

### **Market Overview**

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President & CEO

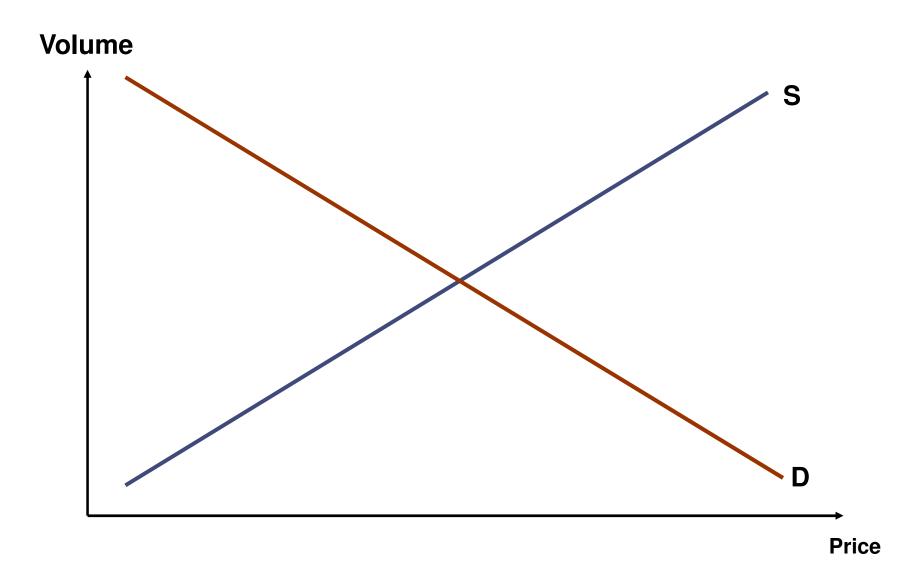


### Forward looking statements

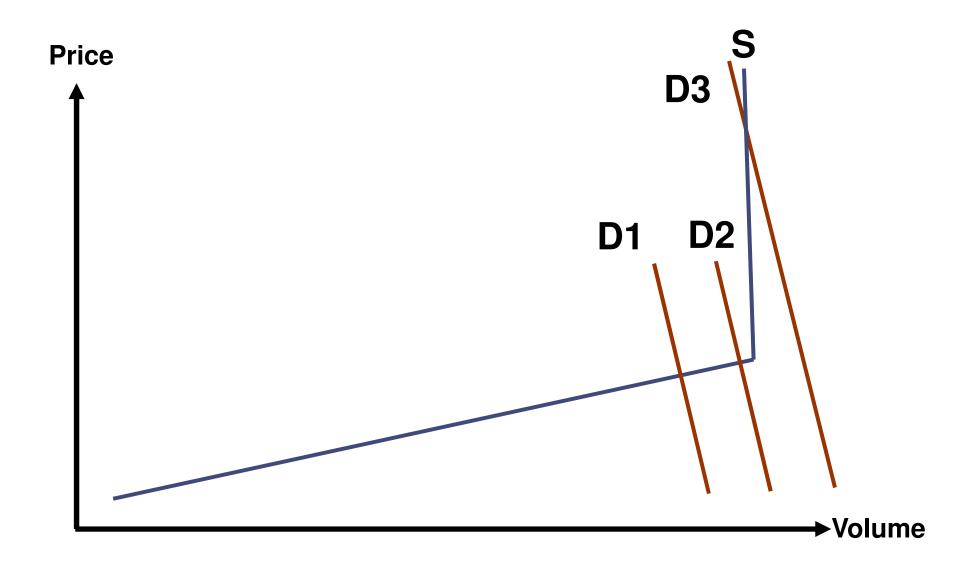
Certain statements in this presentation are forward-looking, and the actual outcome could be materially different. Such forward-looking statements are based on Boliden's present plans, estimates, assumptions, projections and expectations and are subject to risks and uncertainties. In addition to the factors explicitly discussed, other could have a material effect on the actual outcome. Such factors include, but are not limited to, general economic or political conditions, fluctuations in exchange rates, interest rates and in metal prices, production disruptions, technological issues, interruptions in supply, actions of courts, regulators, government agencies, competitors, customers, suppliers, employees and other third parties.



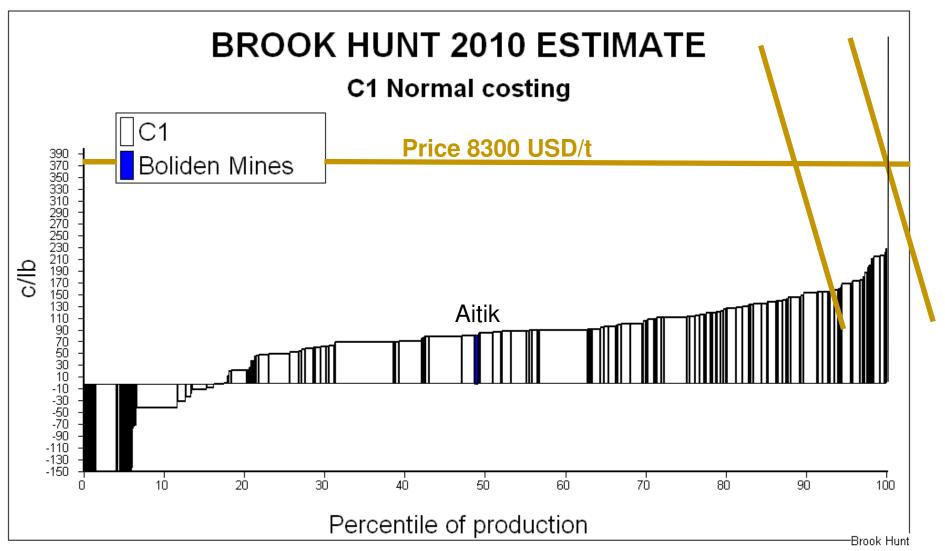
# **Demand - supply balance**



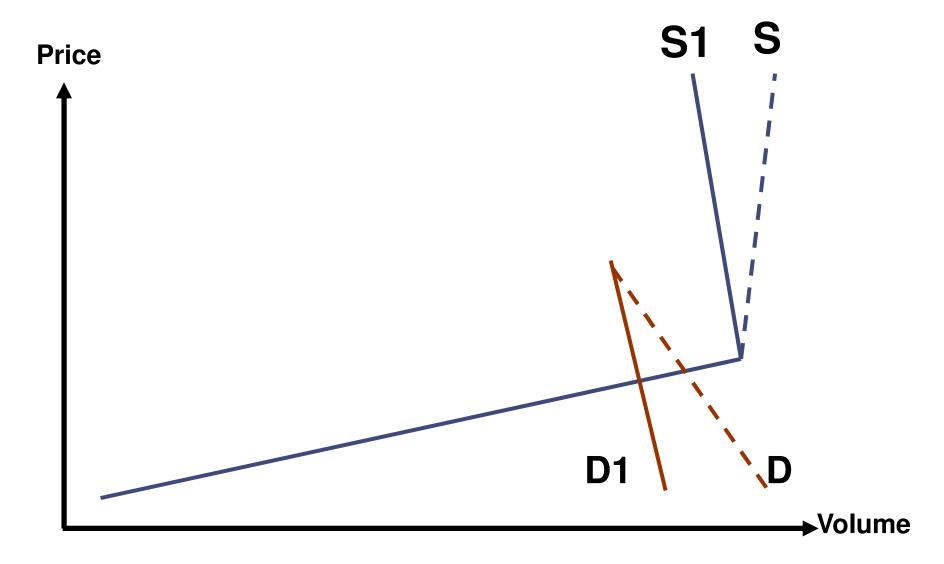
### Demand and supply in metals and mining



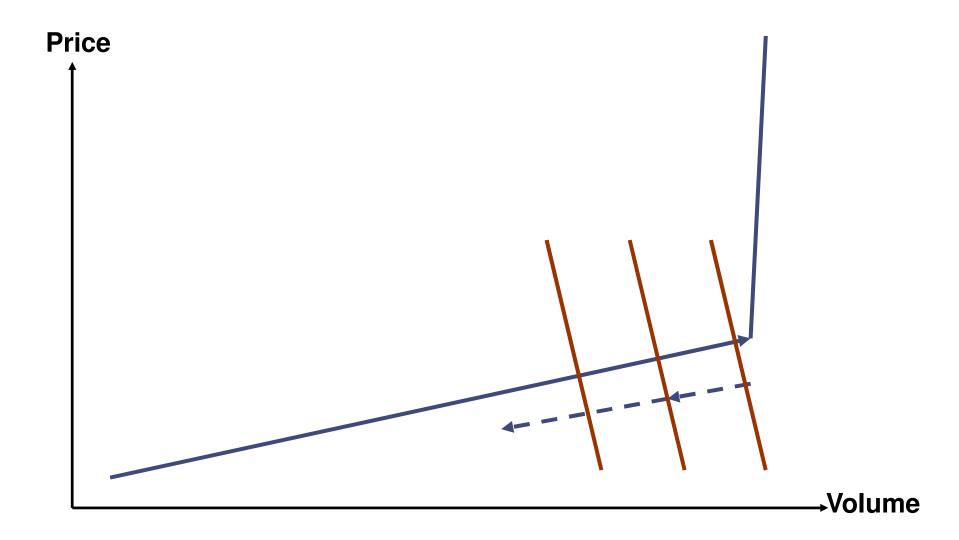
### Copper mine industry cash cost



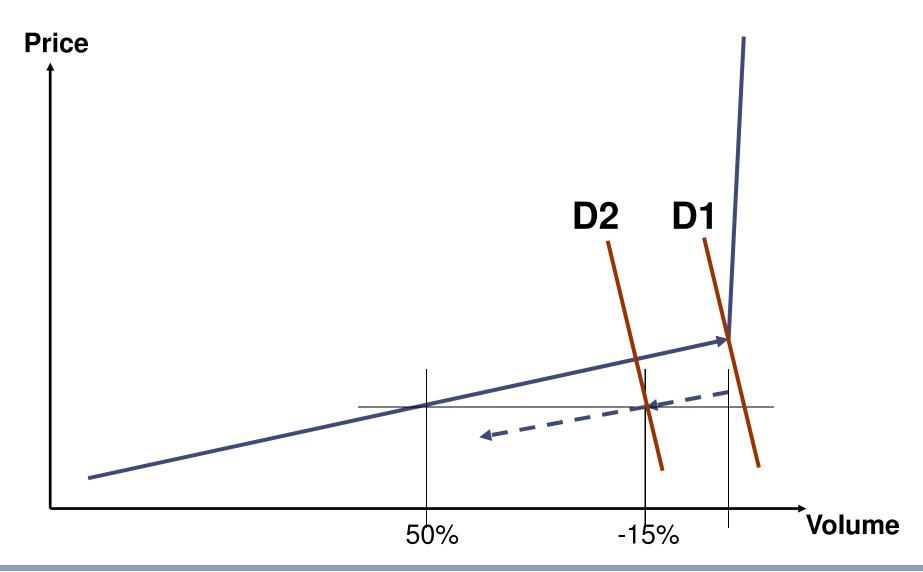
Cu open pit, supply curve turns negative(!) and demand curve is steeper than ever...



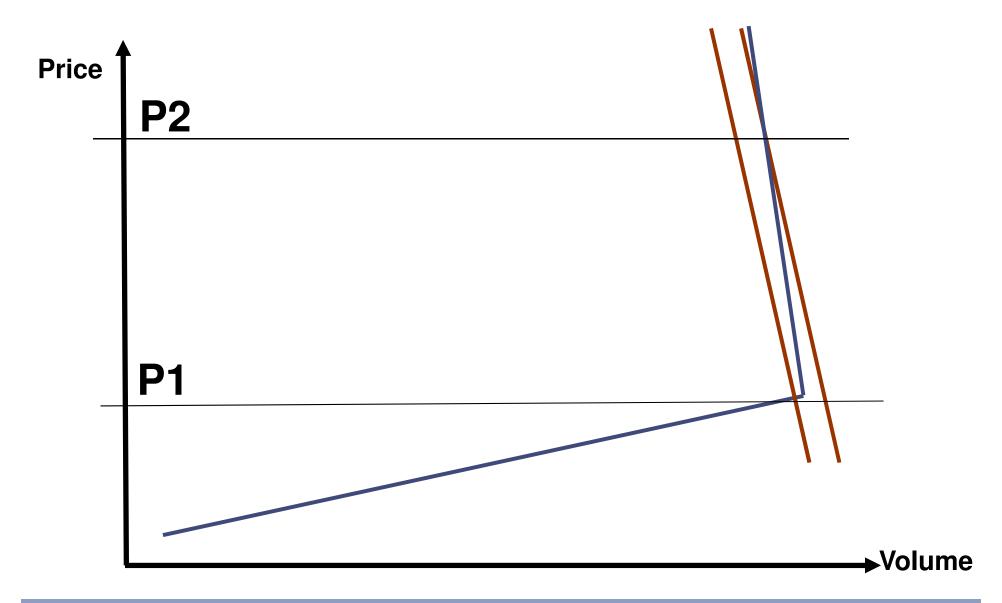
Mines are closed at negative cash flow, below the curve, and are restarted on the curve...



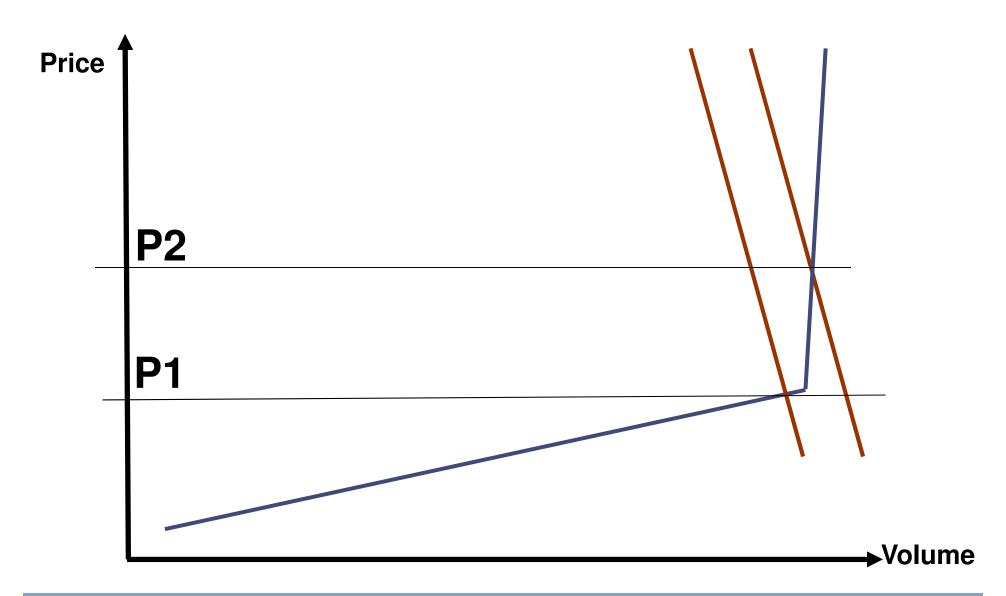
# ...and 85% capacity utilization can give price on the 50th percentile



# Cu prices will peak high. Volatility!



# Will Zn prices go as high as Cu?





# Metal market Short term



## **Demand, prices and TC**

### Metal prices

- Global GDP
- Construction
- Automotive
- Metals demand
- Boliden customers
- Supply and main changes
- Metal balance
- Metal prices

#### TC

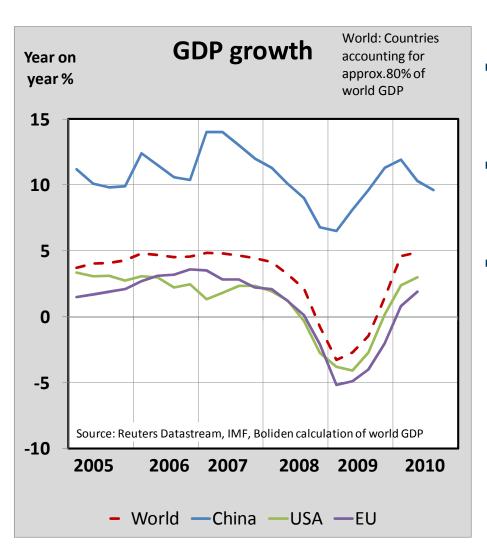
- Smelters production capability
- Balance smelters mines
- Treatment Charges

#### Other

Sulphuric acid



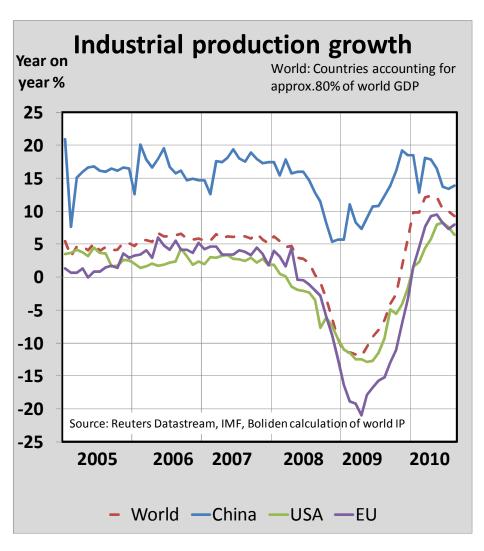
### GDP, from bust to boom...or not



- Global growth recovered back to 5%
- Mature countries comparing with a very weak period
- Inventory build and general recovery but...



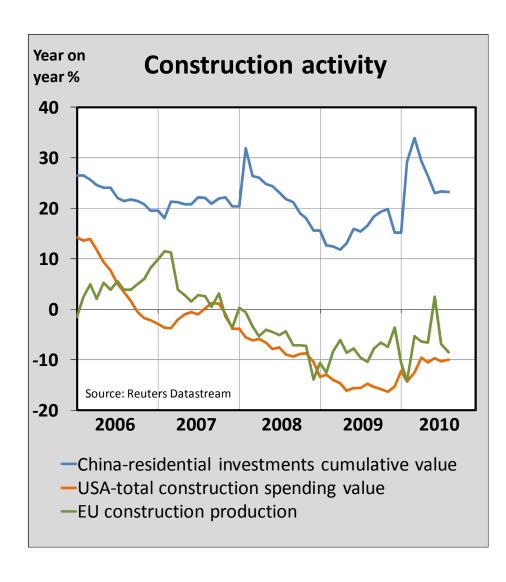
### Industrial production recovering



- General industrial production recovered from the very weak period in 2009
- Slower growth in Q3



### **Construction investments**



#### **Mature economies**

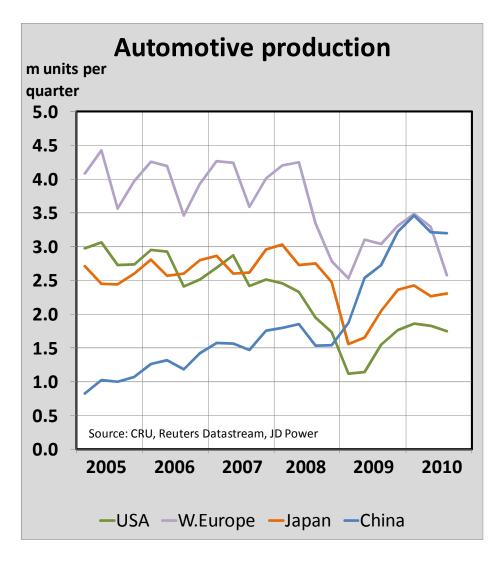
- Low level of investments
- Effects of stimulus wanes

#### China

- High and growing investments
- Overheating concern



### Car production



#### **Mature economies**

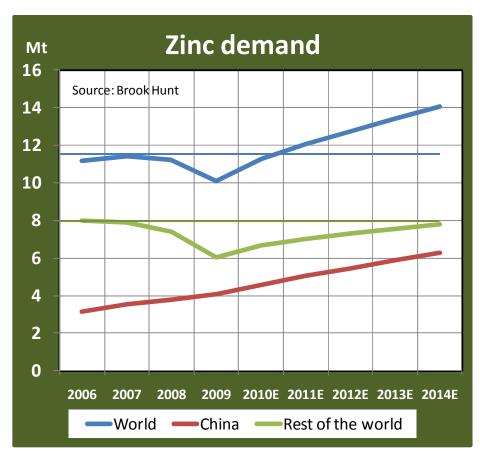
- Comparison with a very weak first half 2009
- Slowing growth after Q1
- Demand below normal

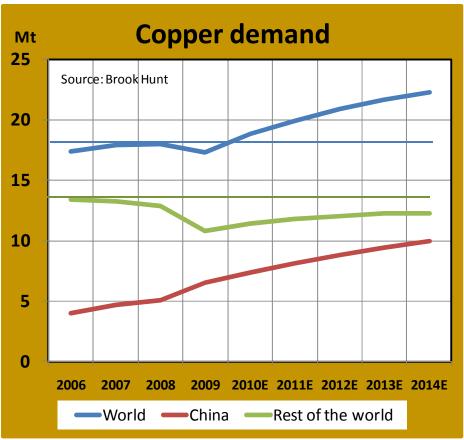
#### China

Growth around +20%



### **Metals demand forecasts**

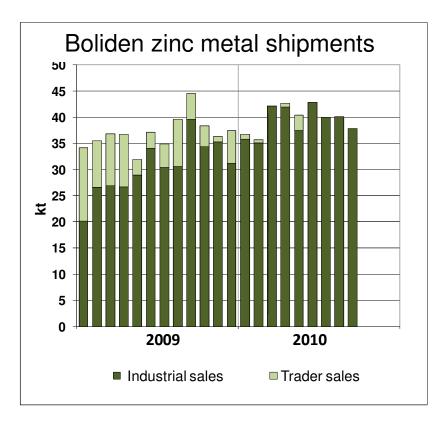


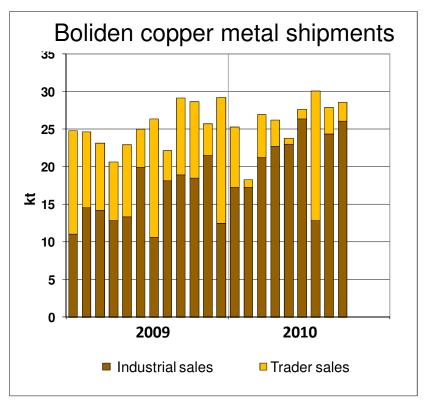


- Global demand back at the previous peak
- World excluding China still well below the previous peak



### **Boliden industrial demand**

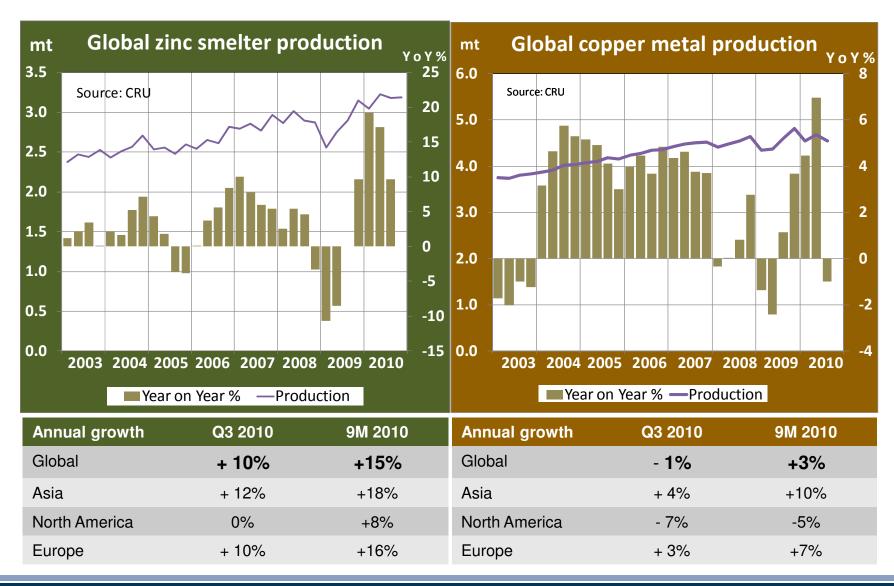




- Base metals can always find a buyer
  - Weak times sales to traders and via LME
  - Normal conditions majority to industrial buyers

- Boliden often sell around 10% of the volume to traders
- Limited sales to traders at this point

## Metal supply – smelter production



### Smelter industry – recent development

#### Closures and reductions

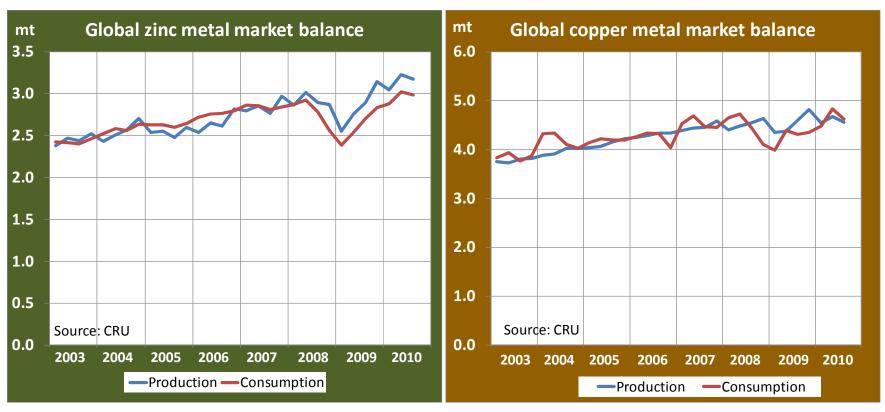
- Vedanta ordered to close the Sterlite Tuticorin smelter, environmental issue 350 kt koppar
- Pan Pacific Copper and Mitsubishi annual production combined of 1.1 mt production reduced in Q4 – maintenance, poor concentrate terms, lack of secondary material
- Maintenance stops among Chinese smelters in 2H 2010
- Planned new Cu projects in China scrapped according to CRU no clear announcements though
- Chinese Ministry of Industry: 2000 companies to close inefficent manufacturing plants this year – low share of base metal smelter capability

#### Long term smelter capability

- Excess capability over the next five years
- Smelter terms expected to be under pressure



### Metal market balance



#### Zinc

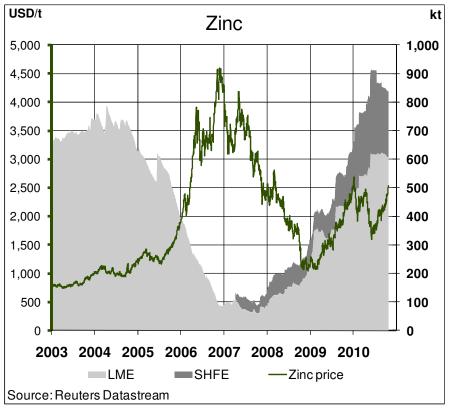
- Production increase in Asia, North America and Europe
- Increased metal stocks up to July, declining thereafter

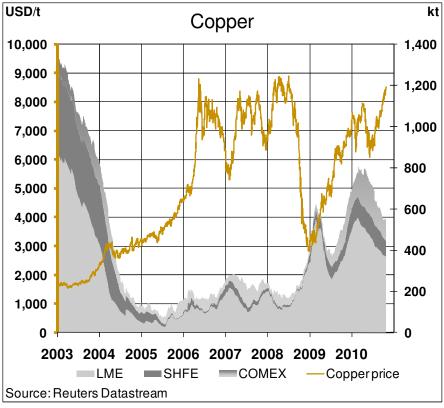
#### Copper

- Tight concentrate market in 2010 constrained smelter production
- Decreasing metal stocks from April



### **Metal prices**



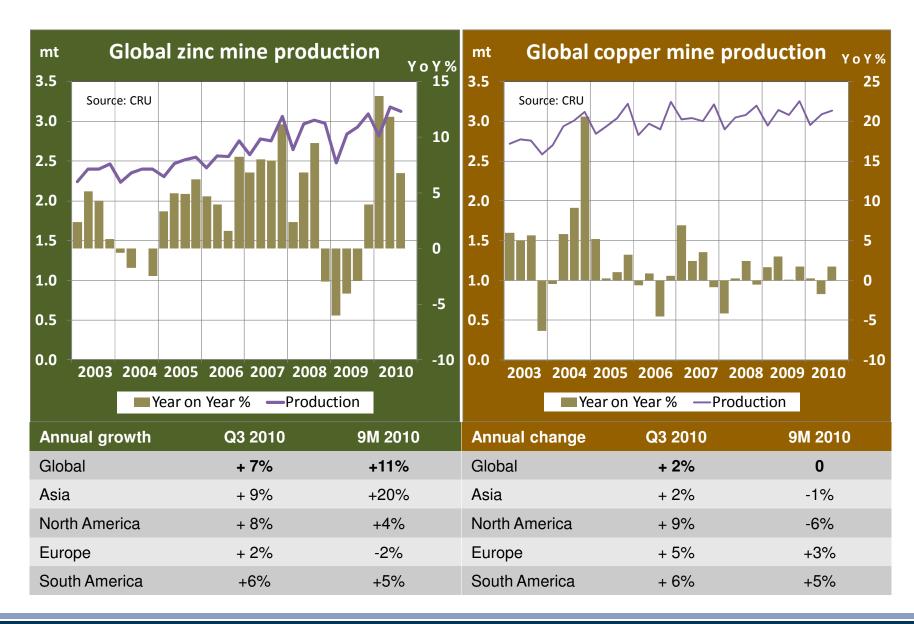


- Price recovery partly driven by inventory build
- Decline in stocks from July

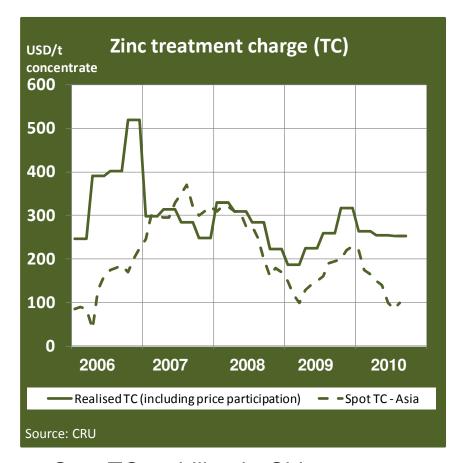
- Copper approaching previous peak stocks down since the spring
- Partly driven by financial investors



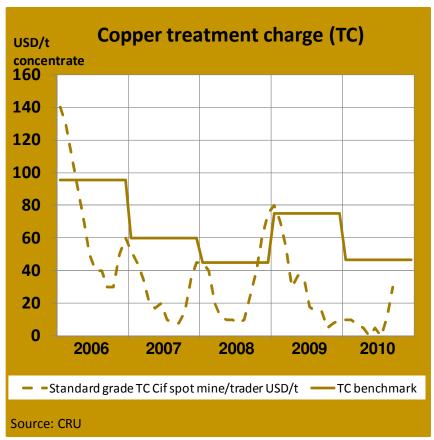
### **Concentrate supply – mine production**



### **Treatment charges**



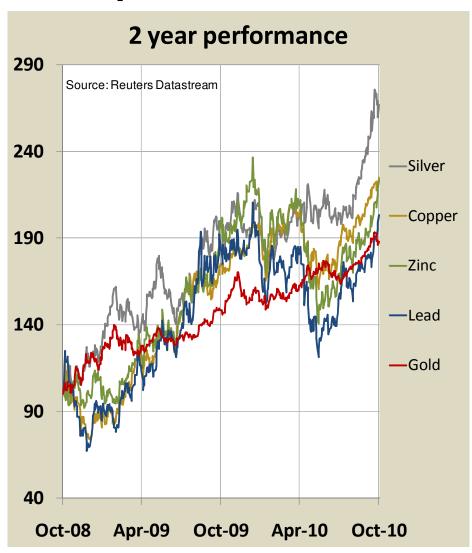
 Spot TC stabilized - Chinese smelter buying activity slowed



 Spot TC up sharply in Q4 – maintenance stops, Chinese smelter buying activity slowed



### **Metal performance**



- All metals have performed strongly in the recovery
- Zinc was pushed down lower than copper relative to cash cost



### **Summary – short term market**

#### **Economy**

- Chinese economy remains strong
- Slowing economic growth in mature countries
- Construction activity low in mature countries high in China
- Automotive and industry production growth slowing

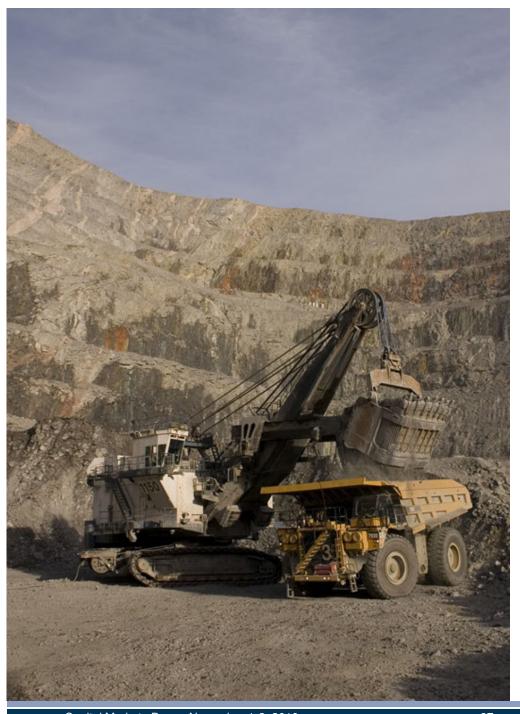
#### **Metals market**

- Global demand back at peak mature well below, Asia well above
- Metal prices well above cash cost
- European zinc premiums slowly moving up, copper premiums up

#### **Concentrate market**

- Slower activity among smelters in China and Japan
  - Maintenance shutdowns, compliance with five year plan targets in China
- Improved concentrate availability in the short term
  - Higher spot copper TC, stabilized zinc spot TC
- By product prices at good levels
  - Sulphuric acid good demand, prices moving up





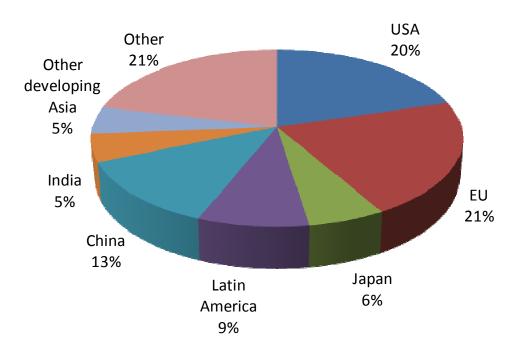
# **Market outlook** medium to long term



### Developing world has grown in importance

2009 Developing markets 46%

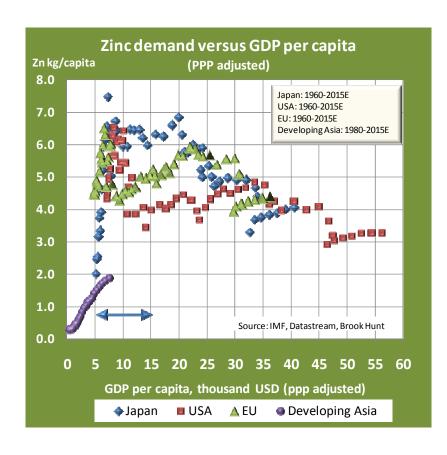
# Share of World GDP in 2009 PPP adjusted

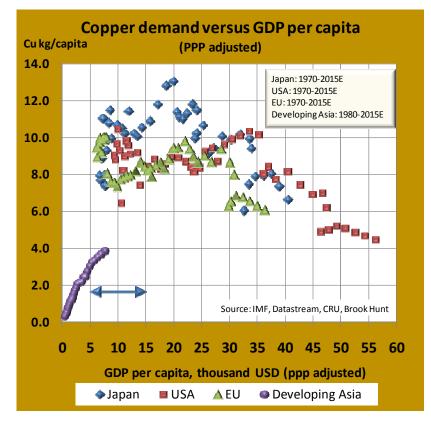


Source: IMF



### Metals growth zone

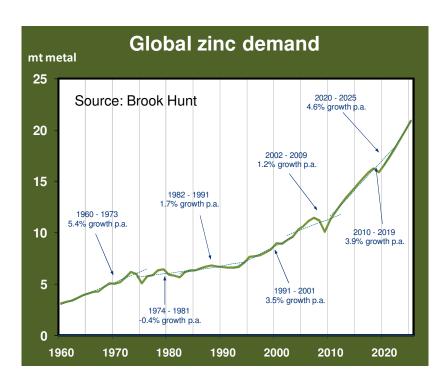


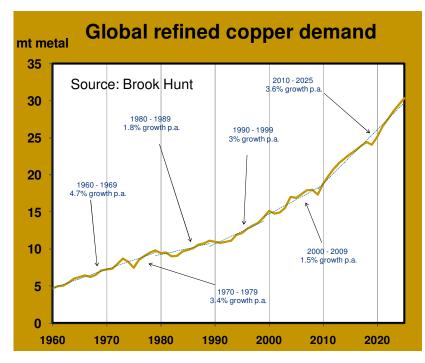


- Developing countries in or below the metals growth zone
- China growth rate to slow but the strong potential remains



### Metals demand growth projected to be high





- Scenario based on economic growth in line with IMF projections
- High growth in developing economies
- Mature countries
  - Copper cyclical recovery declining demand to 2025
  - Zinc cyclical recovery and slow growth to 2025



## **Examples of depleting zinc mines**

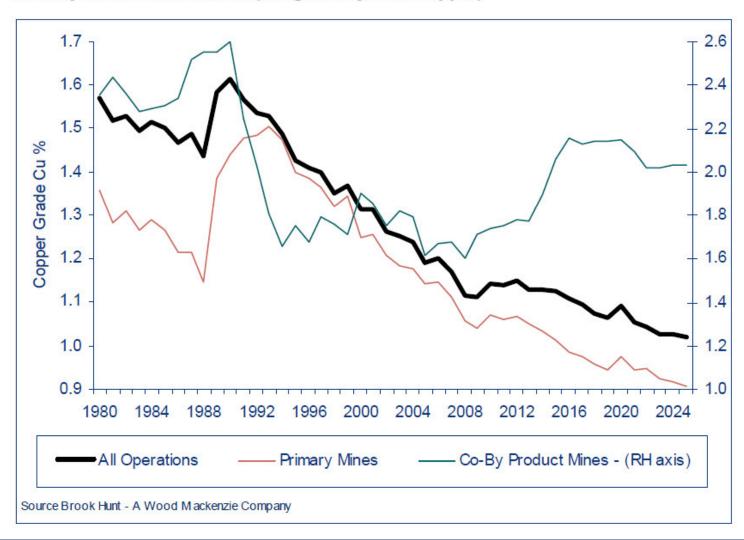
Mine	Production estimate 2010 in kt metal	Closed by
Brunswick, Canada	210	2013
Century, Australia	505	2015
Lisheen, Ireland	170	2014
Perseverance, Canada	130	2013
Skorpion, Namibia	164	2016
Total	1,179	

Source: Brook Hunt - A Wood Mackenzie Company

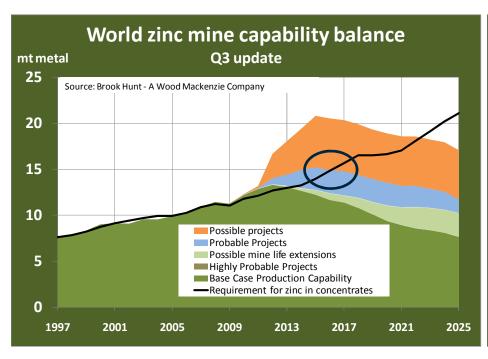


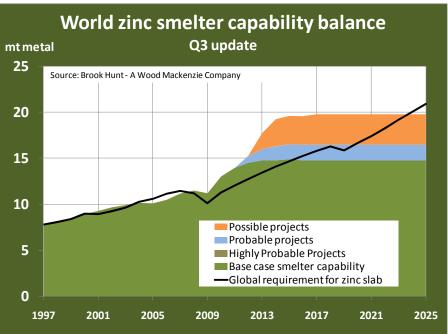
### Head grade decline in copper

#### Industry Head Grade Trends (Weighted by Paid Copper)



### Zinc supply

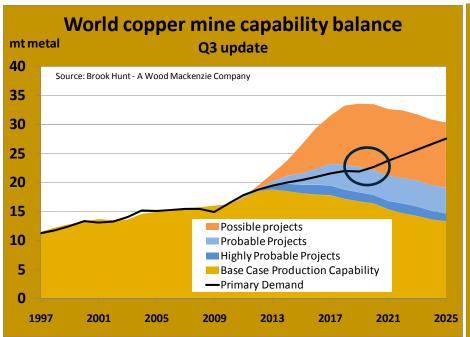


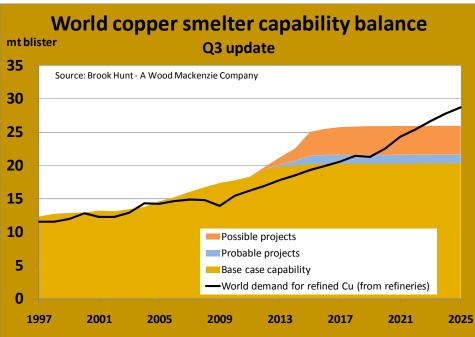


- Overcapacity for smelting
- Short term mine capability over demand
- Disruptions can quickly tighten the market



### Copper supply

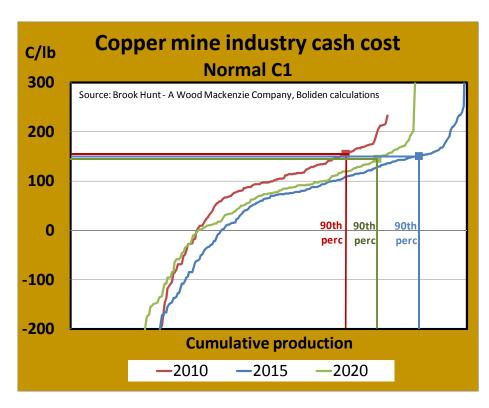


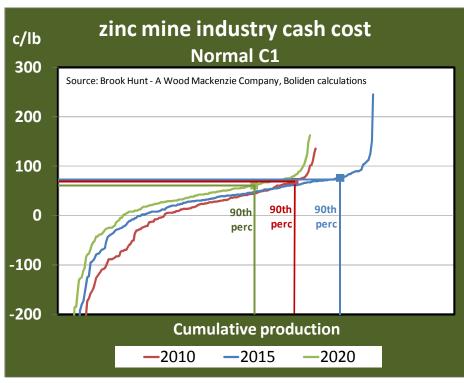


- Overcapacity for smelting
- Tight concentrate market
- There are possible projects for long term balance



### Cash cost now and in the future

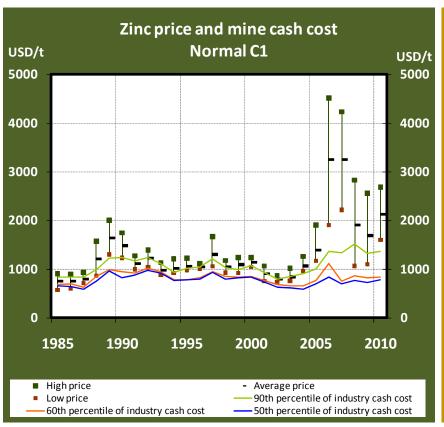


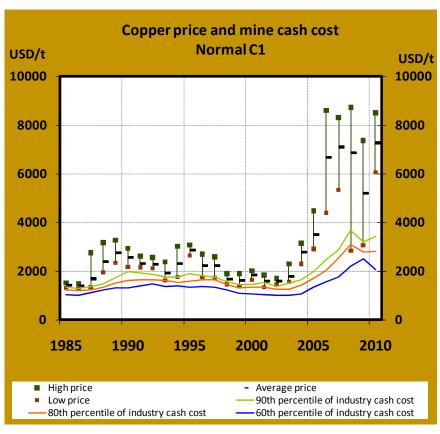


- Similar cash cost floors in the future
- High incentive prices for projects
- Metal price volatility to remain or increase



### Downside risk in prices if markets turn weaker





- Price historically bottoms out at 60th percentile
- Trough years on average at 90th percentile
- Copper has been well above 90th percentile cash cost in trough years

### **Summary - Medium to long term market**

### **Economy**

- Developing countries high proportion of world GDP
- Several large population nations will be in the metals growth zone

#### **Metals market**

- High growth in developing countries
- Stagnation or decline in mature countries
- Cash cost floors to remain at current levels

#### Concentrate market

- Projects started but not enough to meet projections
- Risk of concentrate shortage in zinc and copper
- Incentive prices for new projects are high

