past last 6 months production has fallen sharply:
  - ➔Lower nickel (and thus NPI) prices
  - ➔NPI has lost competiveness to imported nickel in ferronickel and stainless steel scrap
  - ➔Lower ferrous scrap prices and ferrochrome prices (Cr in NPI is less valuable)

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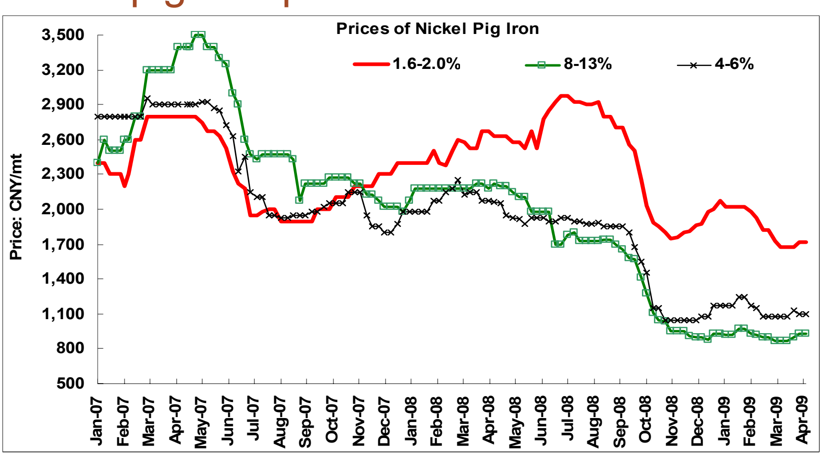
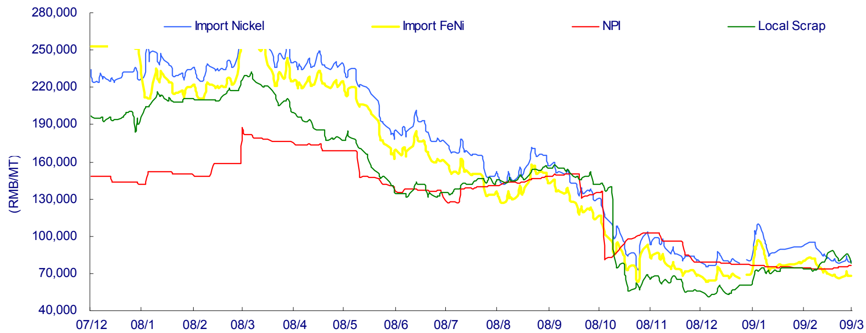
Nickel pig iron prices down 40-50%



Source: CBI, Macquarie Research, April 2009

NPI has lost cost competiveness to imported ferronickel and stainless steel scrap

Nickel pig iron cost comparison



Source: Tsingshan stainless steel.

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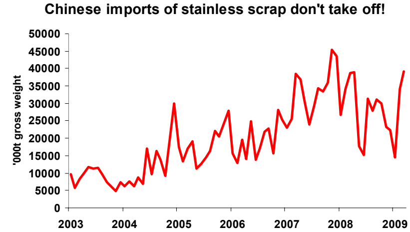
Chinese imports of ferronickel take off while stainless scrap supplies remain restricted

Chinese imports of ferronickel take off

Source: China Customs, Macquarie Research, April 2009

Chinese imports of stainless scrap don't take off!



Source: China Customs, Macquarie Research, April 2009

Current structure of Chinese NPI industry

- ➔ Total no. of nickel pig iron producers down to around 30, from over 100 as at end 2007.
  - ➔ <5 NPI producers in China are making <2.0% Ni content products (Shandong) – 40% of total current output and mainly blast furnace route
  - ➔ ~15 producers using small scale *blast furnaces* to make 4-6% grade NPI (Shandong, Jiangsu, Zhejiang & Henan) – 30% of total current output
  - ➔ 10-12 producers using *electric arc furnaces* to make >10% grade NPI (Shandong, Ningxia, Sichuan & Anhui provinces) – 30% of total current output
- ➔ Recent rally in nickel prices to above $5/lb prompted some restart of electric arc furnaces for NPI output (Shandong).

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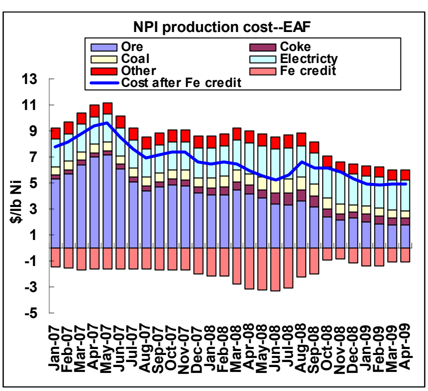
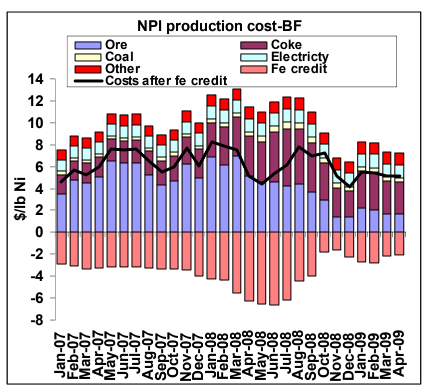
Cost analysis for NPI: >50% reduction in costs not enough





Source: LME, Macquarie Research, April 2009

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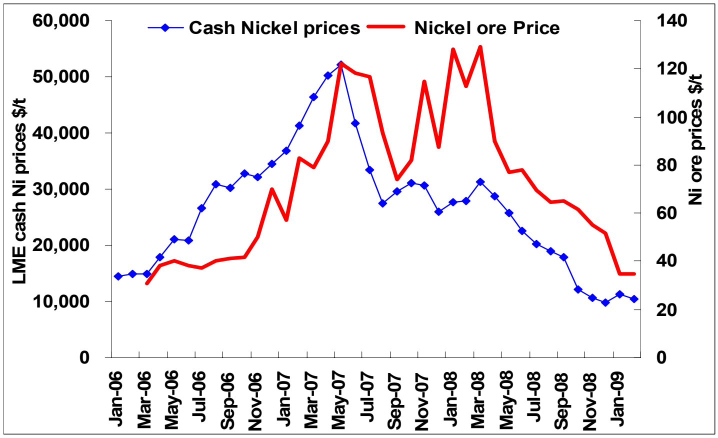
Nickel ore price driven by nickel price



Source: Antaike, China Customs, Macquarie Research, April 2009

CIF price of Philippines Nickel ore: Ni = 1.6-1.8%, moisture = 30%

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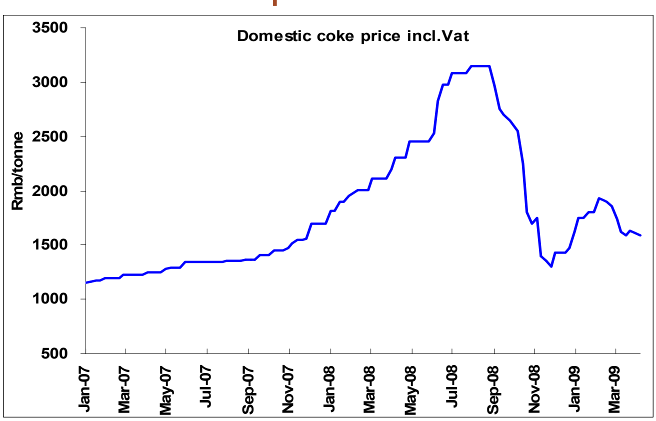
4Q08 collapse in coke prices helped reduce Blast furnace NPI production costs



Source: CBI, Macquarie Research, April 2009

Market Price of Coke in Shandong Province: Ash < 12.5%, S <0.8%

NPI expansion projects – creating a ceiling

- There is at least 185ktpa of NPI and FeNi projects planned, proposed or under constructed in China at the moment. 175ktpa of the capacity is new EAF plants.
- Most of the new NPI expansion projects under construction are integrated manufacturers with downstream stainless steel production lines and upstream nickel ore mining investment in Indonesia and/or the Philippines
- Lower nickel prices prevented production ramp up at new finished projects including
    - Jilin Jinsheng 4,000tpa nickel content projects using electric arc furnace
    - 20,000tpa nickel content projects belongs to Shandong Xinhai using electric arc furnace
    - Also deferred the construction of new NPI projects inclduing15,000tpa nickel content projects planned by Sino steel and Baosteel in Tianjing, Hebei provinces
- However, 15,000tpa FeNi projects constructed by Tsingshan Stainless steel will be completed by October 2009 with nickel content above 10% using electric arc furnace
- Production cost for integrated producers are expected to be around \$4.0-5.0/lb, though prices well above \$5/lb are expected to be necessary to see these projects brought online.
- Long term nickel prices will be supported at the break even point for NPI production from China

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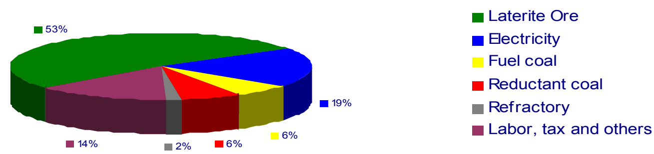
Major NPI Projects in China

Investor	Location	Nickel Capacity (tpa)	Process	Project Situation
Sinosteel & Baosteel	Hebei	15,000	2*33000 kva	Postponed to 2010
Fujian Desheng	Fu Jian	50,000	2*450 M^3, 4*25000 kva	
Qinzhou Heng Xin	Guangxi	10,000	4*12500kva	
Tsingshan	Henan	10,000	2*380m^3	Production
Tsingshan	Fu Jian	15,000	2*33000 kva	Production Oct-09
Qing Hai Aokai	Qing Hai	50,000	4*12500 kva, 6*25000 kva	
Shandong Xinhai	Linyi	20,000	8*125kva	Production
Tianjin Jinsheng	Jilin	20,000	4*25000kva	Constrution finished, production postponed
Zhanhua Qingxiang	Shandong	20,000	2*380$m^{3,}$ 450m^3*1	Constrution finished, production postponed

Source: Tsingshan stainless steel.

Cost Structure – New Project EF



Source: Tsingshan stainless steel.

Cost structure of NPI New Projects in China

Compared to blast furnaces and existing electric furnaces, electric furnaces of newly established projects are cost saving and environmental-friendly, with

- rotary kiln – lower electricity consumption;
- well designed and large capacity - higher production & nickel recovery, lower maintenance;
- close to sea ports – no inland transportation cost;

Except for sea freight as additional cost, newly built electric furnaces in China are claimed to have no disadvantages compared to FeNi production overseas.

Summary / overview

➔ Given high costs of production, the nickel price fall to \$5/lb makes it difficult to bring on new nickel pig iron supply

➔ The nickel market is expected to be in surplus for foreseeable future.

➔ \$6-7/lb nickel will see capacity turned back on – from 30-40,000tkpta output could easily get back to 150,000-200,000tpa within 6-9 months.

➔ Takeaway for producers is not to get complacent that nickel pig iron is gone forever

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Important disclosures:

Recommendation definitions

Macquarie - Australia/New Zealand

Outperform – return > 5% in excess of benchmark return
Neutral – return within 5% of benchmark return
Underperform – return > 5% below benchmark return

Macquarie – Asia/Europe

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 – return > 5% in excess of benchmark return
Neutral – return within 5% of benchmark return
Underperform – return > 5% below benchmark return

Recommendation – 12 months

Note: Quant recommendations may differ from Fundamental Analyst recommendations

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

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 /efpowa*
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
*equivalent fully paid ordinary weighted average number of shares

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

Recommendation definitions – For quarter ending 31 April 2009

	AU/NZ	Asia	RSA	USA	CA	EUR
Outperform	40.44%	49.55%	44.83%	38.49%	67.19%	43.84%
Neutral	38.60%	15.57%	39.66%	46.43%	28.12%	39.04%
Underperform	20.96%	34.88%	15.52%	15.08%	4.69%	17.12%

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