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Asia's influence on global base metal markets

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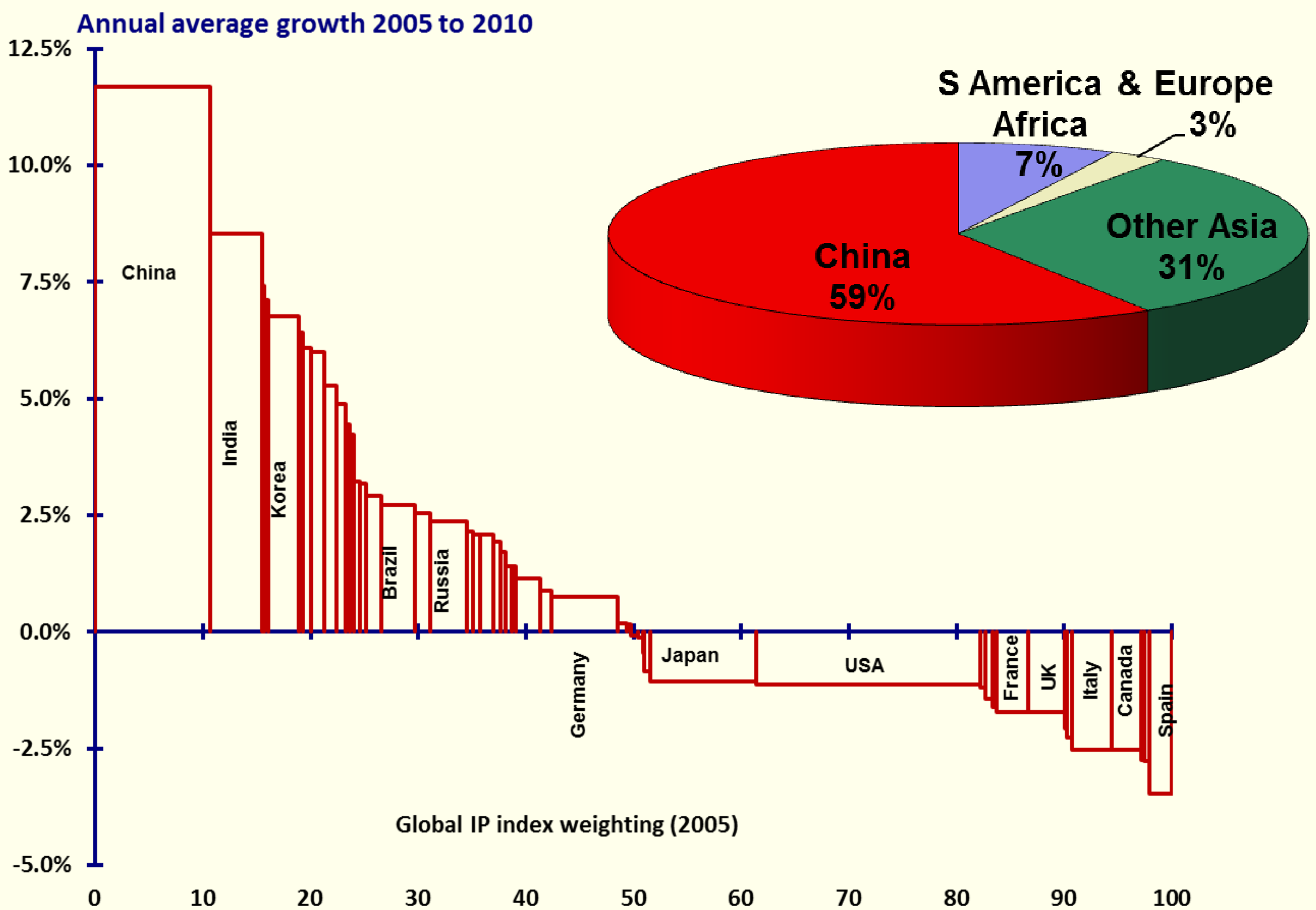
Asia is dominant market

- Asia was important for global base metal markets in first half of 2000s…
- …but <u>vital</u> since 2005, and more recently in leading the global economy out of recession
- The story is mostly about China…
- …but many other economies in the region have benefitted from growing Chinese demand
- Are projections for growth in China reasonable?
- What would slower growth in China, Asia, mean for global metal markets

Asia's contribution to global IP growth 2005-2010



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Asia's dominance today reflects rapid recovery from recession

- The speed and scale of the increase in Asia's share of manufacturing output and raw material consumption is breath-taking…especially since 2005
- With the exception of Japan, Asian economies also weathered financial market crash and following recession very well
- Stimulus spending, low interest rates and temporary tax cuts provided the impetus for rapid recovery in Asia
- Non-OECD output now +16% from peak in Q3 2008….Asia ex-Japan +23%
- OECD output (North America, much of Europe, Japan and Korea) in Q1 2011 still almost 7% below previous peak in Q1 2008

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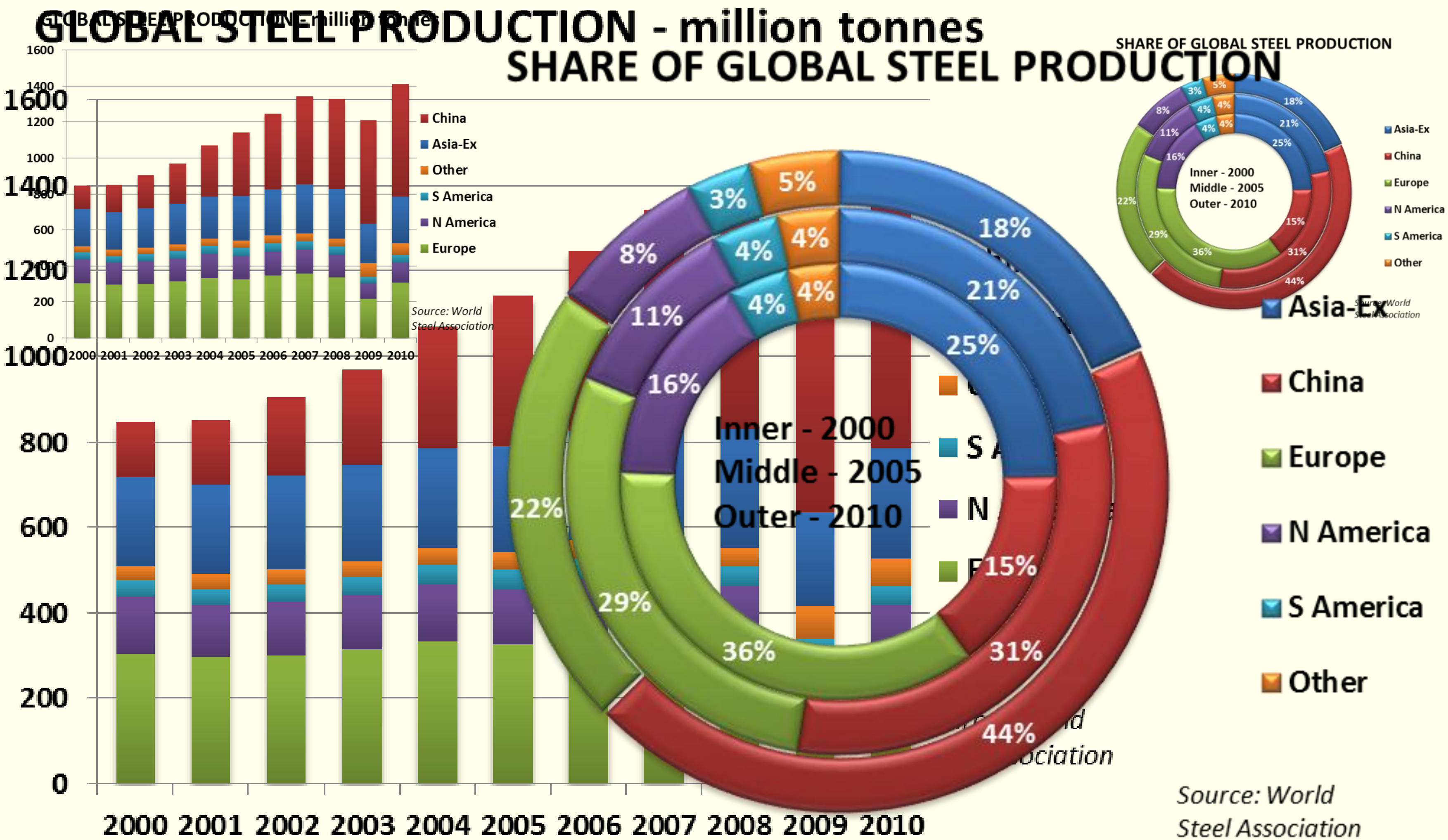

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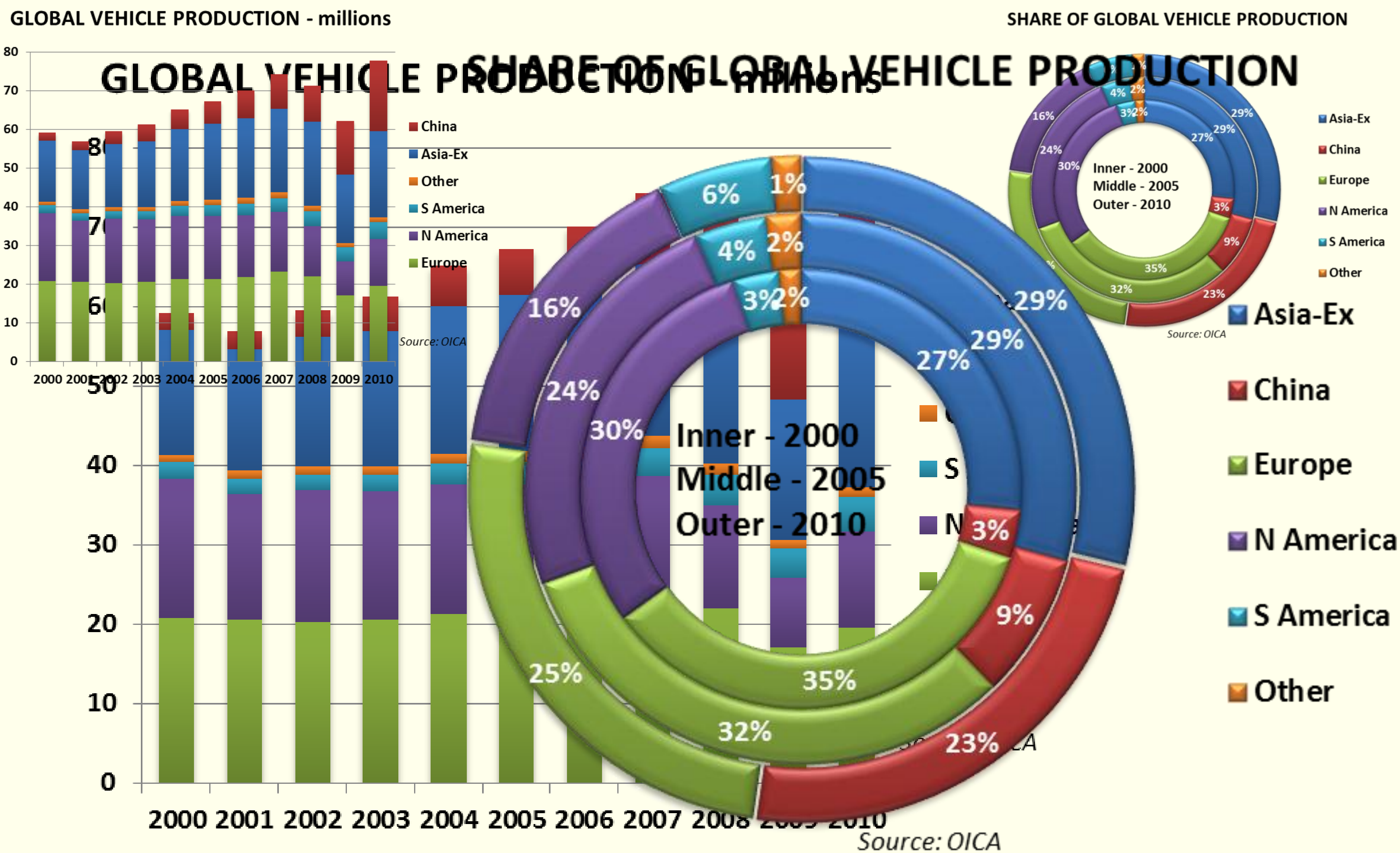
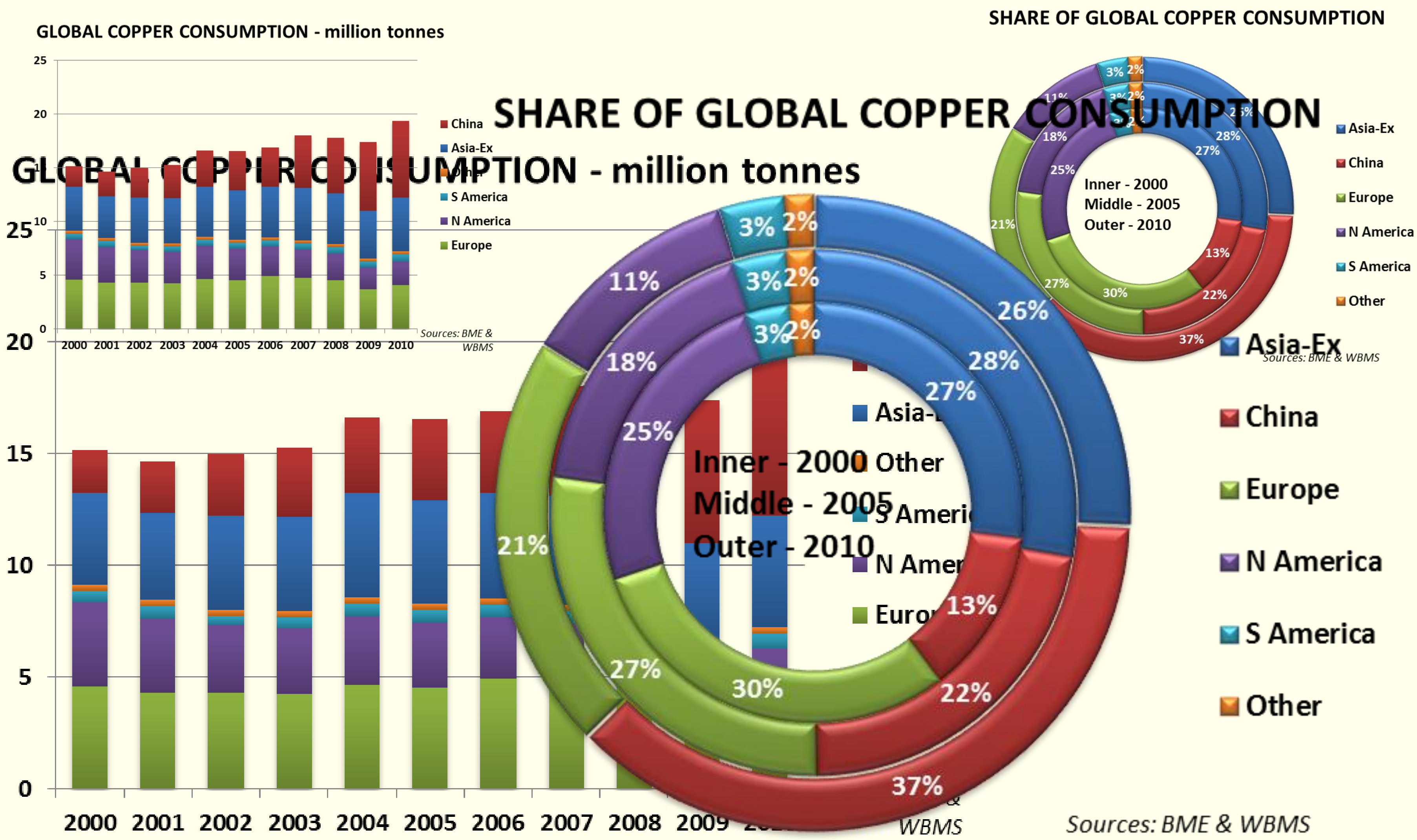
Vehicle manufacture



Metal consumption - Copper



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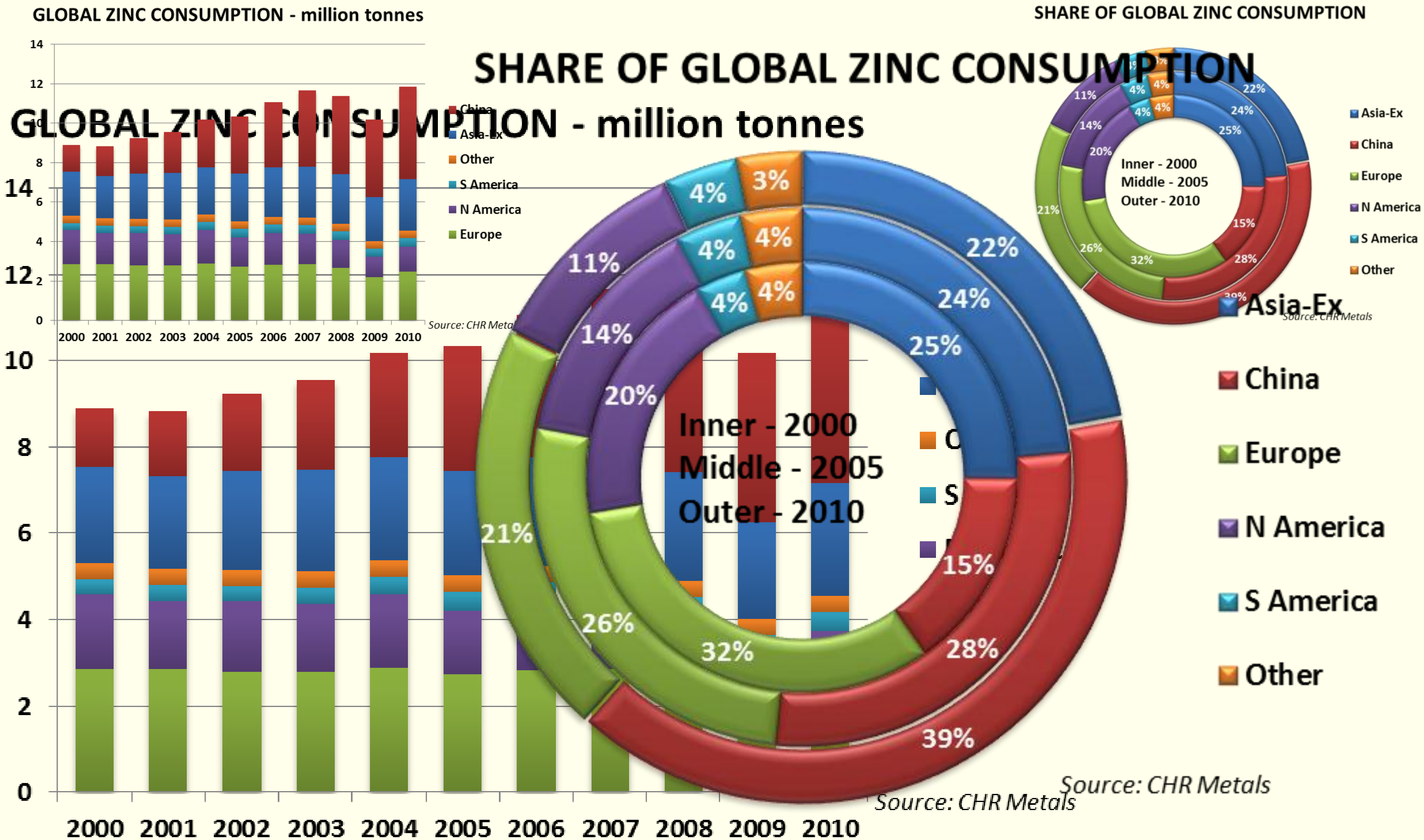
Metal consumption - Zinc



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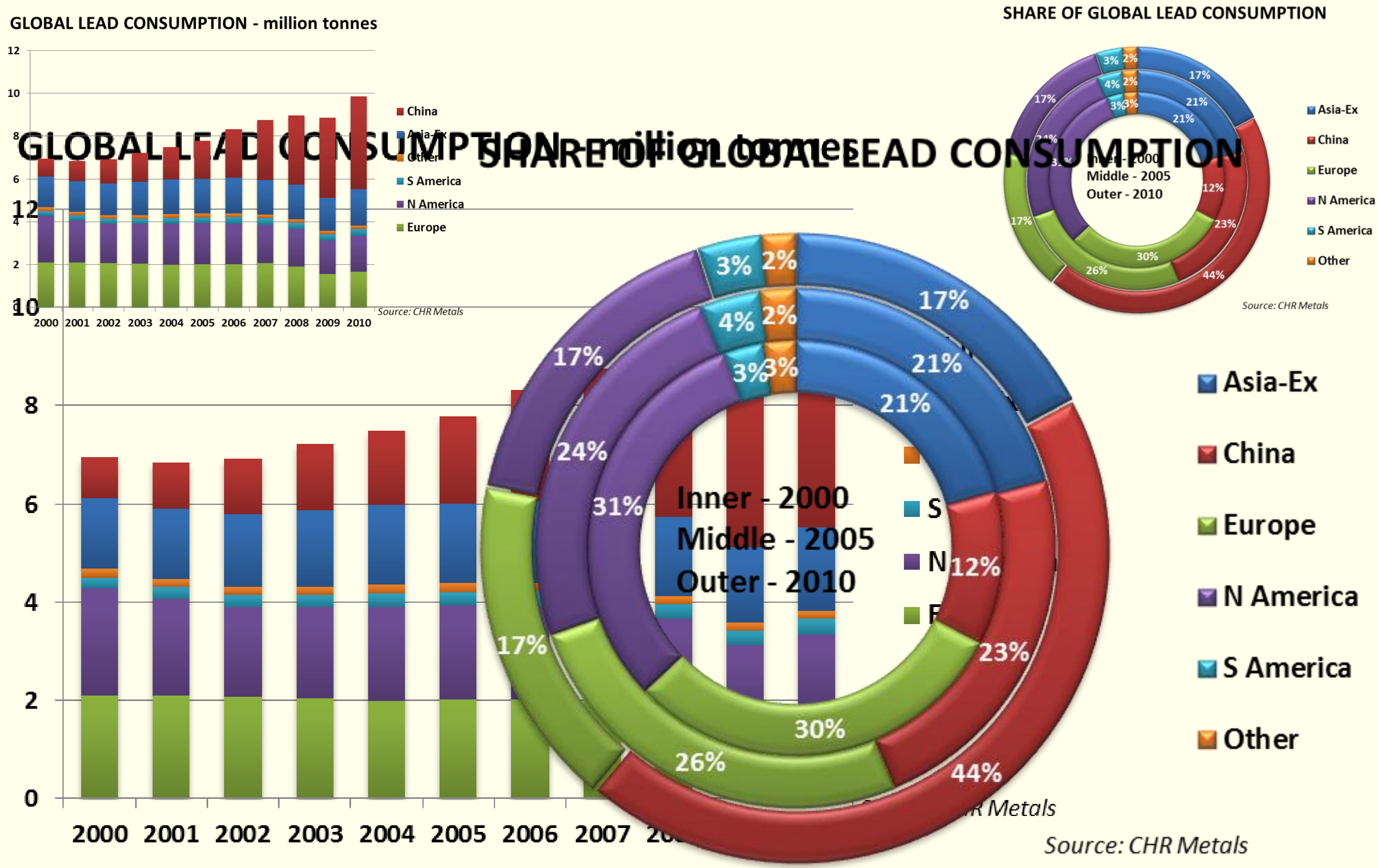
Metal consumption - Lead



China the driving force

- China, China, China…but what has really been the key factor in such rapid growth?
- Exports and fixed asset investment have been main drivers of Chinese growth
- Further growth at the pace seen in last 5 years in exports and investment cannot be sustained
- China's competitiveness in foreign markets is being eroded principally by domestic cost pressures plus some currency appreciation…costs would be much higher if damage to environment taken into account
- China needs to develop domestic consumer demand to offset inevitable reduction in investment spending

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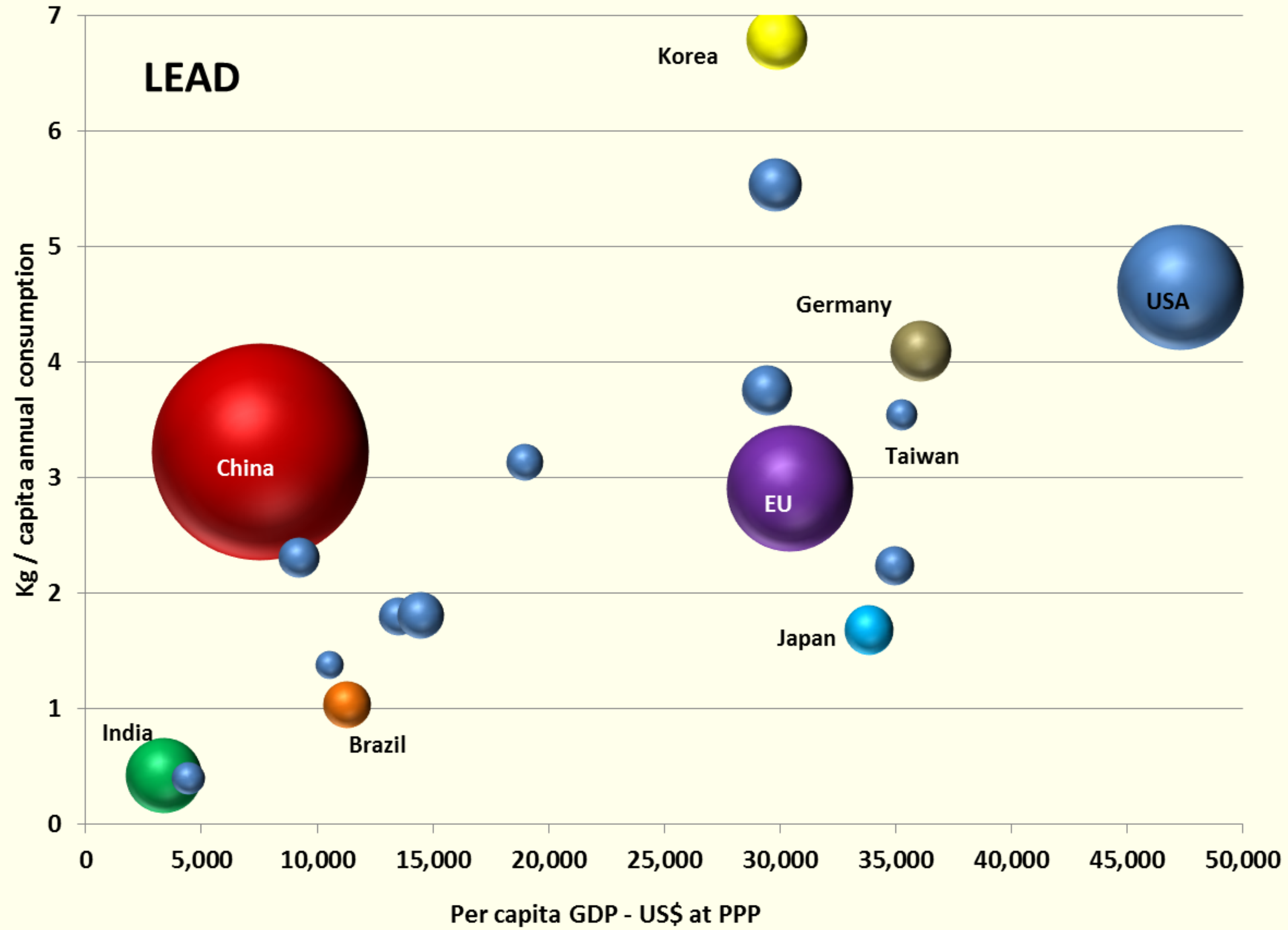
China is intensive consumer of metals



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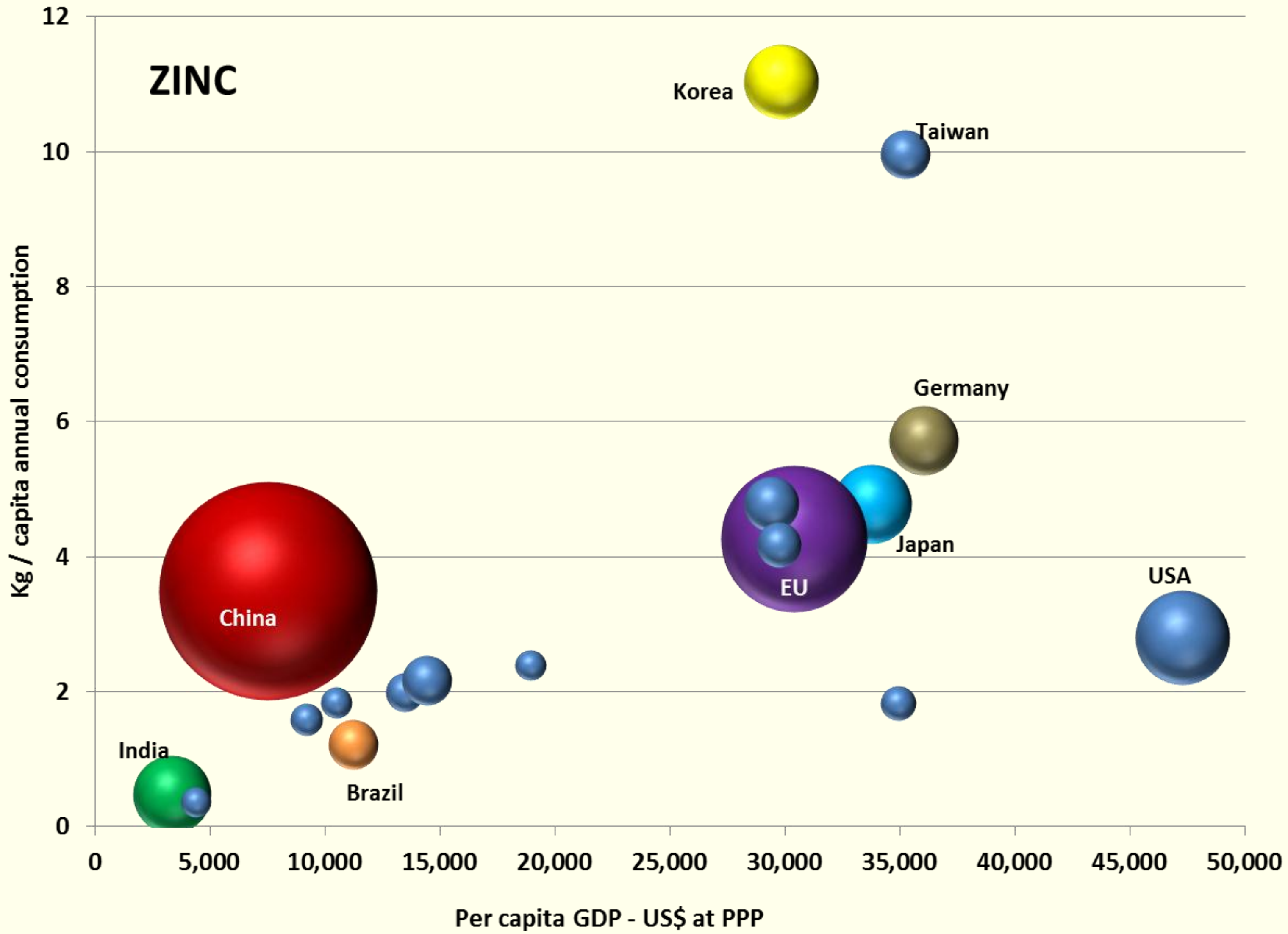
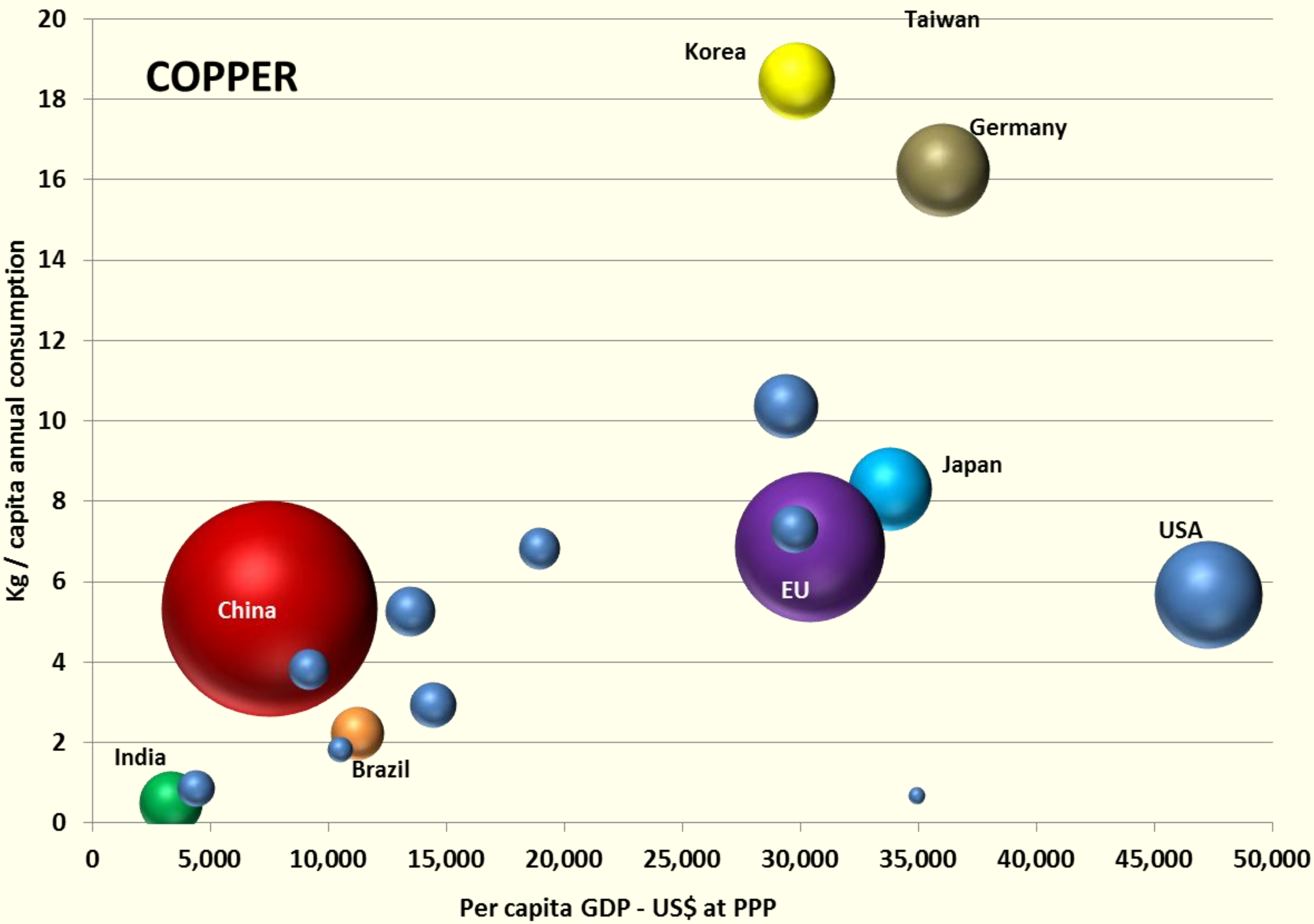


China is intensive consumer of metals



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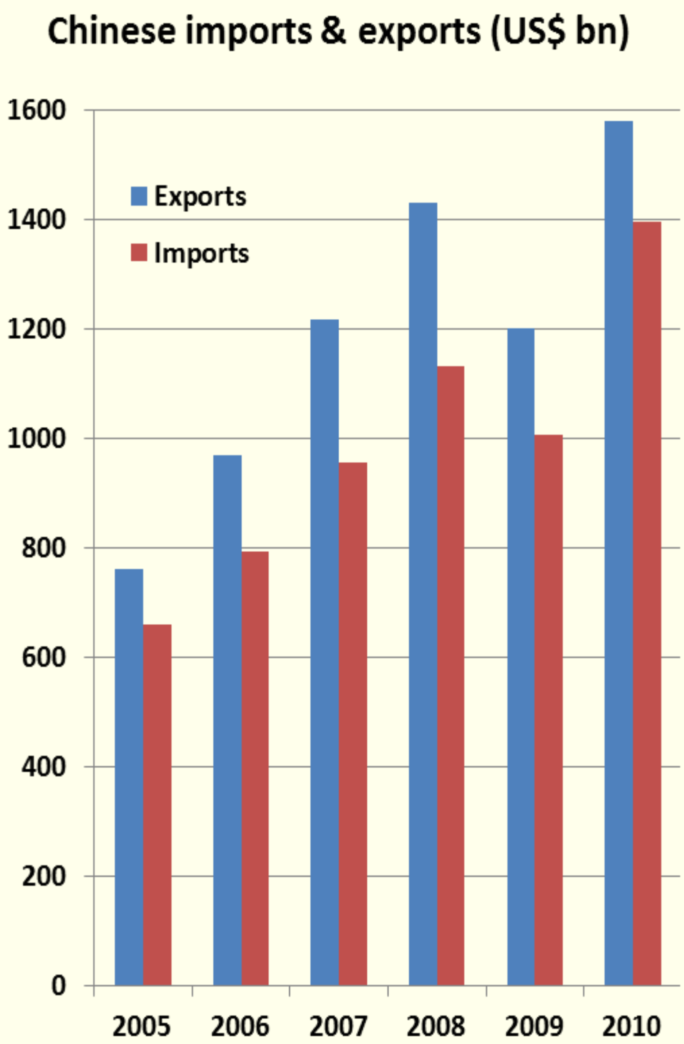
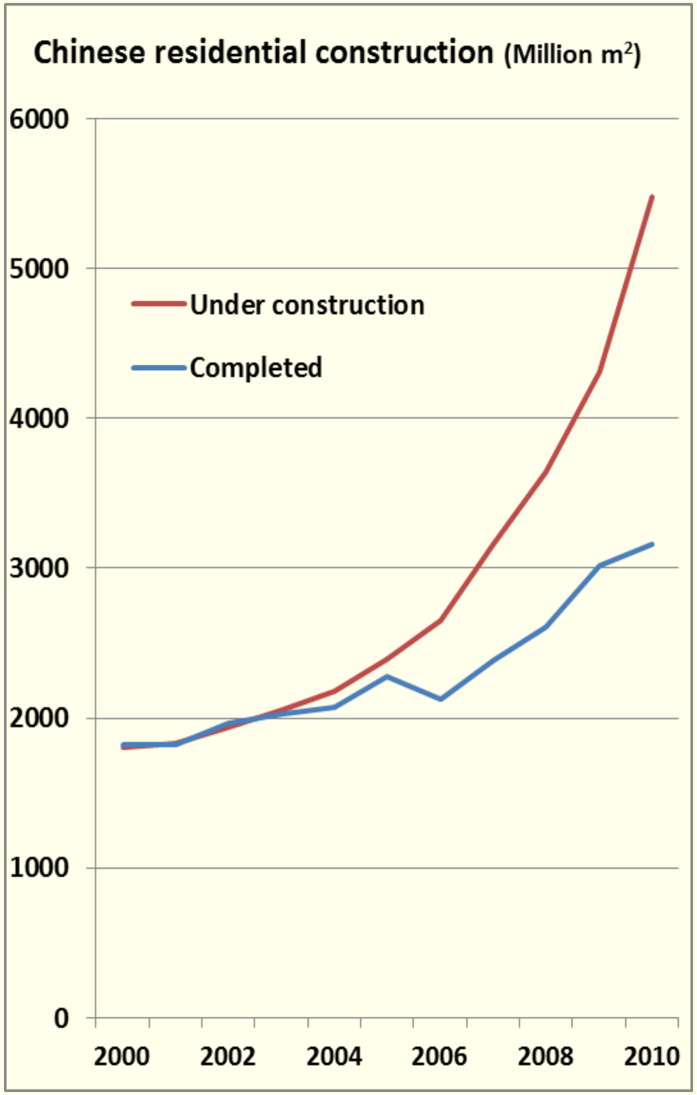
Limits facing China



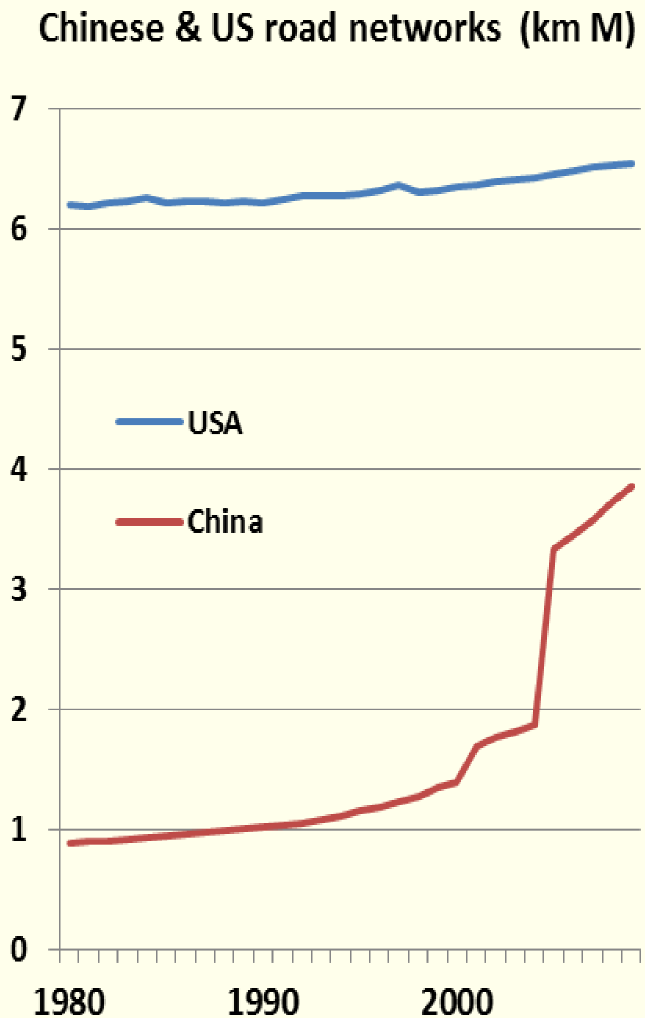
- **The value of Chinese exports has increased at an annual average rate of almost 16% over last 5 years**
- **This increase has been driven mainly by larger volumes not higher unit values**
- **Imports have risen at a similar rate but higher unit values have made a significant contribution**
- **Higher natural resource and raw material prices, including energy products, a key factor in rising imports**
- **China's competitiveness being eroded by higher domestic costs (wages) and gradually appreciating currency**

Huge overhang in real estate



- Construction of real estate (residential & commercial) has soared over the last 5 years
- There is a very large number of projects currently under construction, and vastly outpacing completions
- Data may not be accurate but evidence on the ground supports this opinion

Infrastructure spending must slow



- Billions spent on road, rail, airport and other ambitious infrastructure projects now threaten local government finances
- Many major projects now completed or nearing completion
- Next wave of projects likely to offer ever-diminishing social and/or financial returns

East Asia

- Japan remains an important producer and consumer of zinc and copper – role in lead is diminishing
- Production of copper and zinc stable but consumption on declining trend
- Japanese economy continues to face many problems now made worse by the recent earthquake
- Korea remains a force in copper, zinc and lead.
- Production in Korea is stable or rising while consumption is stable
- Korean economy dependent on exports – and China
- Taiwan is important processor of metals and semis producer –and dependent on export markets

South East Asia

- ASEAN countries badly affected by the global financial crisis
- Most in this group have struggled to regain previous levels of industrial output
- Domestic problems and dependence on exports
- Exception has been Thailand *despite* political crisis at home – strong growth in consumption of copper, zinc and lead
- Significant potential remains in region especially for manufacturers looking for alternative locations to China
- Vietnam and Indonesia look well placed to take advantage of inward investment

India

- India was successful in avoiding the worst of the global financial crisis
- Government introduced tax cuts, subsidies and lower interest rates stimulate demand in early 2009
- Domestic consumer demand has been strong (eg. vehicle sales) and there has also been significant capital spending
- Inflation and government deficit is a problem – higher interest rates are slowing growth and the government needs to curb spending
- India's per capita consumption of metals is low and will rise only slowly – poor infrastructure (power & transport) is a handicap
- However, India's growth more balanced than China's

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Metal market outlook

- CHR Metals expects some increase in interest rates in mature economies over next 6-12 months
- Concern over inflation has already resulted in higher rates in several Asian countries, including China, and in South America
- Higher US & European interest rates will change investor portfolio preferences with less speculative/investor interest in commodities…
- …leading to weaker commodity prices in the absence of support from supply/demand fundamentals
- Interest rate scenario depends on avoiding new banking crisis
- US dollar at all-time low in real terms also a factor in determining price expectations

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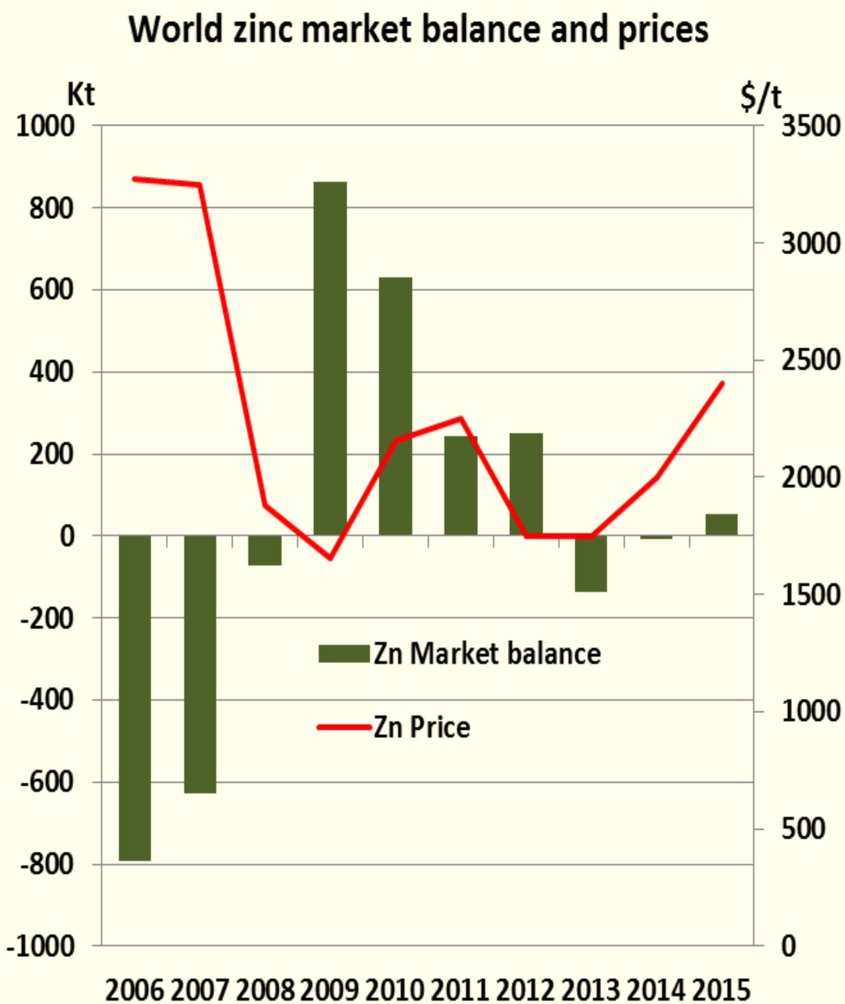
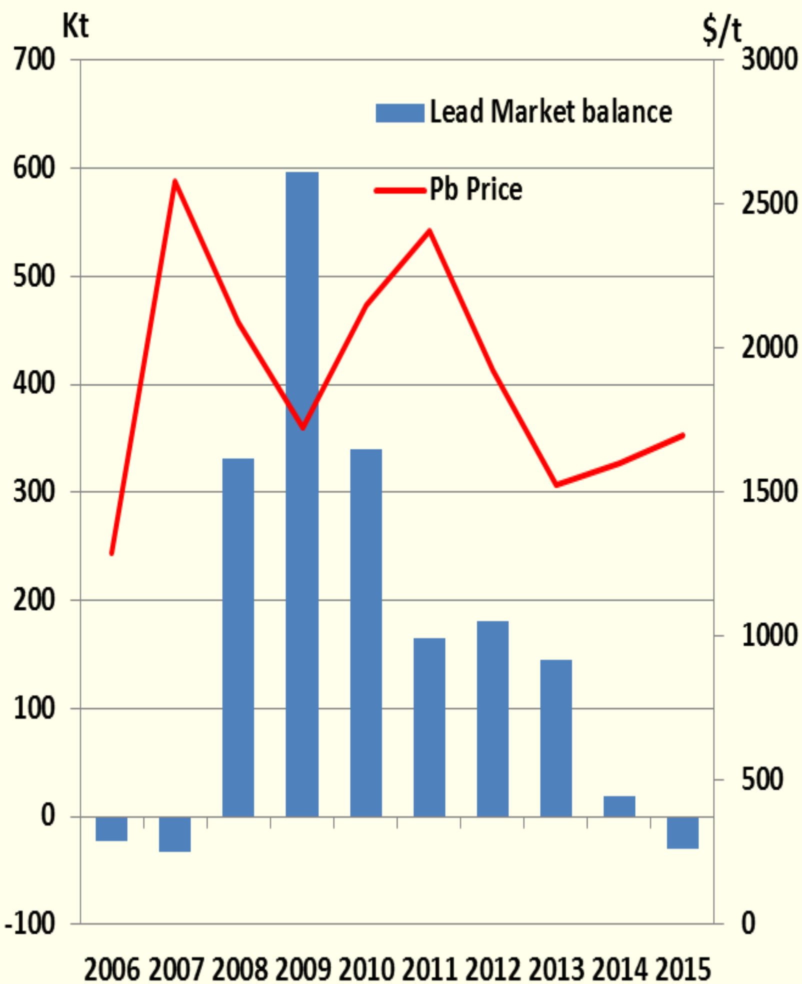
Price outlook - Zinc



- Large global surpluses in 2009 and 2010 – much in China
- Surplus smaller in 2011 and 2012 but the market will not return to deficit until 2013
- Current zinc prices (+Pb/Ag) are still high enough to provide strong incentive to develop new zinc mine projects
- Slowing global economic growth, notably in Europe, North America and China, will inevitably lead to slower growth in zinc demand than seen in 2010
- Weaker prices in near term but picking up in 2014/2015 as market tightens

Price outlook - Lead

World lead market balance and prices



- Large global surpluses in 2008, 2009 & 2010 – most in China
- The price of lead is significantly higher than average production costs, especially recycling which accounts for >60% of global output
- Large speculative element in current price…
- …but strong (irrational) support from Chinese market at around $2000/t
- Expect lead prices to trend lower to re-establish some connection with production costs

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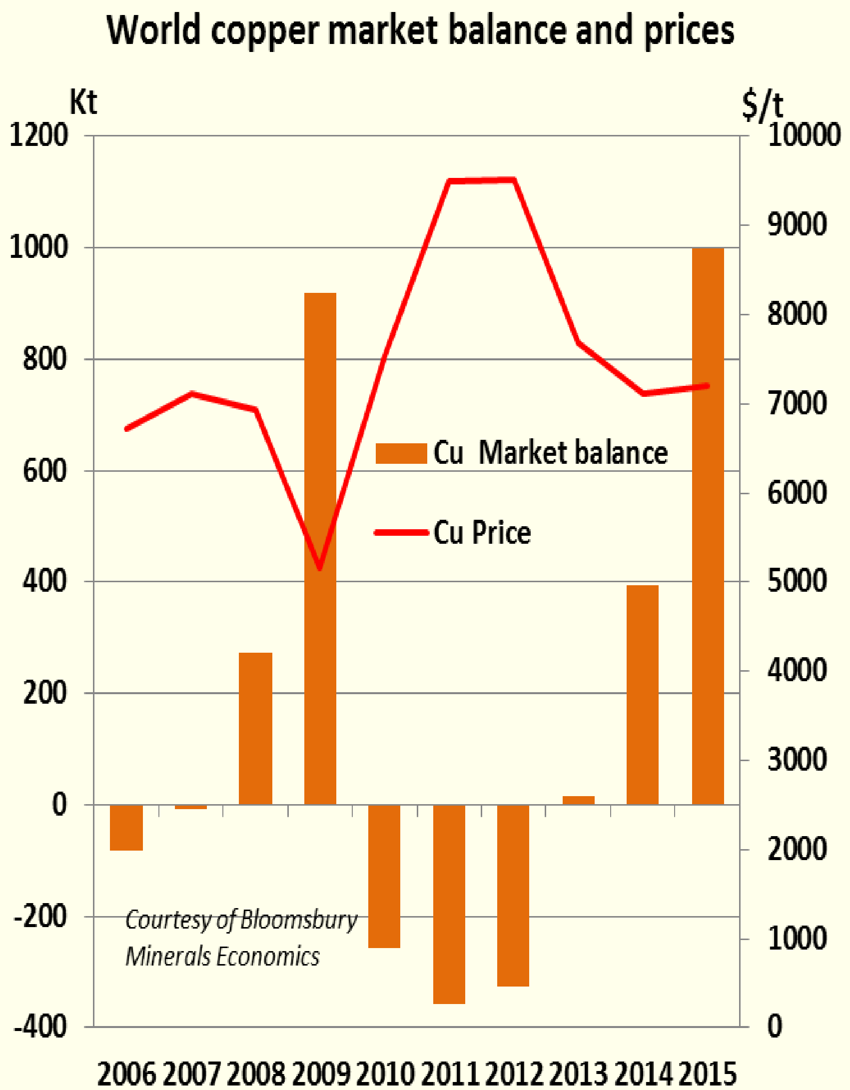
Price outlook – Copper



- Faltering output, higher costs & political uncertainty feature in copper mining
- Market fundamentals and price look good through to 2013 but poor further out
- High prices are encouraging end-use substitution resulting in slower demand growth in the future
- Expansion of mine output is in the pipeline
- Large market surplus forecast by 2015
- Data provided by Bloomsbury Minerals Economics – latest quarterly outlook

Closing comments

- Asia, more especially China, has dominated developments in base metal markets over the past decade
- Structure of growth in China is not sustainable and this is clearly recognised by the authorities
- China's economic model must move from dependence on exports and investment to domestic consumption and greater social development (health, education, environment)
- Next phase of China's development will not be as intensive in terms of materials consumption as the last 5-10 years
- CHR Metals is not forecasting a slump in metals demand but believes that many projections of continued very rapid growth in metals demand based on recent developments are too optimistic

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In-depth analysis of the global lead and zinc industries

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