

## Outlook for commodity markets

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MF Global Seminar

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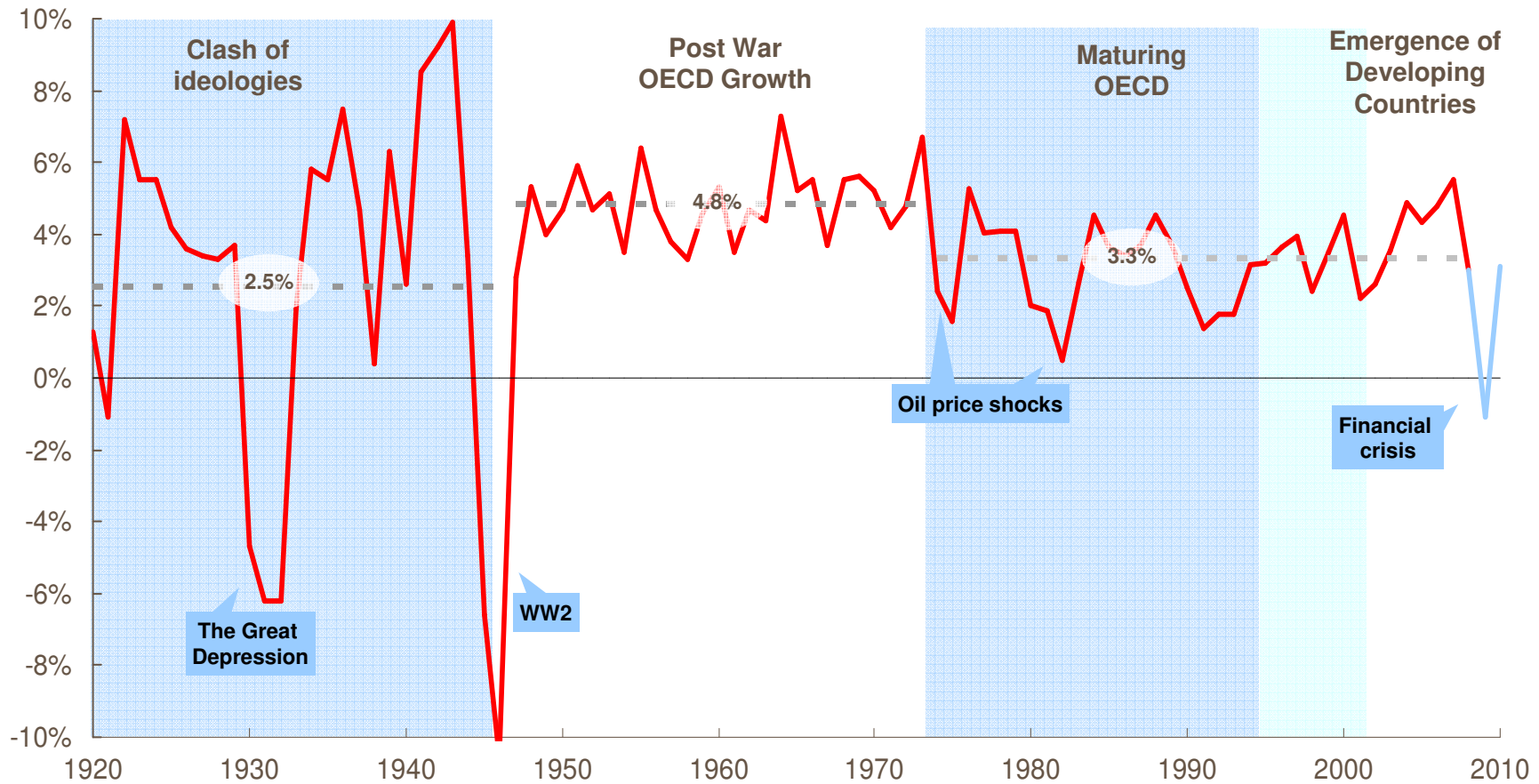
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# Global financial crisis has been the biggest shock to the world economy since the Second World War

Growth in global GDP (percent a year on purchasing power parity basis)



Note: Data prior to 1950 excludes Africa, Asia and Former Soviet Union

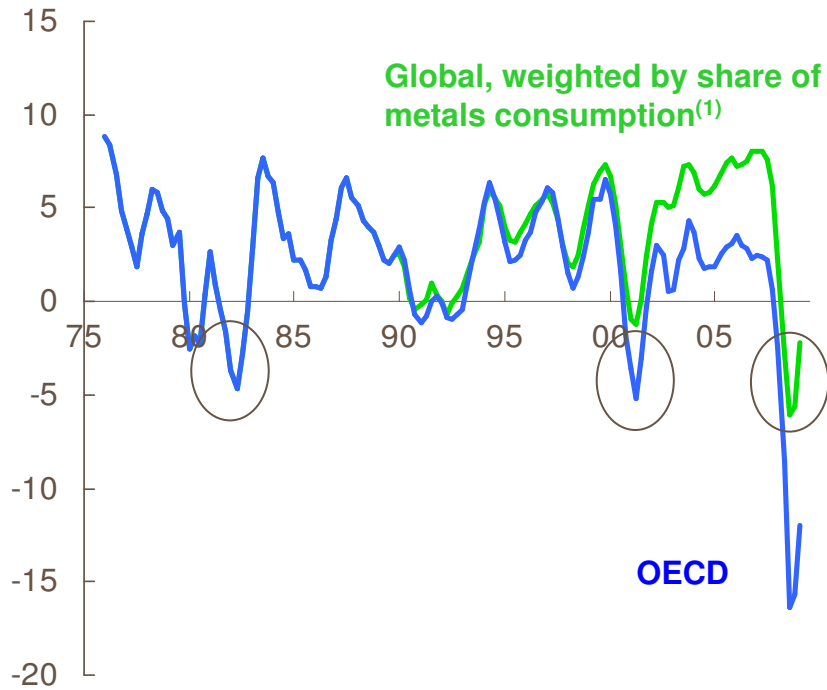
Source: IMF, Rio Tinto

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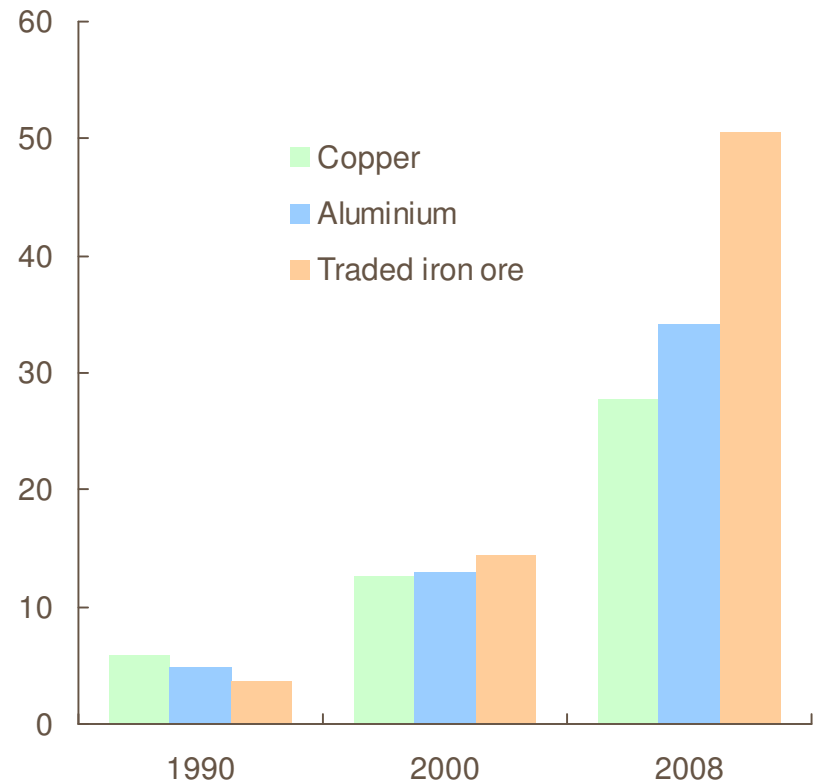
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# In a “metals weighted” world the downturn is comparable to the early 1980’s and “dot-com” downturns

**Growth in industrial production (percent a year)**



**China's share of world consumption (percent)**

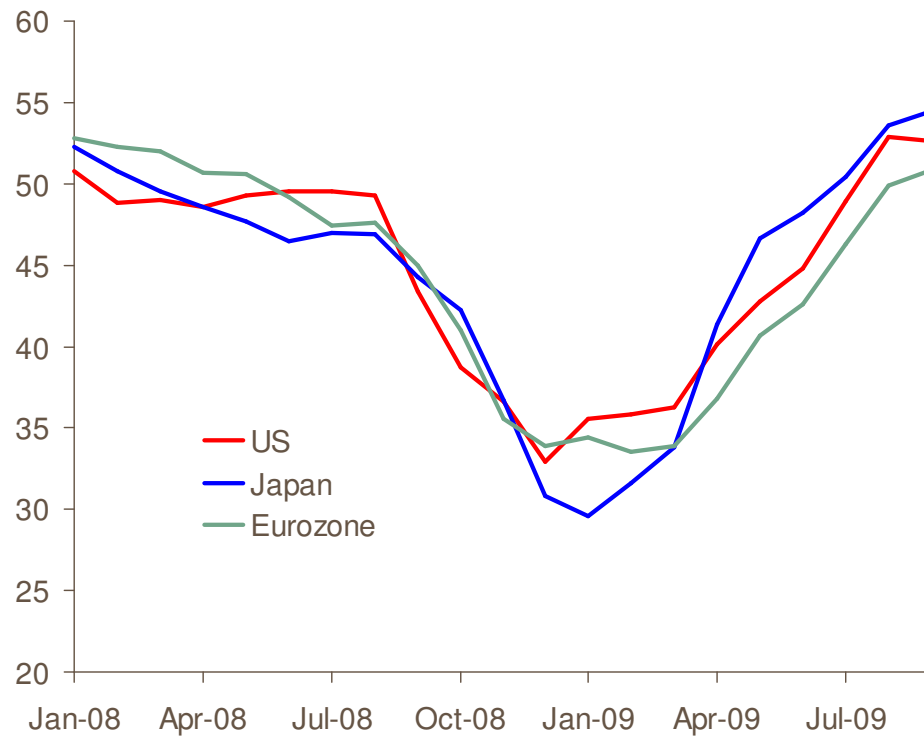


Source: IMF, WBMS, CRU, Brook Hunt, Rio Tinto

# We are now seeing a cyclical upturn in the developed world but underlying recovery may not be strong

Purchasing manager indicators suggest recovery ...

.. but a number of 'headwinds'



Source: ISM Factory (US), Nomura JM (Japan), Markit (Eurozone)

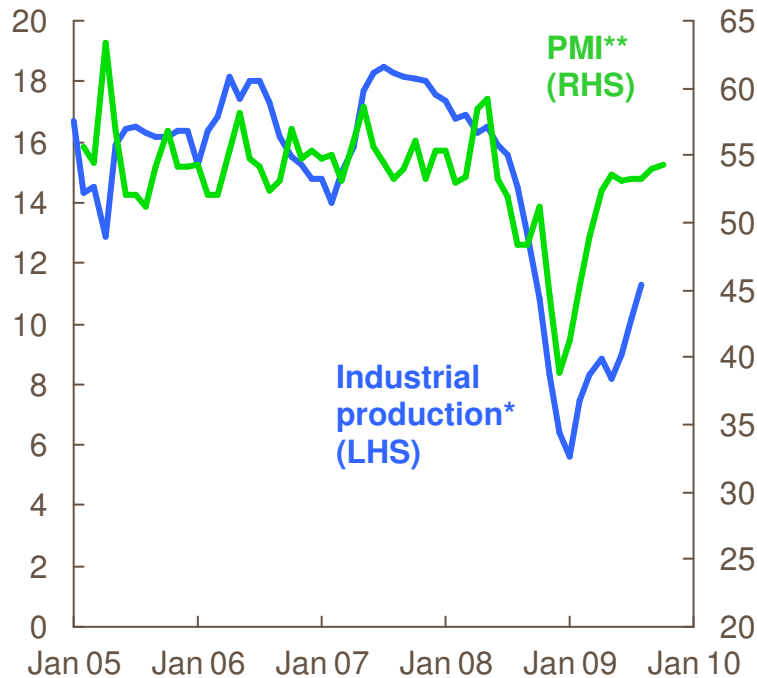
- Release of 'pent up' demand, government stimulus and end to destocking is driving current 'normalisation' in demand
- Excess capacity is still holding back investment and producers are not restocking
- Structural fiscal deficits will eventually need rebalancing
- Western consumers unlikely to go back to previous levels of borrowing

This may not matter for commodities if the strong Chinese recovery continues; but a longer term shift in the balance of its growth is required

Rapid pick up in Chinese economic activity

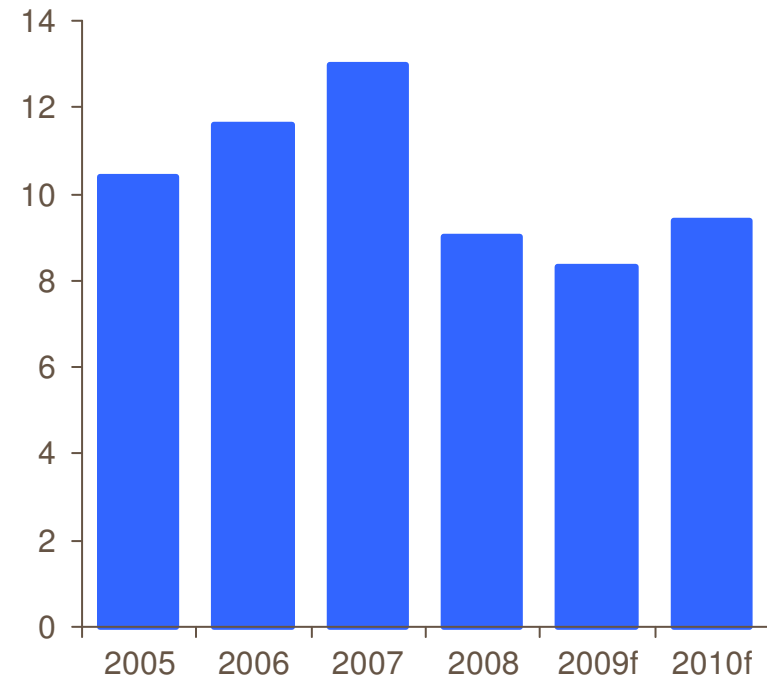
Chinese industrial production and Purchasing Managers Index

percent yoy, index



Chinese GDP growth

percent yoy



\* 3 month moving average

\*\* NBS series. Forward 1 month

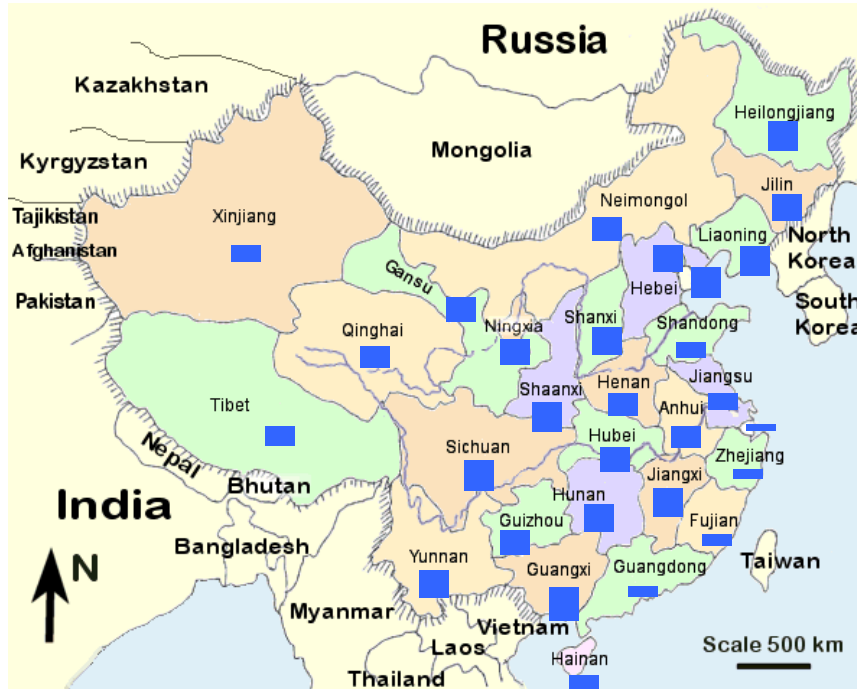
Source: Reuters Ecowin, Consensus Economics

# Inland Chinese provinces have been the focus of Chinese infrastructure spending

## Acceleration in investment growth in China

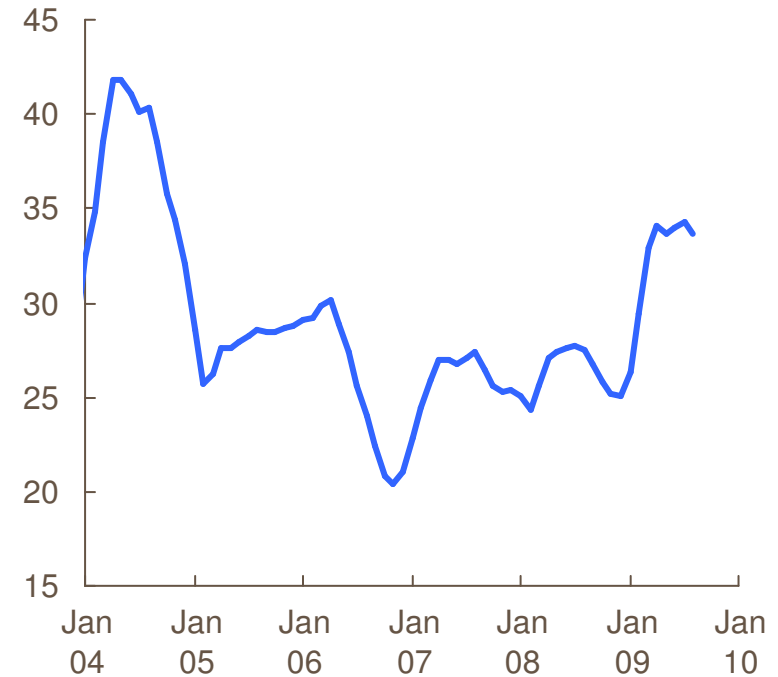
**Increase in fixed asset investment Jan-Aug 2009**

Per cent yoy (bars denote relative growth)



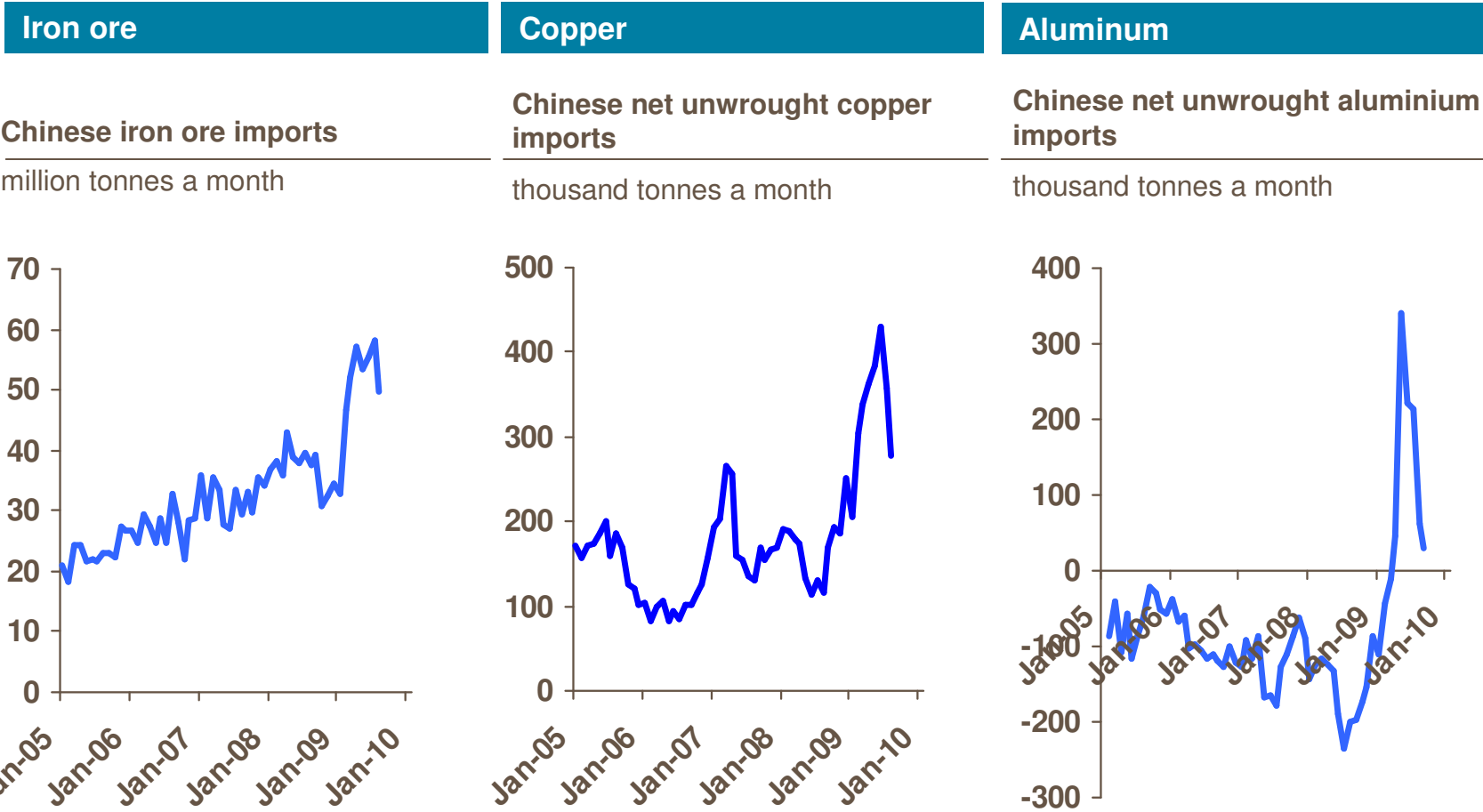
**Urban fixed asset investment**

percent yoy, 3 month moving average



Source: Chinese National Bureau of Statistics

# Surge in Chinese imports during 2009 have been the driving force behind commodity markets offsetting fall in demand in other regions

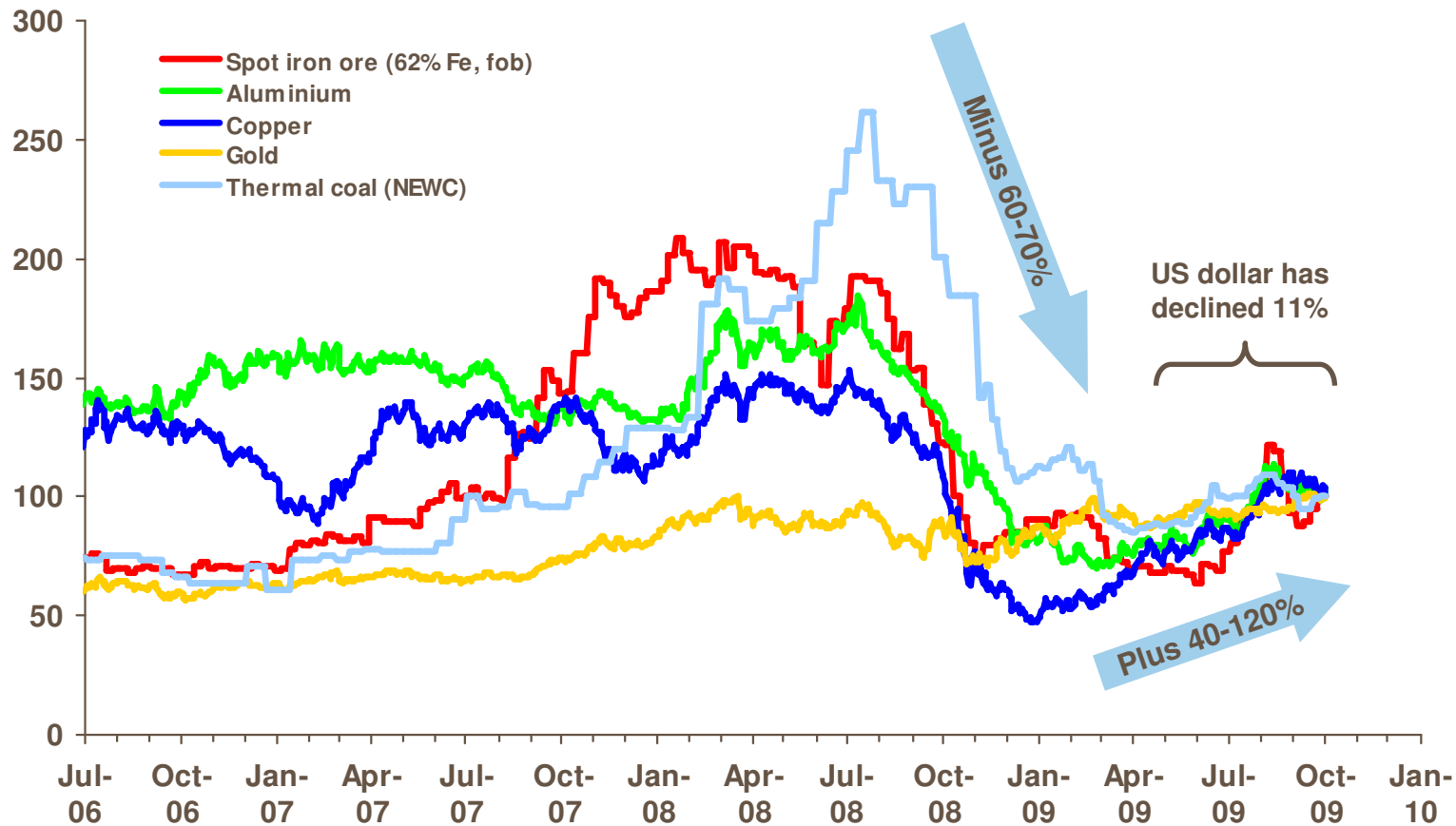


Source: Chinese trade statistics



# After a record decline in 2008H2 commodity prices have staged a strong recovery

Daily spot price index (2 October 2009 = 100)



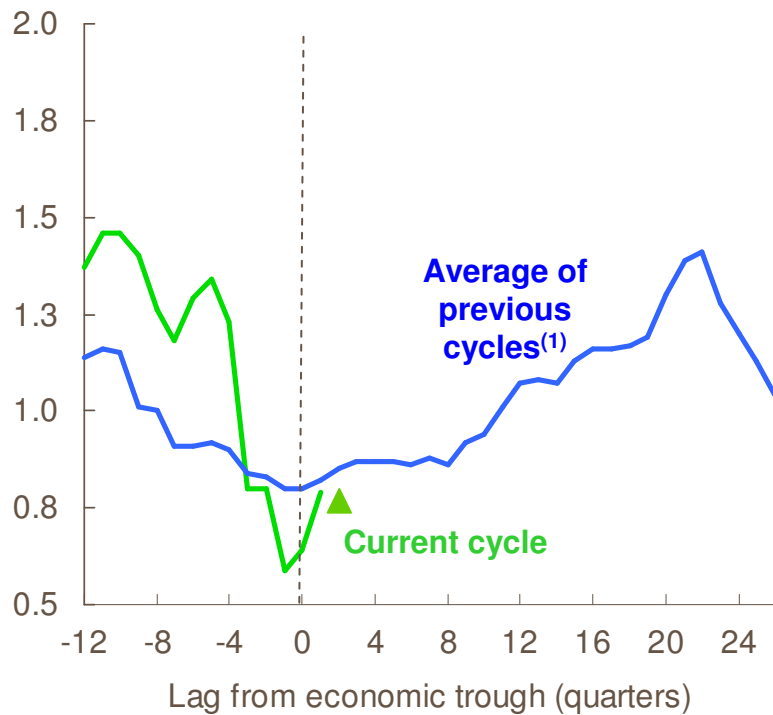
Source: Metal Bulletin, Reuters Ecowin

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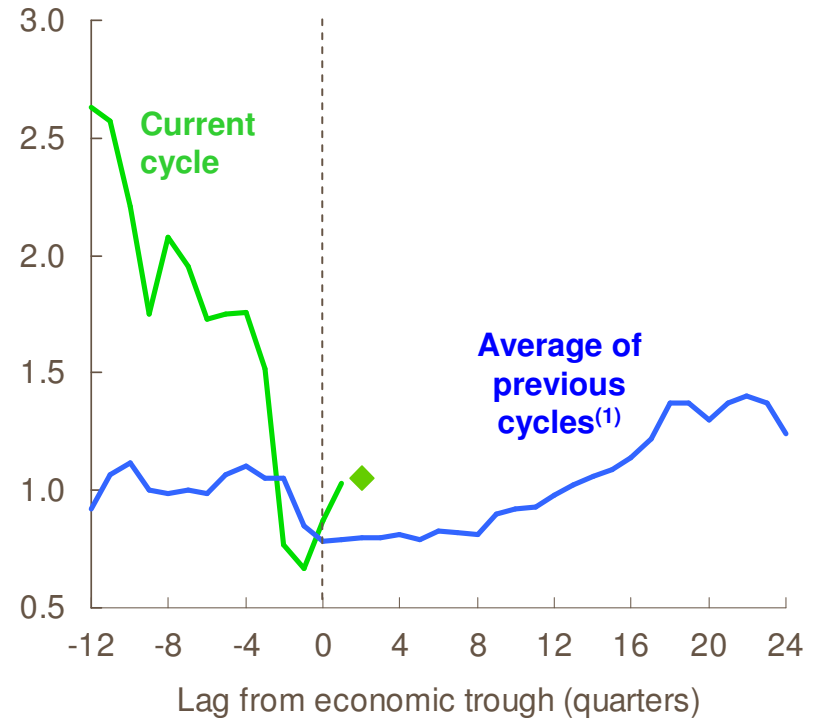
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Current metals price cycle has been much more severe than in previous periods but prices have risen more quickly off lows

Aluminium price as ratio of 5 year trailing average<sup>(2)</sup>



Copper price as ratio of 5 year trailing average<sup>(2)</sup>



(1) Average of cycles centred around 1978, 1982, 1992 and 2001

(2) Real terms

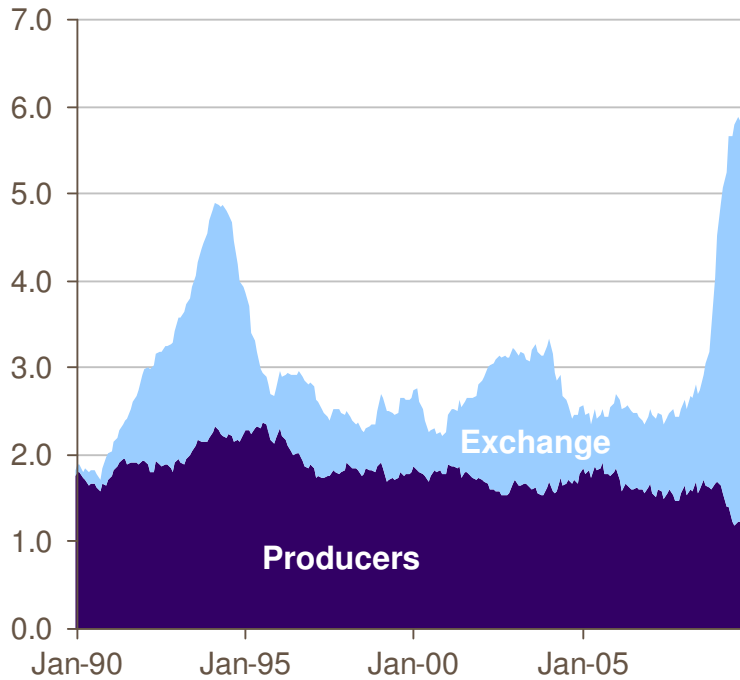
Source: LME, Rio Tinto

# Aluminium: Prices in Q1 reflected excessive risk but large stock overhangs have developed

## World aluminium production and price-cost relationship

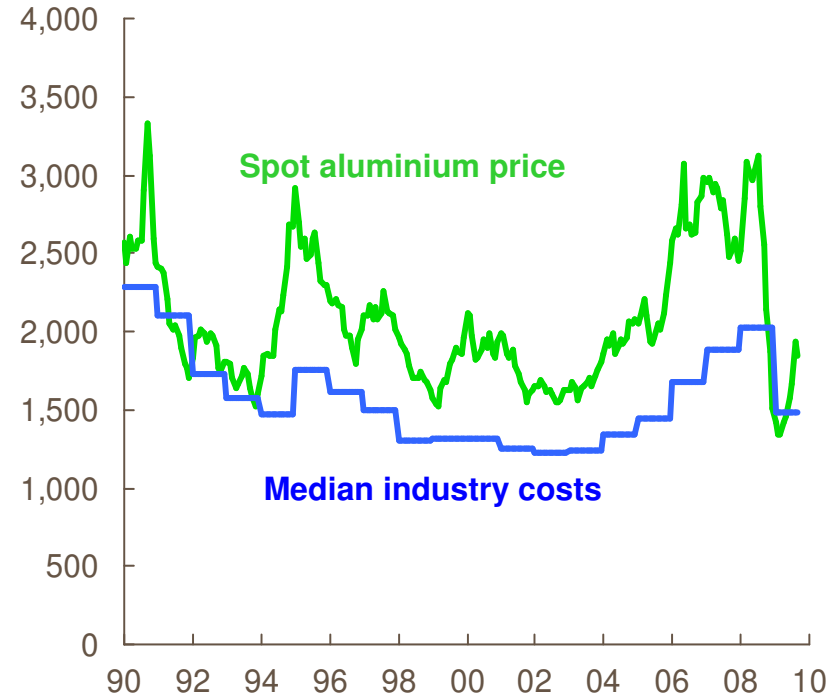
**Western aluminium stocks**

million tonnes



**Aluminium prices and costs**

\$ per tonne in real 2009 terms



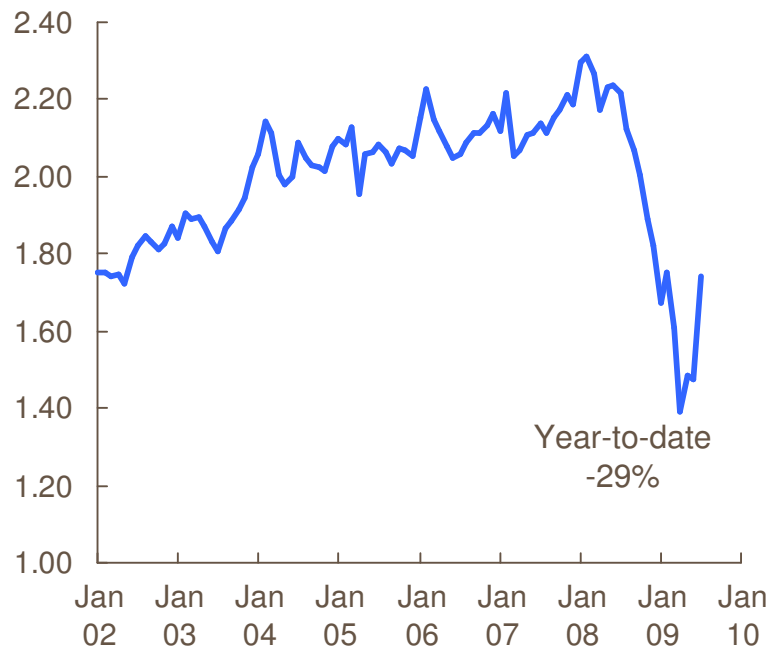
Source: IAI, CRU, LME

# Consumption is now starting to recover but remains well below previous levels outside China

## World aluminium shipments

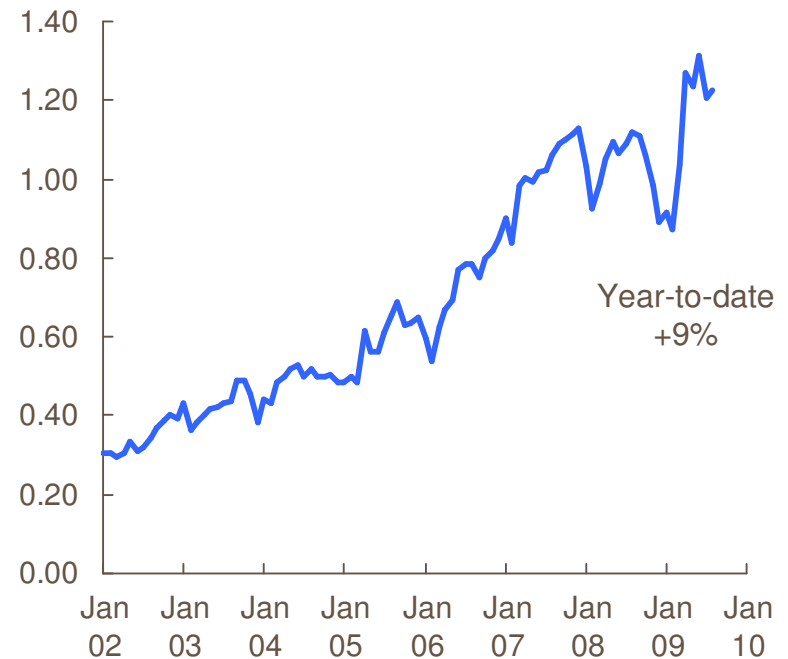
### Non-China

monthly, million tonnes



### China

monthly, million tonnes



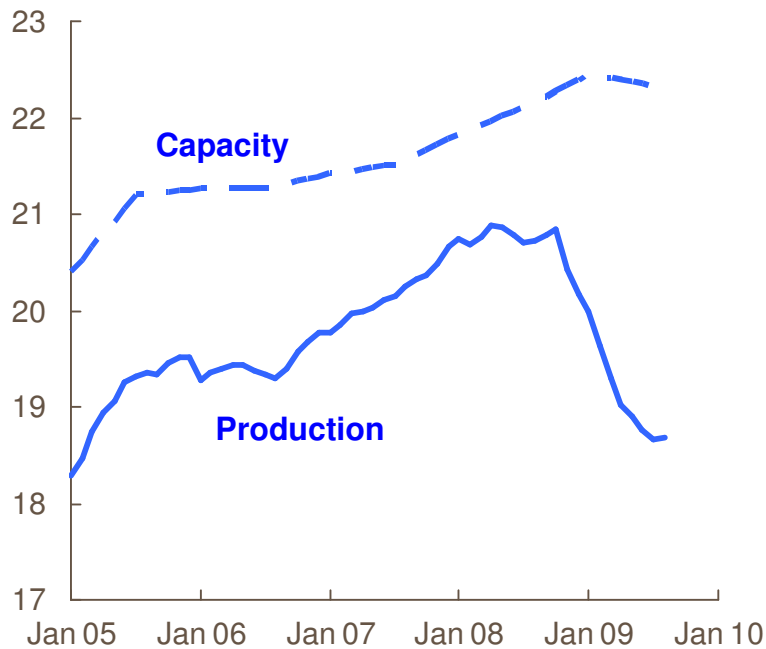
Source Rio Tinto estimates

# Large smelter capacity overhangs remain both inside and outside China

## World aluminium production and capacity

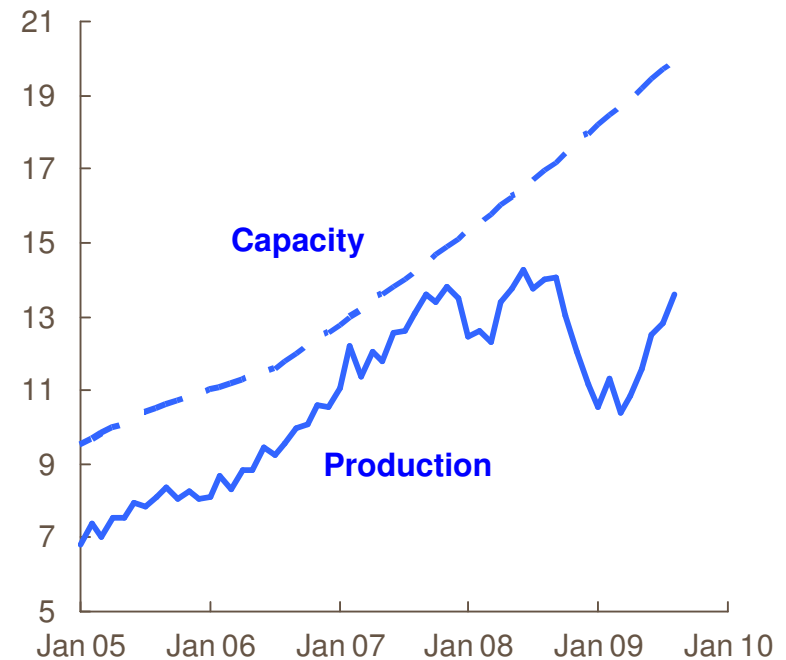
### Western world

monthly, annualised million tonnes



### China

monthly, annualised million tonnes



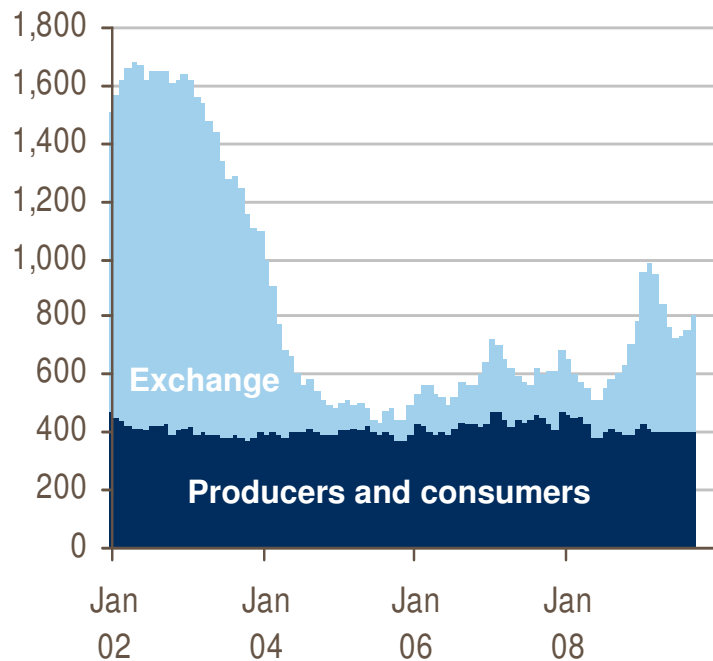
Source: IAI, WBMS, Rio Tinto estimates

# Copper: Constrained supply and record Chinese imports pushed market back into deficit in H1 but destocking may be a short run negative

## Low copper stocks and constrained supply growth

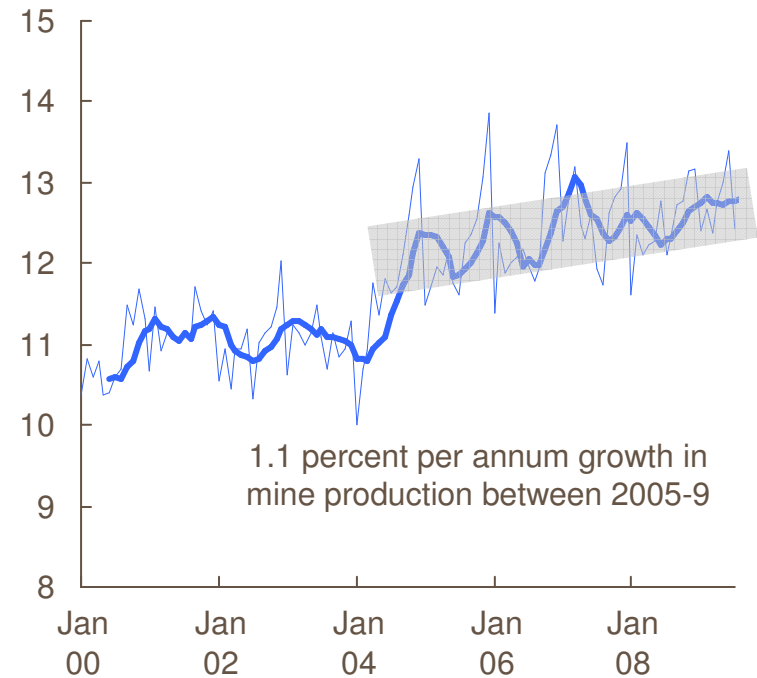
Western copper stocks

thousand tonnes



Western world copper mine production

monthly, annualised million tonnes



Source: WBMS, LME, NYMEX, WBMS, Chinese trade statistics

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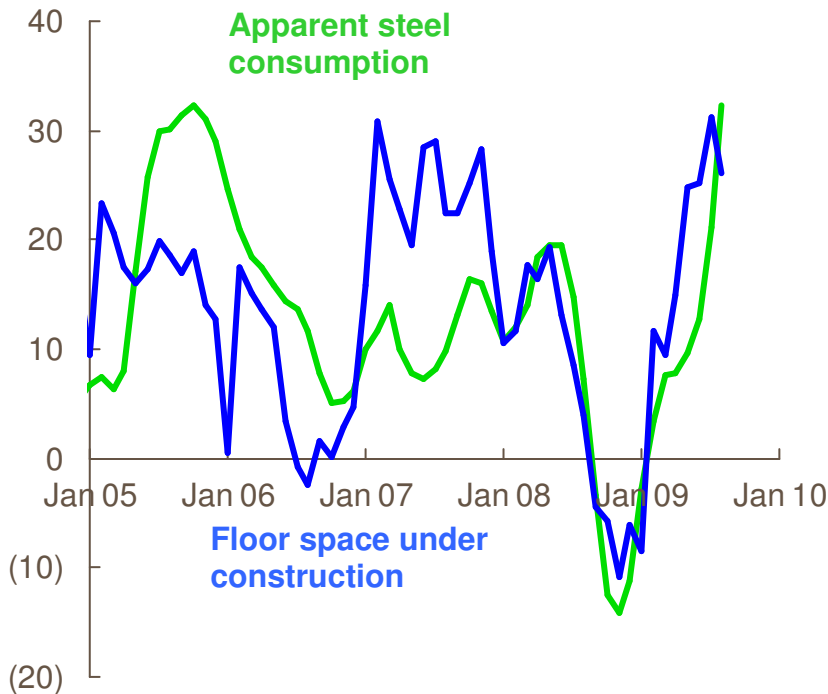
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# Iron ore: Current spot prices are supported by call on high cost marginal producers required to meet Chinese demand

Chinese steel production is responding to recovery in construction activity and infrastructure spending and driving spot iron ore prices

Residential construction and apparent steel consumption in China

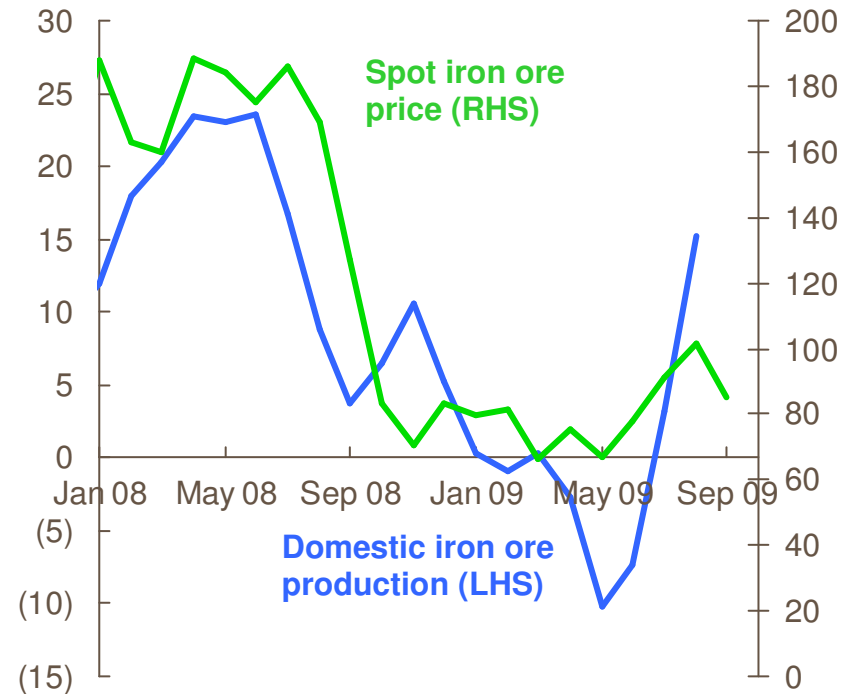
percent yoy (3 month moving average)



Iron ore spot price and domestic Chinese mine production

percent yoy (3 month moving average)

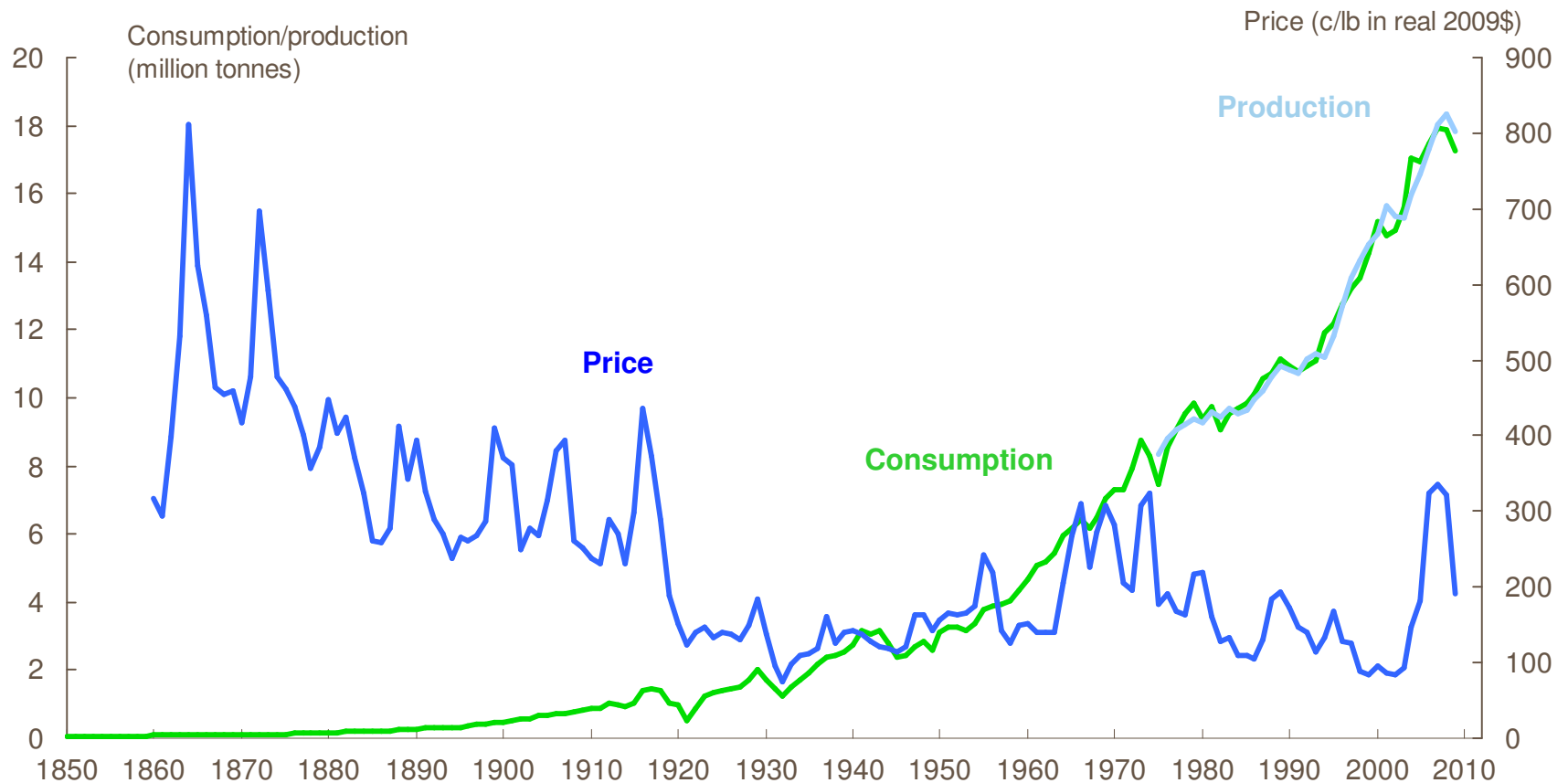
\$ per tonne (63.5% Fe, cfr China)



Source: World Steel Association, Chinese trade statistics, Reuters Ecowin

# Long run price levels are the outcome of a continuous tussle between demand and supply

## Refined copper consumption and real copper price

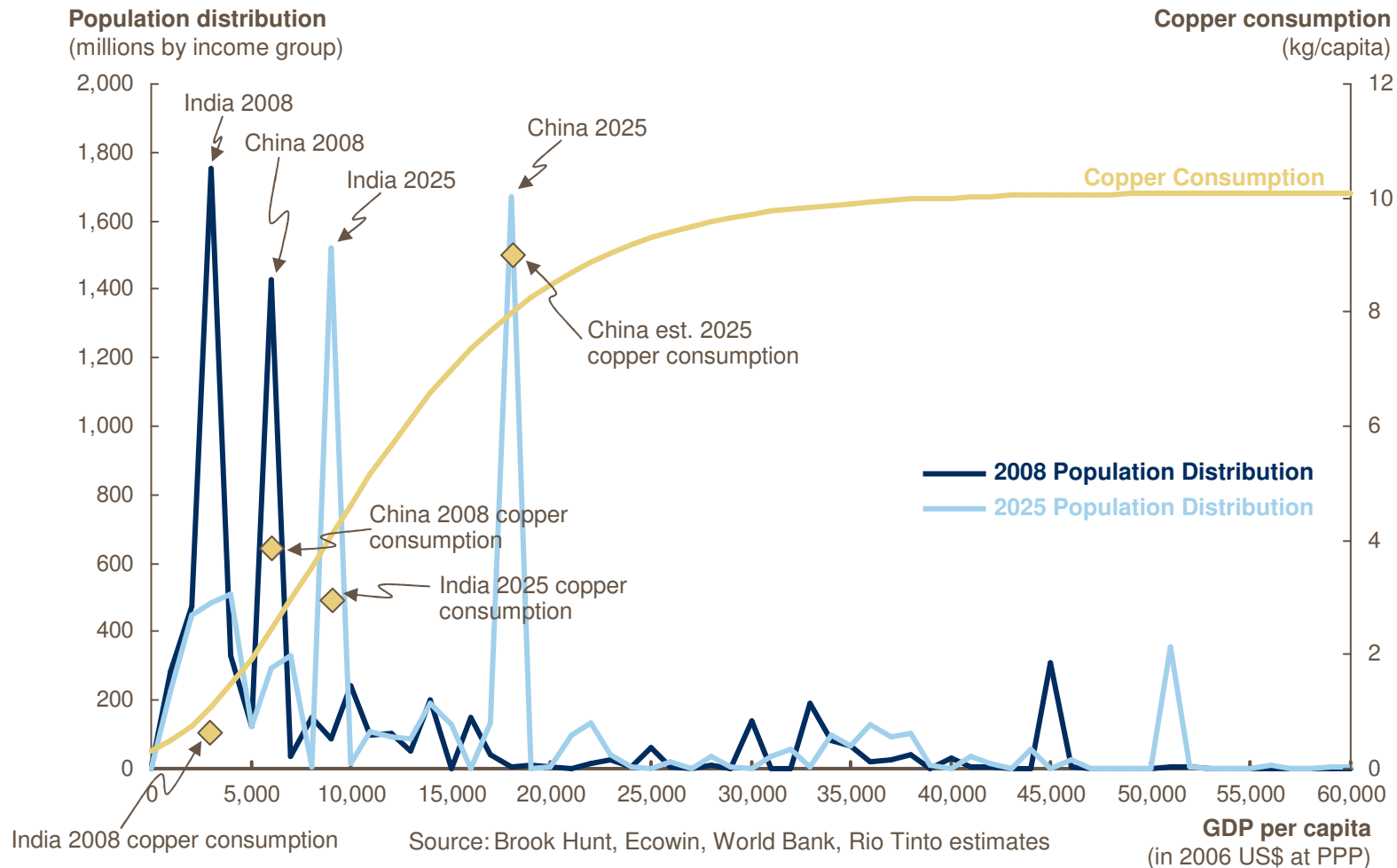


Source: LME, Brook Hunt, Rio Tinto



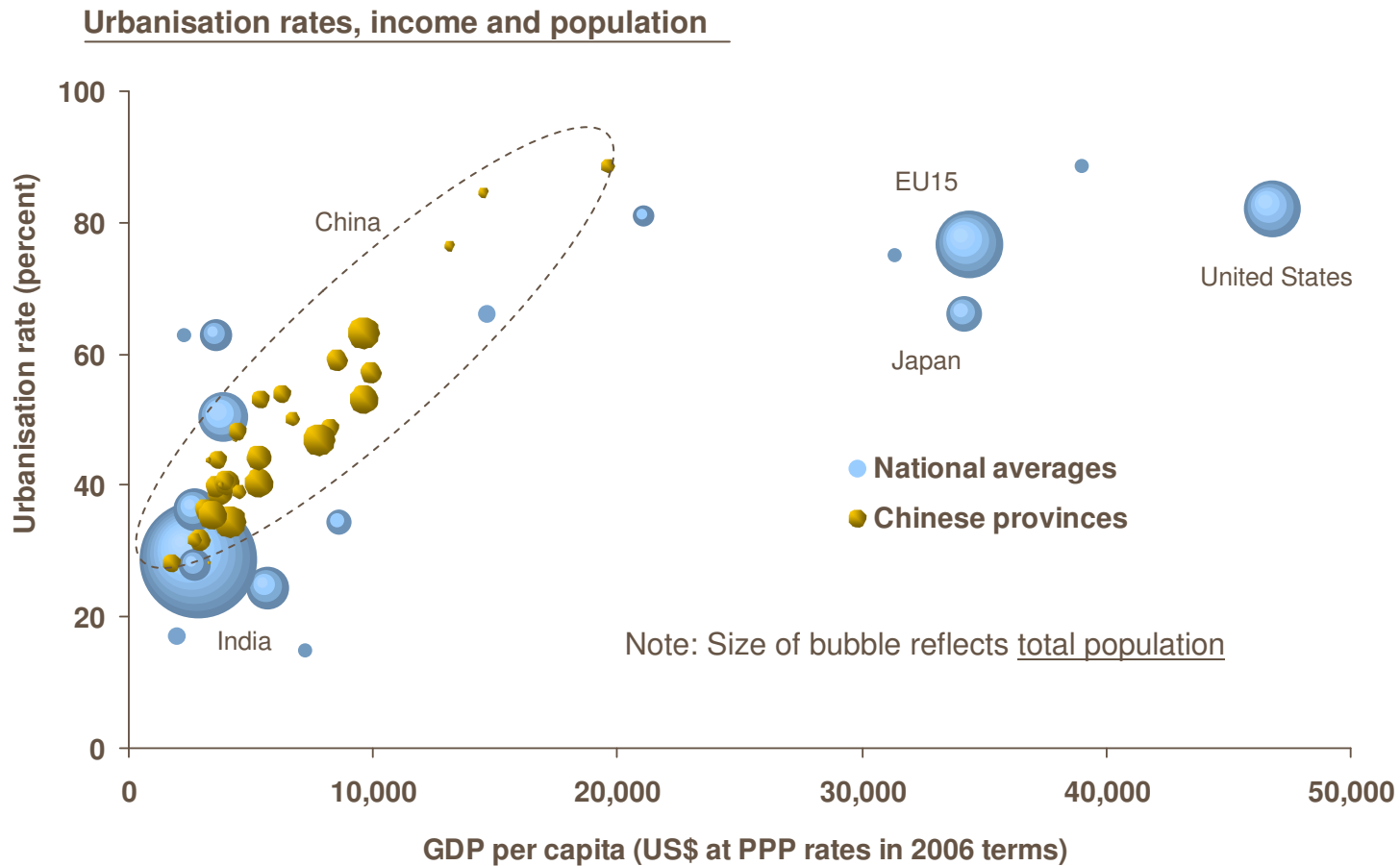
# Future metals consumption trends will be driven by growth in population and wealth in developing nations, particularly China and India

## Global population distribution and per capita copper consumption



# Industrialisation and urbanisation within China have some way to run

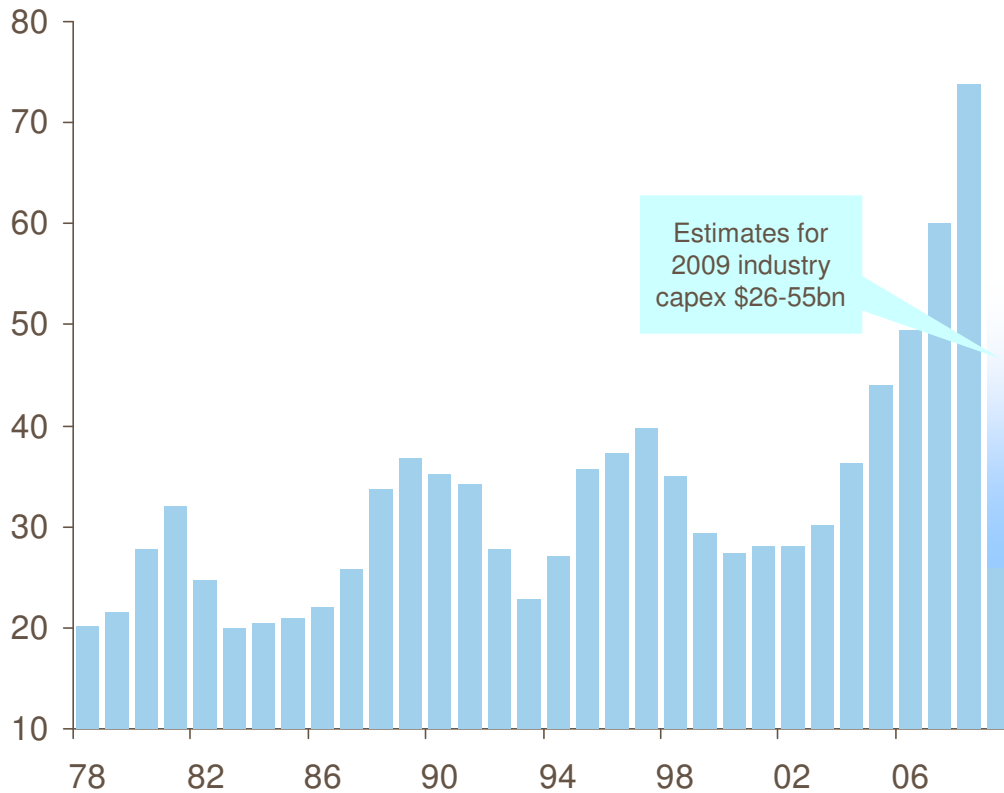
Urbanisation rates across Asia, the United States and European Union in 2008



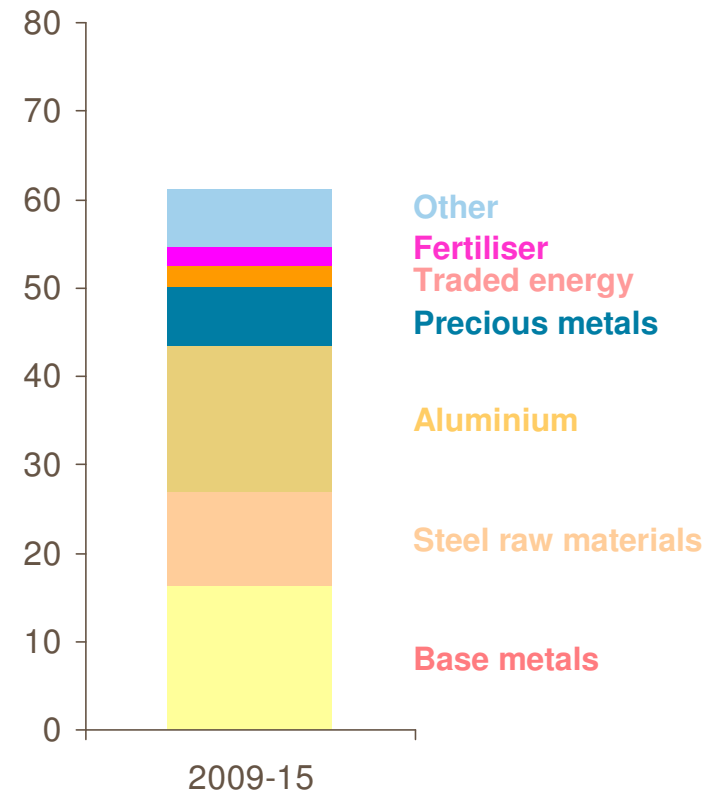
Source: Global Insight, CIA Factbook  
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# Metals consumption could double in next 15-20 years and implies sustained pressure on capital and people ...

**Capital spending by non-ferrous mining sector**  
(\$billion in 2009 terms)



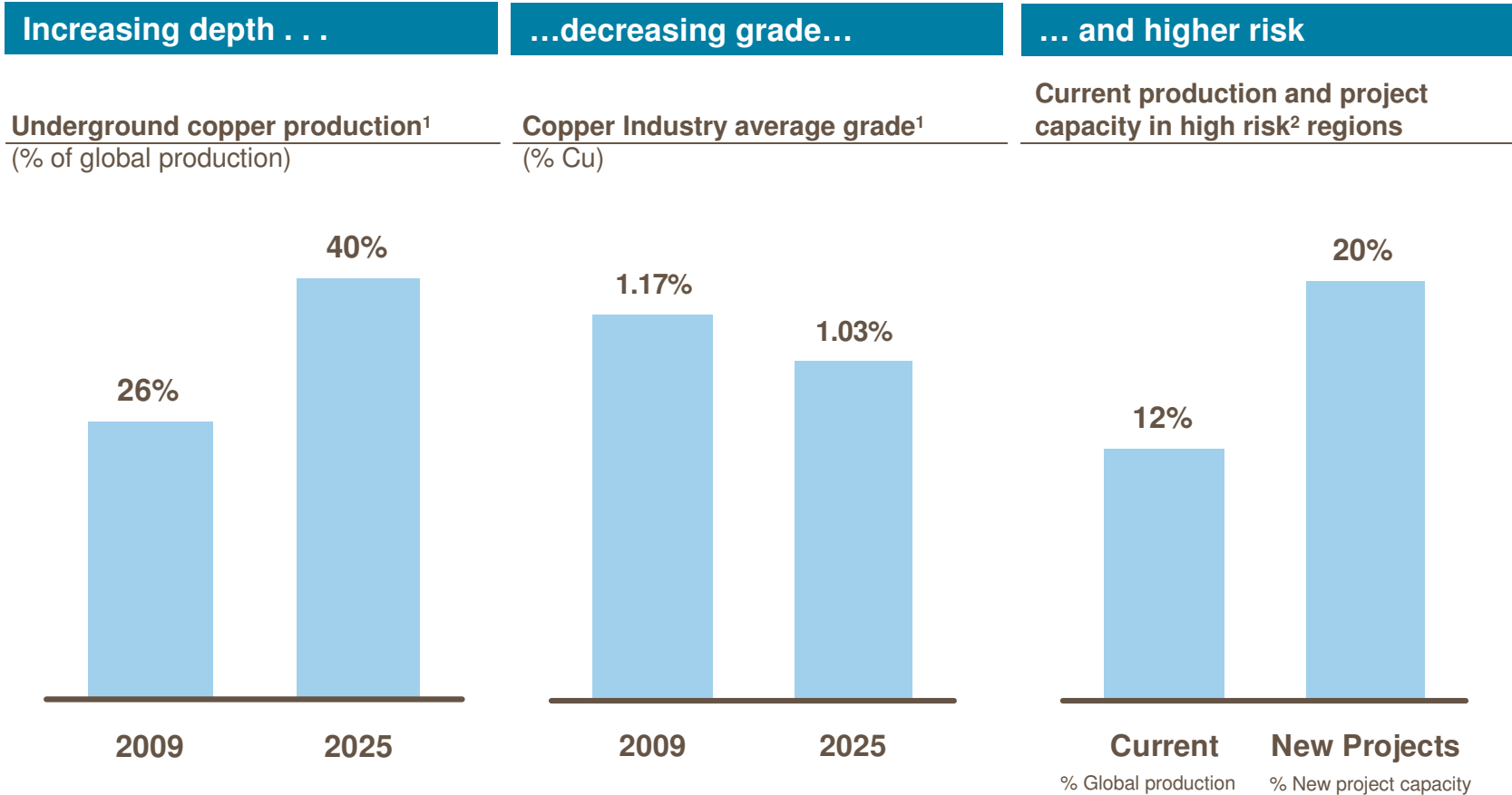
**Future sustaining and new capital spending requirement** (\$billion in 2009 terms)



Note: Base metals consists of cobalt, copper, lead, manganese, molybdenum, nickel, tin and zinc  
 Steel making consists of seaborne coking coal and seaborne iron ore  
 Aluminium consists of alumina refining and aluminium smelting  
 Precious metals consists of gold, silver, PGMs and diamonds  
 Energy consists of seaborne thermal coal and uranium  
 Based on current unit capital costs and Rio Tinto demand projections and assuming sustaining capital at 4% of revenue.

Sources: MICA (CRU), Rio Tinto estimates

... and resources. The location and grade of Copper ore will create challenges for the industry.



Notes: 1 Existing mines and funded projects  
2 Rio Tinto classification

Source: Brook Hunt Q2 2009

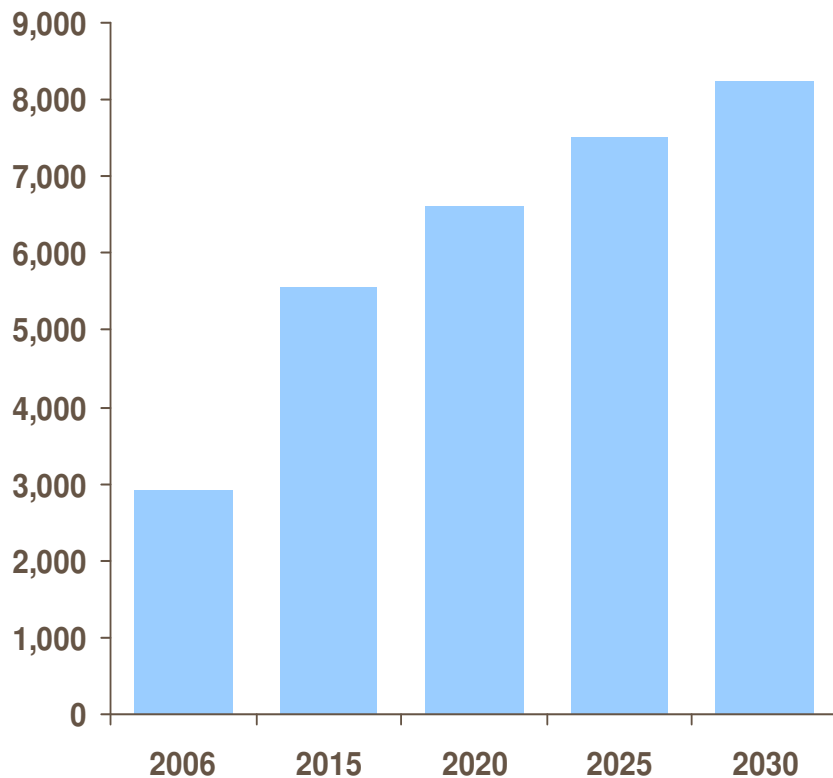
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# ... including energy. Positive long run aluminium outlook underpinned by rising demand and energy constraints

Long run upwards pressure on Chinese costs will support long run aluminium prices

Chinese electricity generation requirements

TWh



- Chinese smelters will face increasing competition for access to power
- Renminbi appreciation is expected to resume once export market conditions stabilise
- Carbon pricing will lead to upwards industry cost and price pressure and benefit low carbon sources of production

Source: IEA World Energy Outlook (2008)

## Current market conditions and outlook

- Spot metals prices are 40-120% above Q1 cyclical lows but remain well under previous peaks
- Stimulus spending, loans growth and stocking activities in China provided initial basis for recovery
- Could see some 'pay-back' for this in coming months but may be offset by normalisation in developed world consumption levels
- Strong longer run fundamentals remain intact