



Managing China's resource intensive growth: shaping the future metals market

Presented by Peter Markey



China's challenge - resource security

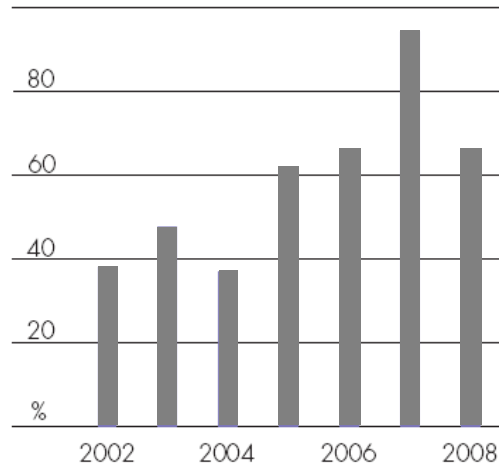
China, like other countries, acts to secure resources to cater for its needs now and into the future by:

- ▶ Protecting its own resources
- ▶ Gaining control or rights over another country's resources
- ▶ Tilting resources depletion rates in other countries preferentially to its own country

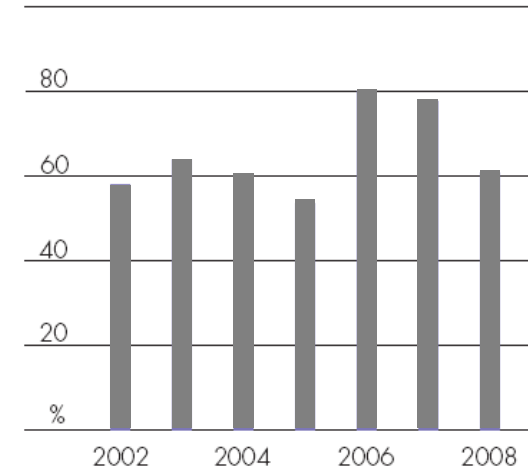
What's driving it?

- ▶ Limited national resources relative to resource consumption
- ▶ Seeking to protect its own resources
- ▶ Rapidly developing economy and inadequate local supply chain

China's share of world aluminium consumption growth

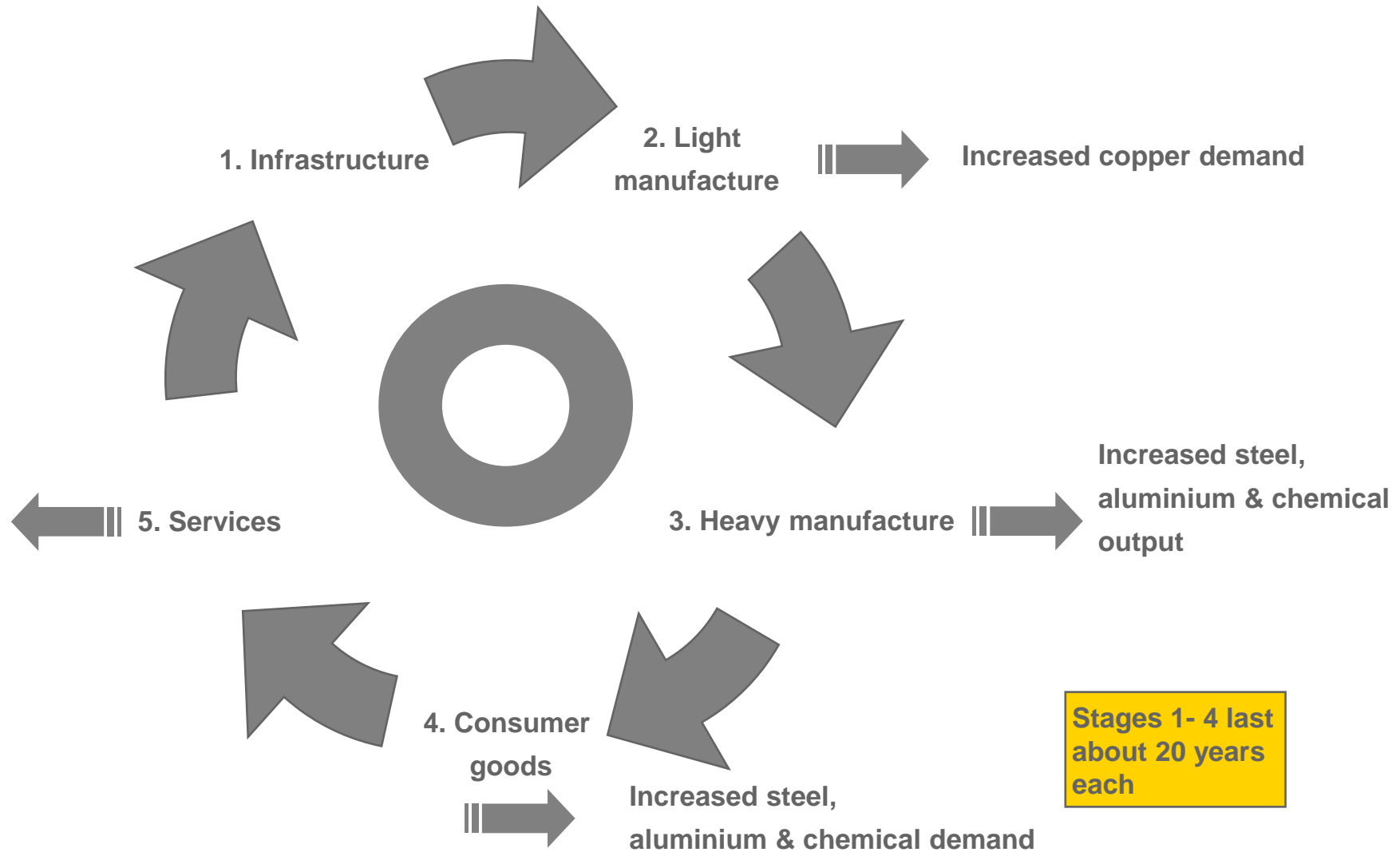


China's share of world aluminium production growth



Source: ABARE, September 2007

Industrialisation stages



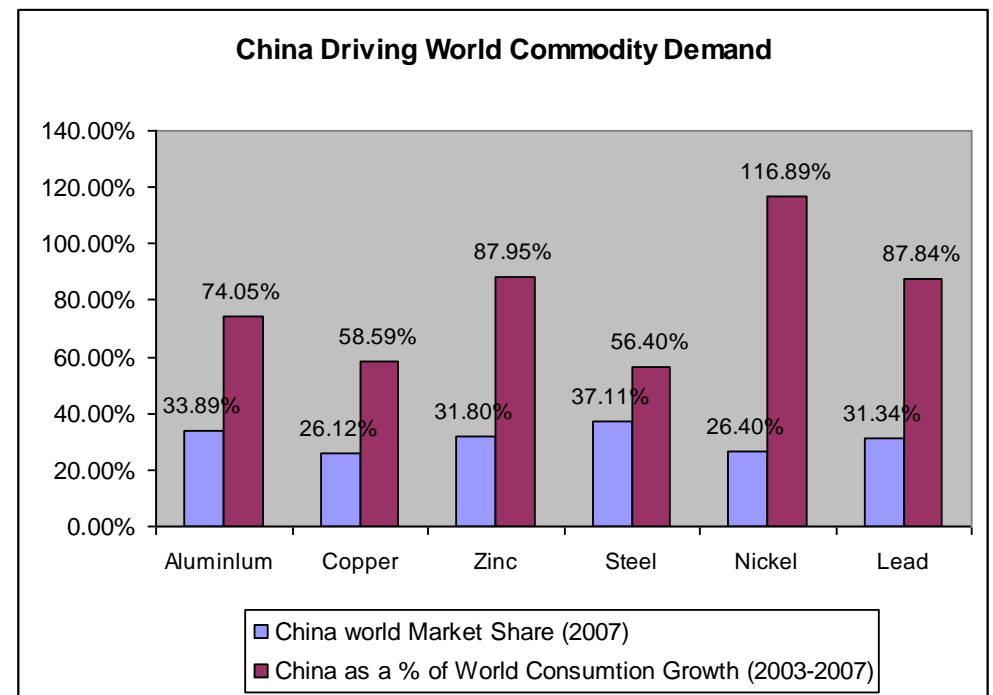
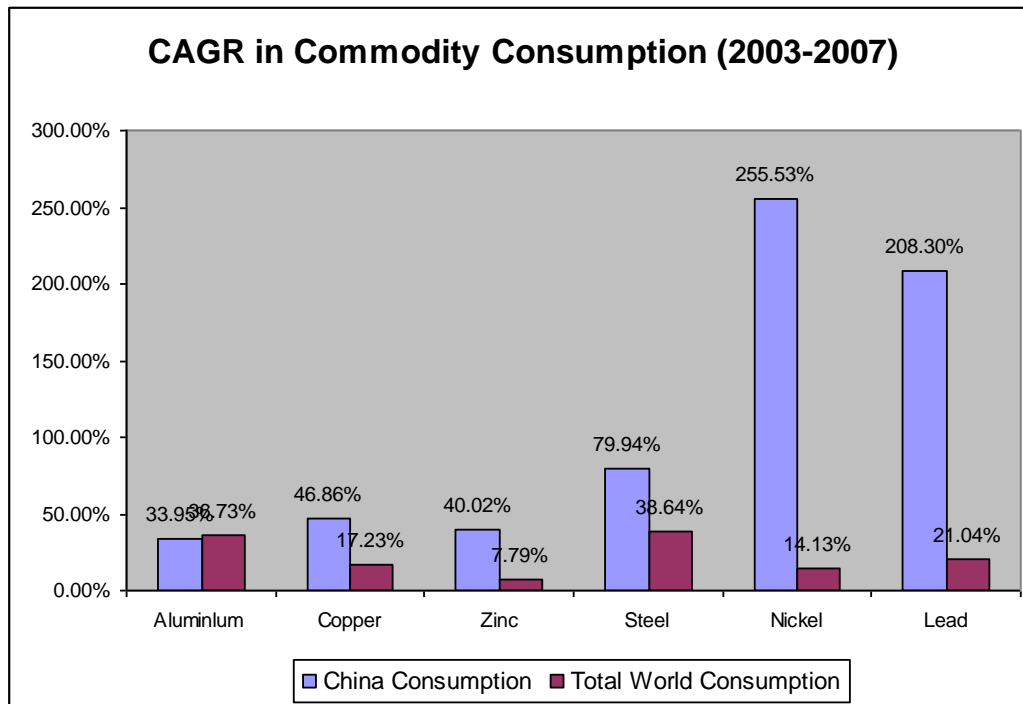
What is the impact of this trend?

There are 3 phases as follows:

1. Increased pressure on commodity prices
2. Increased competition for resource projects & offtake
3. Increased mergers and acquisitions to secure assets

Increased Pressure on Commodity Prices

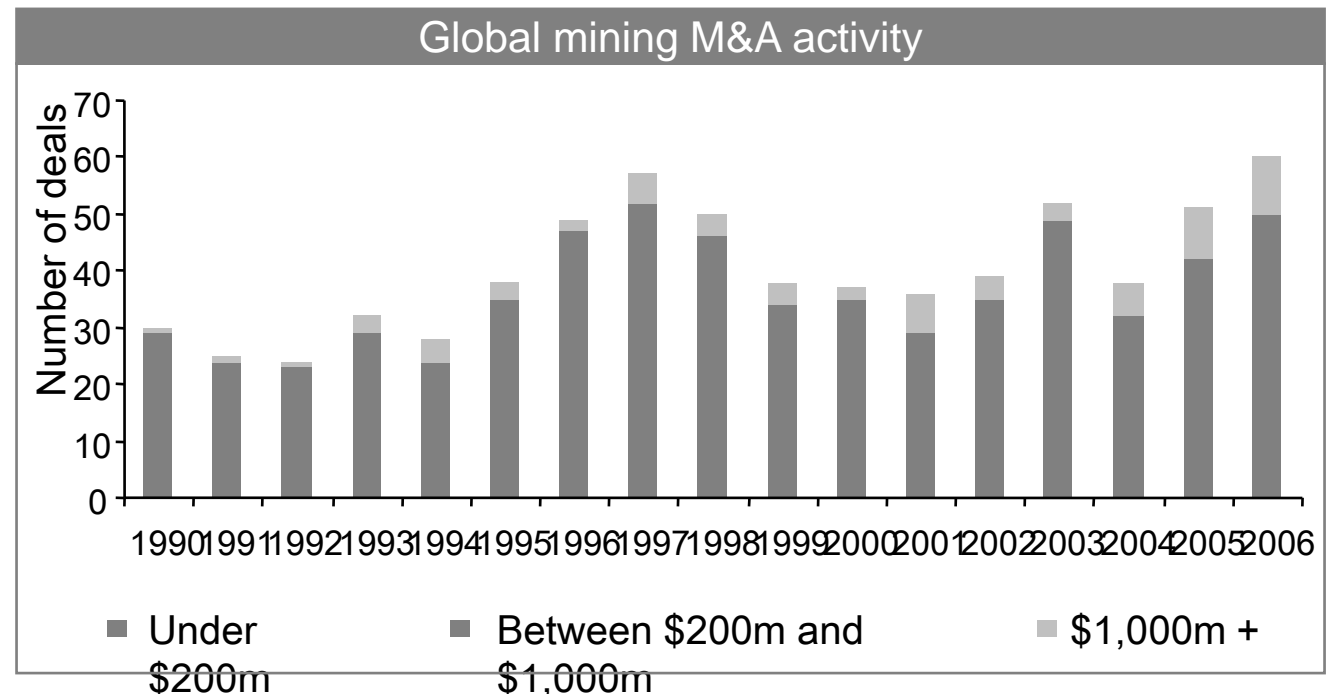
- China's consumption will continue to grow as it moves through the industrialisation cycle
- Increased consumption will intensify competition for resources and drive up prices



Source: Metals & Mining Chartbook, Q1 2008, HSBC Global Research, via Thomson Research

Increased competition for resources

- ▶ New entrants
- ▶ Resource diplomacy
- ▶ Government to government managing political risk to open new investment frontiers
- ▶ “Off market deals”
- ▶ Long term view means conventional project valuation is not always relevant
- ▶ Not just commercial considerations. Strategic factors are also being considered:
 - ▶ Vulnerability
 - ▶ Visibility
 - ▶ Influence



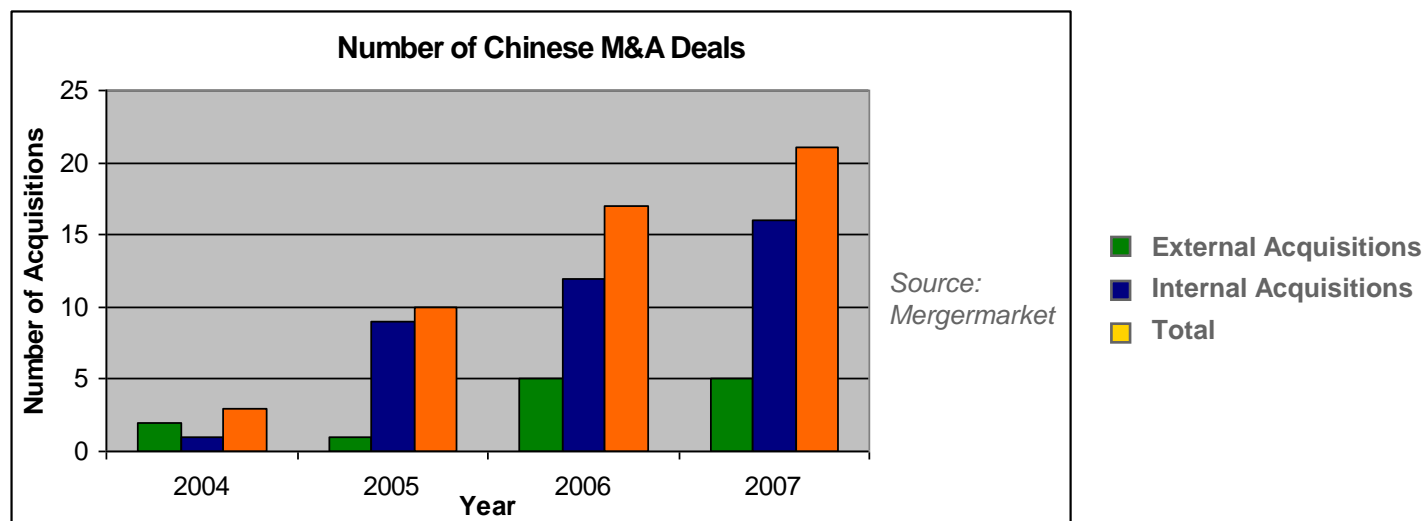
Increased mergers and acquisitions

- ▶ Since 2005, Chinese companies have invested over \$8 billion in mining projects in Africa
- ▶ 2003 China policy on mineral resources endorsed domestic organisations to acquire international resources projects – “To Go Out!”
- ▶ Subsidised loans and tax incentives have been introduced to accelerate this policy
- ▶ IPO proceeds are being used to fund acquisitions by Chinese mining houses
- ▶ SOEs making direct investments in major projects
 - ▶ China commits US\$5 bn to Congo infrastructure development in return for copper/cobalt mining rights

Increased mergers and acquisitions (cont.)

Three sizeable international deals in 2007:

- ▶ Zijin Mining Group paid RMB1.2 billion for control of Peru focussed copper miner Montericco in May
- ▶ Chinalco bought Peru Copper for \$860 million in August
- ▶ Anshan Iron & Steel Group entered a \$1.6 billion joint venture with Australia's Gindalbie metals to develop two iron ore projects



Chinese M&A in Africa and South America

Date	Description	Deal Vol. US\$ m
6/12/2007	Northern Peru Copper Corp., a Canadian corporation, signed a definitive agreement to be acquired by a consortium consisting of China Minmetals Nonferrous Metals Co., Ltd and Jiangxi Copper Company Ltd.	411
26/09/2007	Sinosteel Trading Company, the Chinese trader of metals, minerals and chemical products, agreed to acquire a 73% stake in Zimasco Ltd, the Zimbabwe based ferrochrome producer.	292
19/12/2006	Bosai Minerals Group Co., Ltd., the China based bauxite mining and aluminum products company, agreed to acquire a 70% stake in OMAI Bauxite Mining, Inc. and OMAI Services, Inc., the Guyana based bauxite mining companies, from IAMGOLD Corporation, the listed Canadian mining company,	28
15/11/2006	Sinosteel Corporation, the Chinese metal company, agreed to acquire a 50% stake in a chrome mine and a chromite processing plant of Samancor Chrome Limited, the South African producer.	200

Source: mergermarket

China's global resource investments



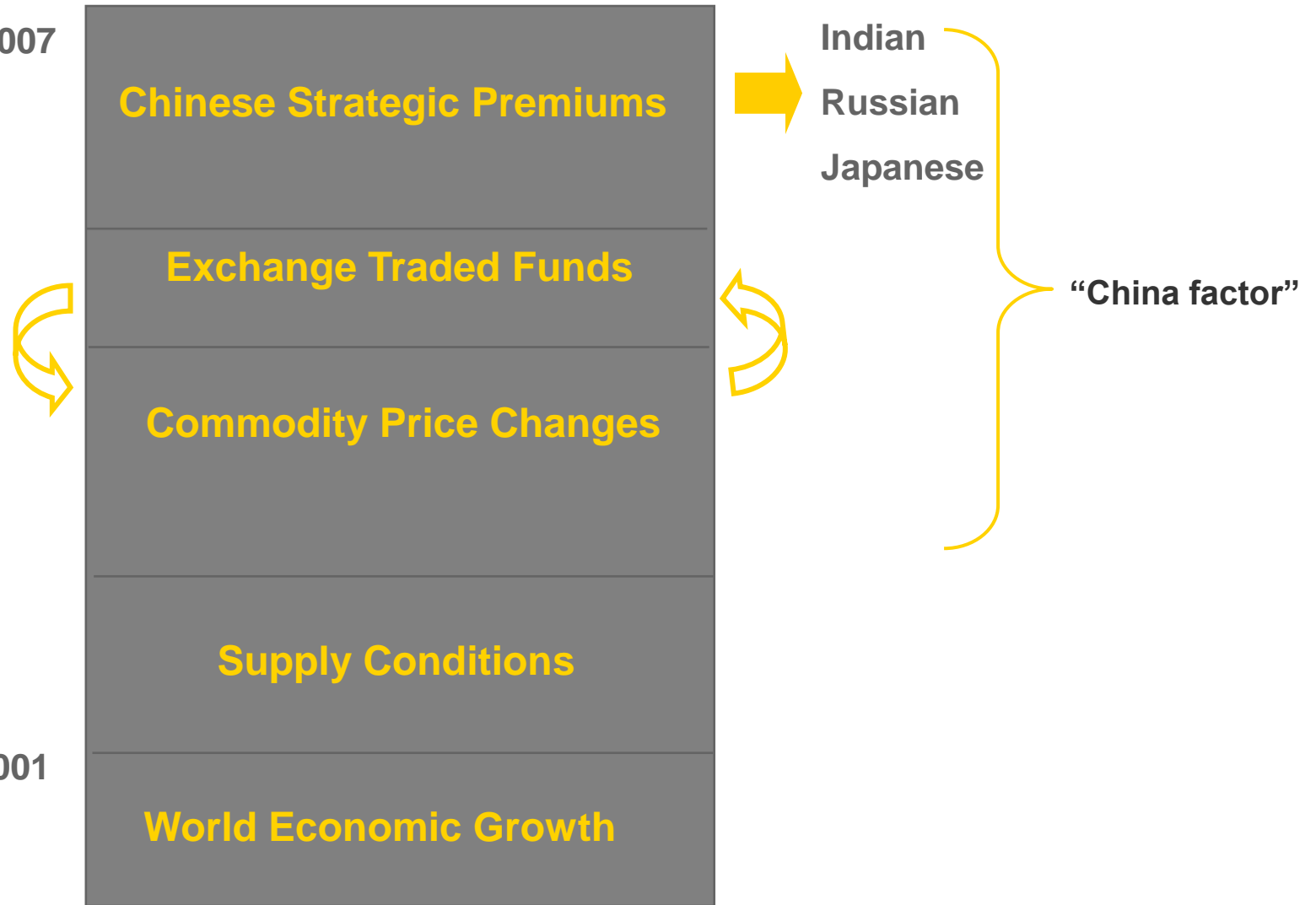
Source: CLSA Asia Pacific Markets

Consequences of Trend

- ▶ The primary consequence of this trend has been the strong upward shift in commodity prices in the last few years.
- ▶ In turn, this has seen some responses within China:
 - ▶ Close government and commercial cooperation
 - ▶ Building mega China mining companies
 - ▶ Resource nationalisation

Asset price premium composition

Asset prices 15 x 2007 earnings



Asset prices 3 x 2001 earnings

Government and commercial

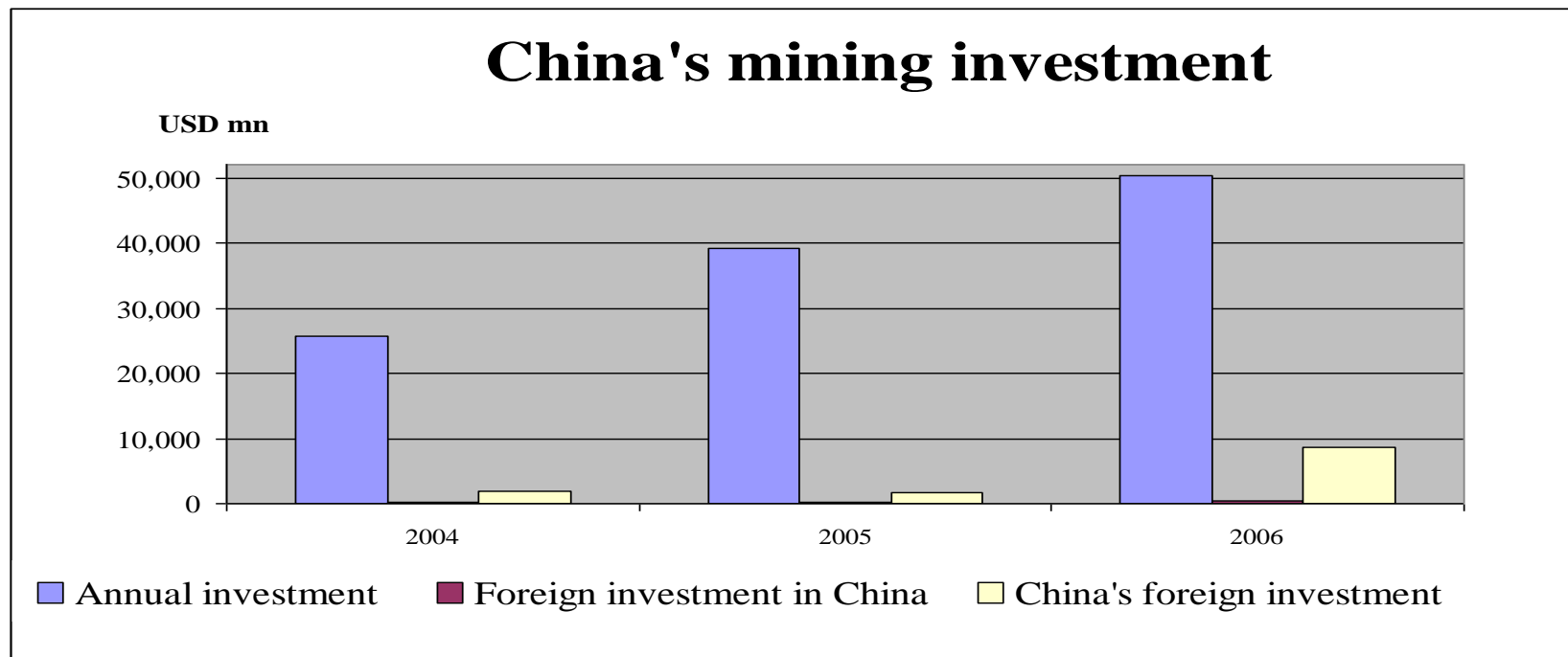
- ▶ Government incentives to encourage overseas investment
- ▶ Many companies investing abroad are state-owned or controlled
- ▶ Larger projects require government approval
- ▶ Government aims to reduce dependence on the spot market by encouraging long term supply contracts with foreign companies and diversification of resource supplies
- ▶ Government is actively encouraging Chinese firms to cooperate with foreign companies in geological survey and mineral resource prospecting and exploitation

Building Mega companies

- ▶ China wants to have global players
- ▶ Accelerated process of IPOs in 2006 - 2007
- ▶ State holding companies have been selling down further assets into the listed companies:
 - ▶ Chinalco to Chalco
 - ▶ Shenhua Group to Shenhua
 - ▶ Jiangxi Copper Corp to Jiangxi Copper
- ▶ Companies have mandates to go out and get assets and experience

Increased resource nationalism

- ▶ Many countries including China have become more protective with respect to foreign investment in mining:
 - ▶ Retained free carry
 - ▶ Legislating minimum local participation levels
 - ▶ Increasing income to the state through royalties and taxes



Source: EY research

The Challenges of Acquiring Resources

- ▶ Finite world of known resources opportunities
- ▶ Smelters, refiners, commodity traders and customers are moving upstream
- ▶ Previous high-risk no-go zones are being considered and invested in
- ▶ Increased activity from BRIC and other rapidly developing economies
- ▶ Lack of exploration success means that mining houses need to replace reserves and resources through acquisition
- ▶ Increased interest in alternative energy sources
- ▶ Government agencies of consumer nations are innovative in funding greenfield exploration and development
- ▶ Private equity getting involved
- ▶ Increasing producer risk appetite
- ▶ So, as Chinese mining companies go out to seek new investments, what are the factors they are evaluating?

Key sector issues

- ▶ Pricing
- ▶ Ease of access
- ▶ Labour shortages
- ▶ Sustainable mining in an era of climate change
- ▶ Rising costs
- ▶ Industry consolidation

Pricing - Assets at any cost?

- ▶ Chinese don't like paying top price
 - ▶ Hence have pursued high risk developments
 - ▶ Eg Jiangxi Copper/China Metallurgical project in Afghanistan
 - ▶ But they are getting used to it! Sinosteel take over of Midwest
- ▶ Holistic production chain value
 - ▶ Downstream processing to build the industrial complex
- ▶ Social & political stability
 - ▶ China needs annual growth rate above 7% to create enough jobs for new entrants
- ▶ Considers option value & longer term value (implicitly)
 - ▶ Government control means shorter term stock market values are not very important

Ease of access - what's the issue?

- ▶ Two aspects – software and hardware
- ▶ Software - lack of familiarity with other countries' legal/political/economic/taxation systems
 - ▶ Lack of in-house skills and professional advisers
- ▶ Hardware – infrastructure needs for mine expansion &/or new mine development
- ▶ Community pressure for mining companies to fund infrastructure maintenance and expansion
- ▶ Low cost of debt means Chinese mining companies can fund necessary infrastructure
 - ▶ A key competitive advantage in many locations
- ▶ Requires close cooperation with local and national government

Labour shortages - what's the issue?

On the demand side...

- ▶ Chinese mining companies lack international experience
 - ▶ engineering/production focused
- ▶ Resource boom
 - ▶ competition for same skills
- ▶ Aggressive global sourcing
- ▶ Communication and IT boom

On the supply side...

- ▶ Ageing workforce
- ▶ Structural changes for productivity led to loss of skills
- ▶ Lack of investment in professional and technical training
- ▶ HIV / AIDS
- ▶ Education requirements and job locations limit the available talent
- ▶ Birth rates
- ▶ Financial downturns

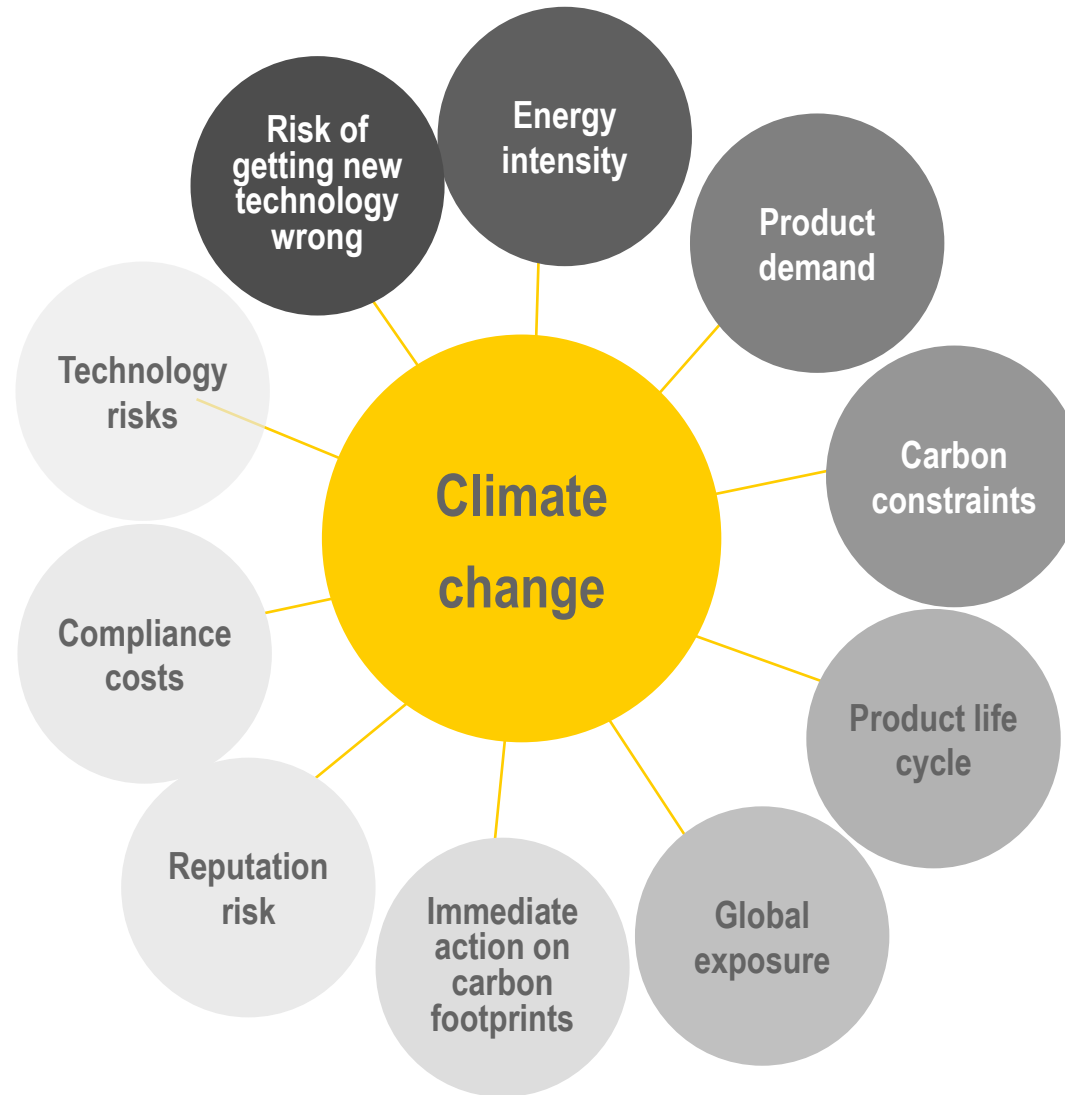
So look out for these symptoms..

Strategic and financial symptoms	Recruitment symptoms	Workforce symptoms
Unknown medium and long term labour force requirements	Traditional recruitment methods not working	Turnover rates high
Increasing loss of staff to competitors	Cost of recruitment skyrocketing	Tenure shortened
Increasing cost of labour	Diminishing candidate pipelines	Productivity dropped
Lengthened time to productivity	Extended vacancy rates	Greying workforce

Sustainable Mining in era of Climate Change

- ▶ China is very familiar with the challenges of sustainability:
 - ▶ Initial focus on safety expanding to encompass wider environmental issues
 - ▶ Production limitations, safety funds, rehabilitation requirements
 - ▶ Solar energy initiatives, de-desertification, water purity management
 - ▶ However, constraints of raising income levels and securing resource supply are pressing
 - ▶ A difficult balancing act

Climate change - risks to mining companies



Key factors contributing to rising costs

- ▶ Energy
- ▶ Resources
- ▶ Labour shortages
- ▶ Increased regulatory / compliance costs
- ▶ Community
- ▶ Infrastructure
- ▶ Shared services
- ▶ Stalled or falling productivity

Thermal coal – mine cash cost vs prices (US\$/t)			
Year	Mine average cost	Contract price	Mine cost/price
2000	21.06	32.54	65%
2001	20.05	38.13	53%
2002	19.07	31.32	61%
2003	21.06	25.56	82%
2004	23.32	46.02	51%
2005	25.58	54.19	47%
2006	25.60	52.50	49%
2007e	27.00	55.00	47%

Source: AME mineral economics

Some examples of project cost blowouts

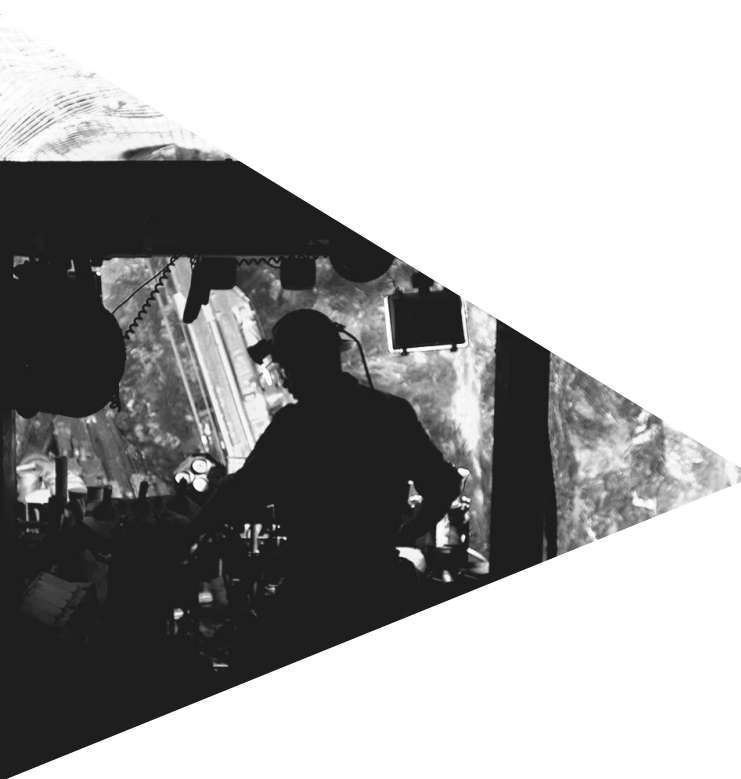
Mine/Refinery	Commodity	Company	Location, country	Initial budget	USD	Actual/expected cost	USD	Change
Goron Mine	Nickel	CVRD	New Caledonia	2.15 billion		3 billion		40%
Ravensthorp	Nickel	BHP Billiton	Western Australia, Australia	1.2 billion		2.2 billion		83%
Alumar Refinery	Alumina	BHP Billiton	Brazil			725 million		64%
Clermont	Coal	Rio Tinto	Queensland, Australia	450 million		950 million		111%
Argyle - move underground	Diamond	Rio Tinto	Western Australia, Australia	0.91 million		1.5 billion		65%

Global consolidations

- ▶ Demanding shareholders and stakeholders seeking capital growth
- ▶ Ernst & Young research shows that since 1990 acquisitive mining companies have outperformed non-acquisitive miners in total shareholder return by 89%
- ▶ Rate of conversion of exploration interests / assets into operating entities remains slow
- ▶ Consequently, replacement (depletion) and growth (expansions) are taking place through internal expansion or M&A activities
- ▶ Not all expansion / growth programmes are being attained through equity or primary asset-level acquisitions, some by way of acquiring access to intermediate products

Consolidation drive

- ▶ New (old?) entrants playing in their space - limiting opportunities?
- ▶ Global consolidations (mergers and acquisitions) creating larger companies with greater marketing muscle
- ▶ Increasing pressure to either transact (external) or grow (internal)
- ▶ Increasing competition from state-owned corporations with access to national funding
- ▶ New valuation models emerging not only with Discounted Cash Flows with higher commodity price assumptions but much greater value attributed to various options



Thank you

 **ERNST & YOUNG**
安 永

Ernst & Young

Assurance | Tax | Transactions | Advisory

About Ernst & Young

Ernst & Young is a global leader in assurance, tax, transaction and advisory services. Worldwide, our 130,000 people are united by our shared values and an unwavering commitment to quality.

We make a difference by helping our people, our clients and our wider communities achieve potential.

For more information, please visit www.ey.com.

Ernst & Young refers to the global organization of member firms of Ernst & Young Global Limited, each of which is a separate legal entity. Ernst & Young Global Limited, a UK company limited by guarantee, does not provide services to clients.

© 2008 Ernst & Young, China

All Rights Reserved.

This publication contains information in summary form and is therefore intended for general guidance only. It is not intended to be a substitute for detailed research or the exercise of professional judgment. Neither EYGM Limited nor any other member of the global Ernst & Young organization can accept any responsibility for loss occasioned to any person acting or refraining from action as a result of any material in this publication. On any specific matter, reference should be made to the appropriate advisor.

www.ey.com/china