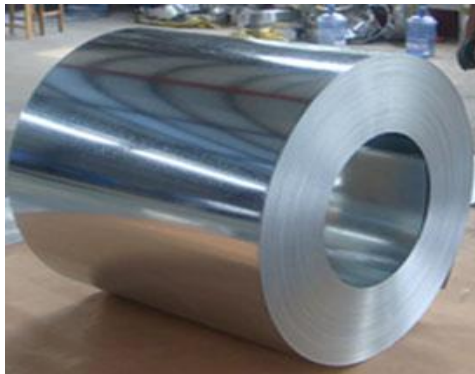


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# Steel Industry Responses to Overcapacity

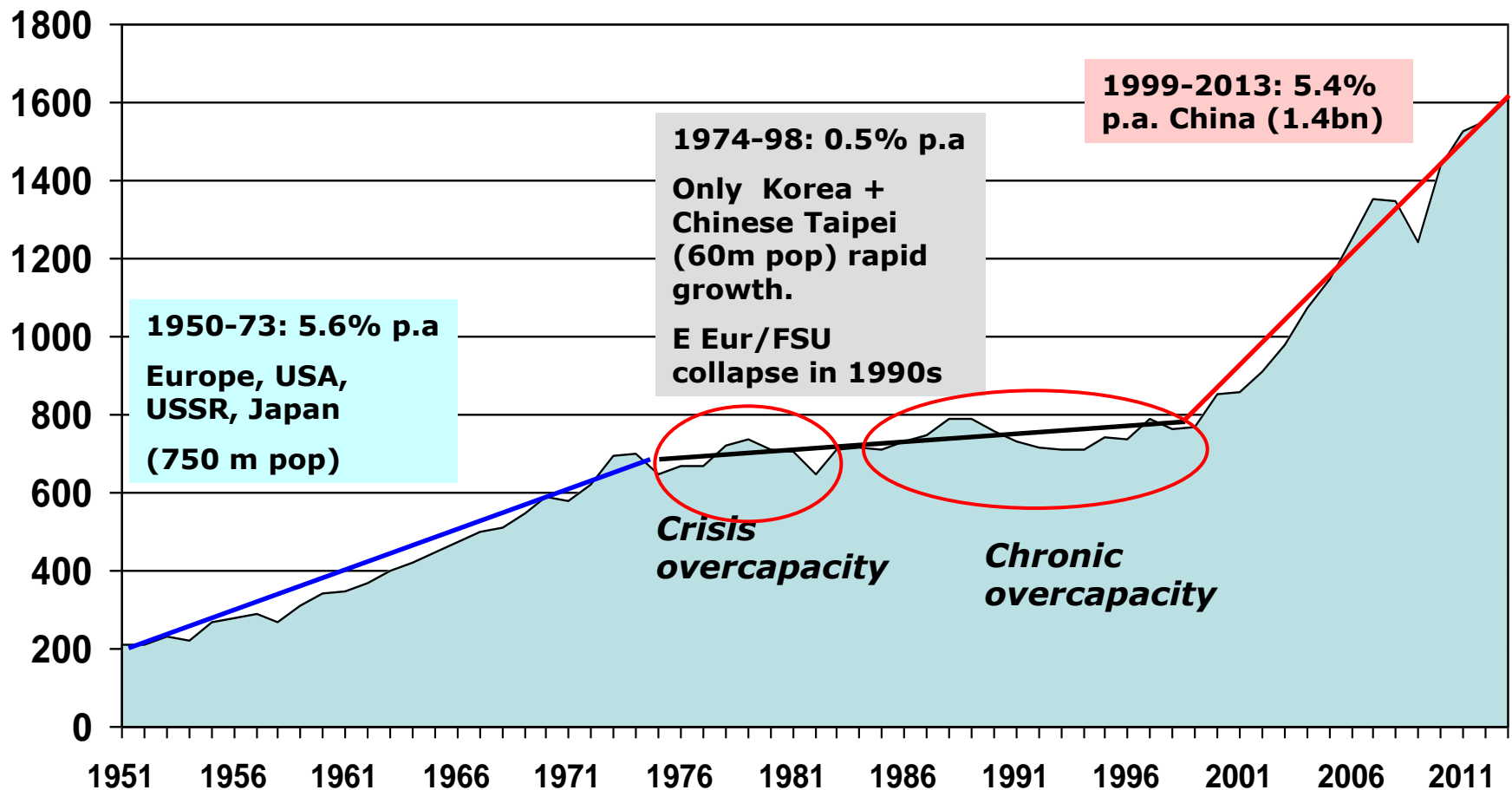


OECD Steel Committee  
June 5, 2014

By Philip Tomlinson

# The three ages of post war steel

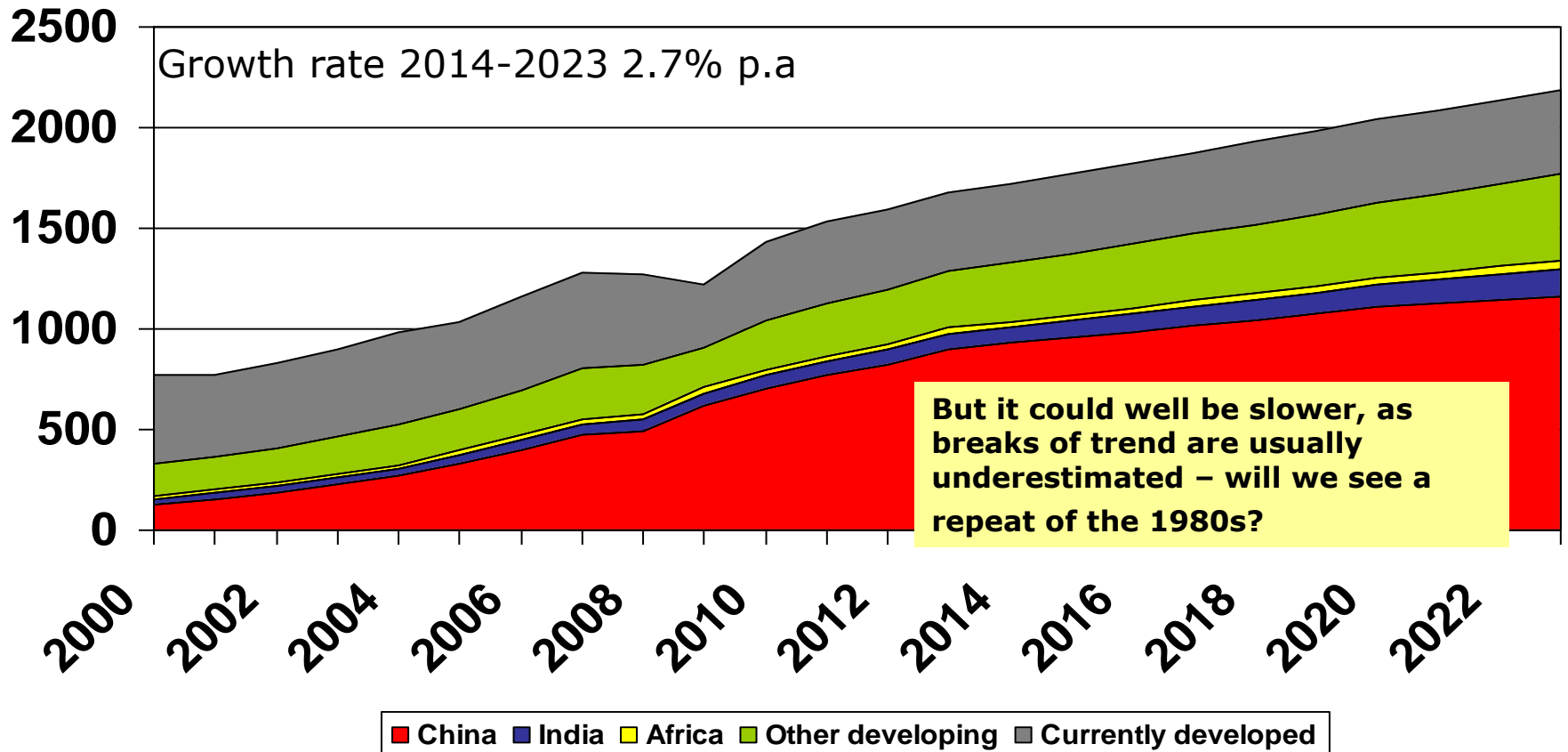
World crude steel production (million t)



Data: World Steel Association

A consensus forecast is that global growth slows to 2-3% p.a in the next decade

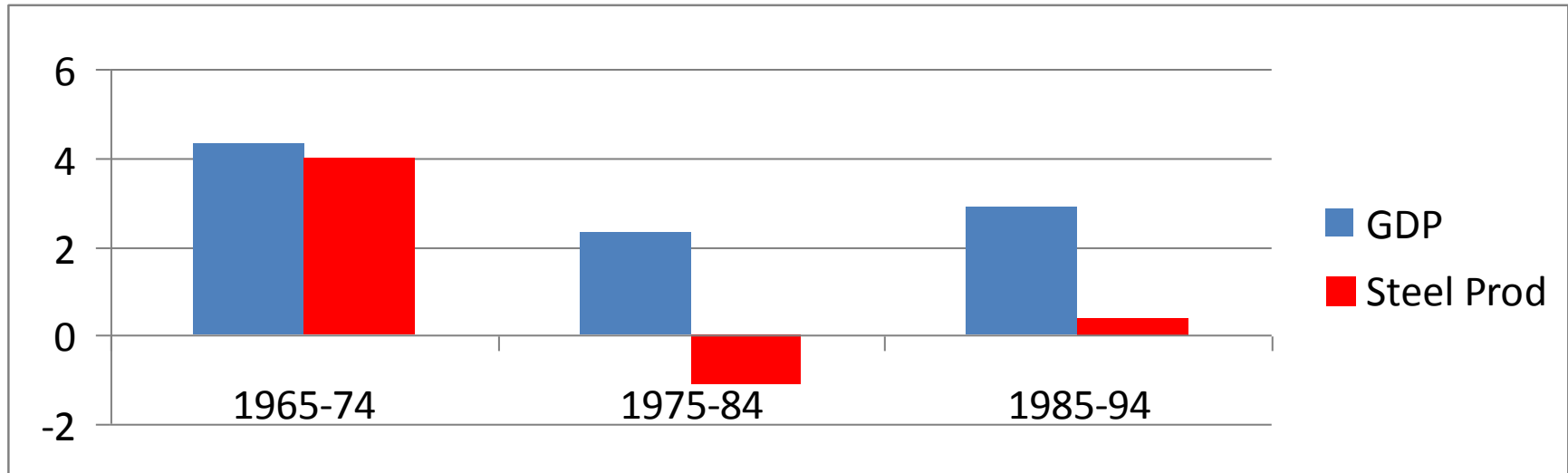
Steel consumption (crude steel equiv.) million tons



Data: World Steel Association, P.Tomlinson forecast

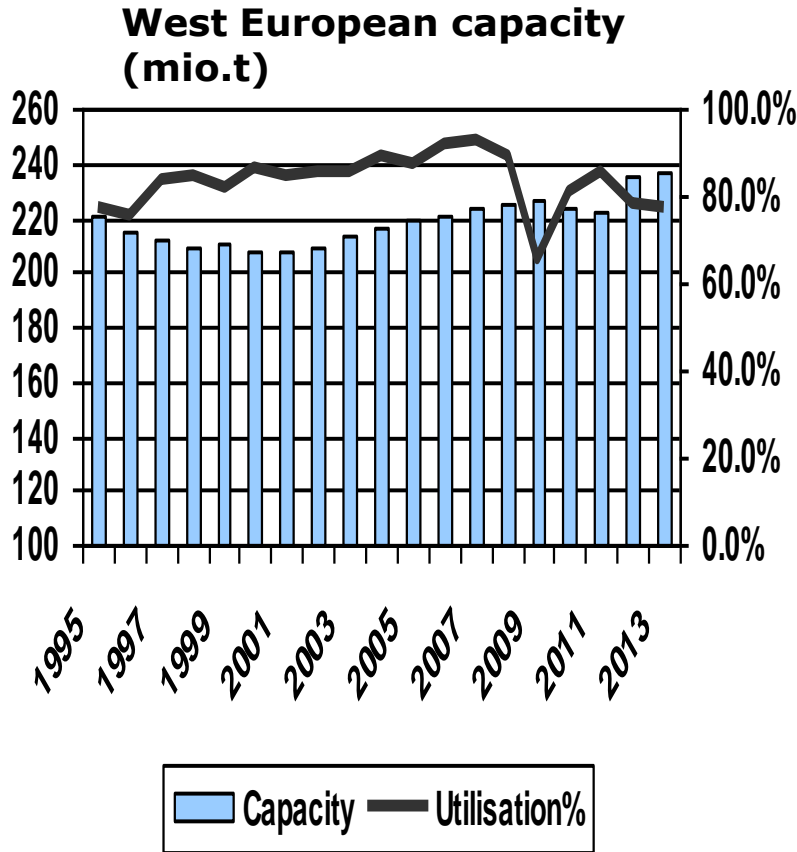
# Western European growth suddenly ended in 1975

Decennial growth rates % p.a.



- Oil crises hit GDP growth, but steel performed much worse – market maturity
- With capacity expansions still geared for growth, massive overcapacity, falling prices and big financial losses.
- Given the political sensitivity of integrated steel production employment, the result was a subsidy war
- Exports rose, but met anti-dumping actions (especially from the USA)
- One side effect was unplanned nationalisation – virtually the whole integrated industry outside Germany and Netherlands. The alternative was bankruptcy

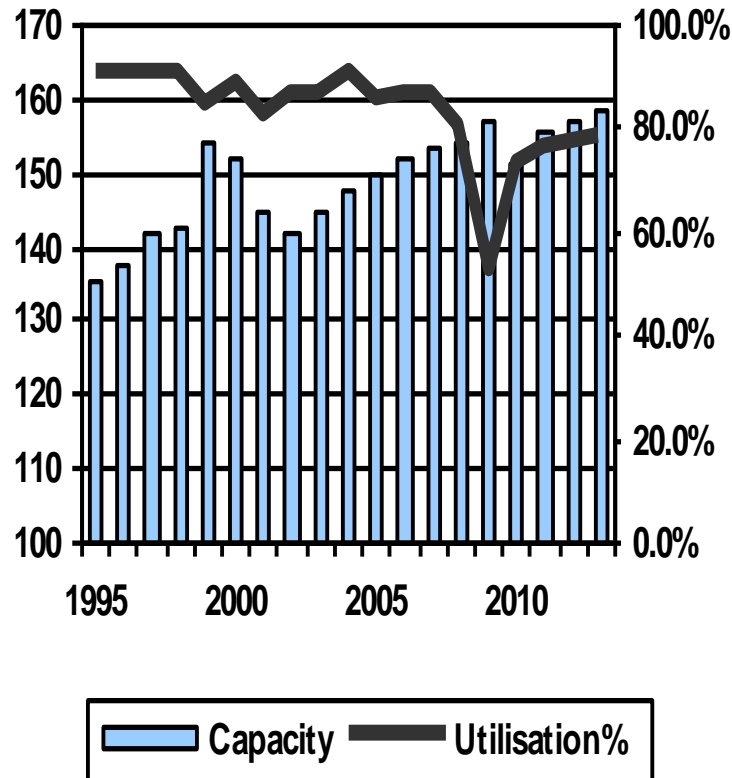
# The ECSC “Manifest Crisis” and after



Data: OECD database

- The situation had got so bad by 1980 that the ECSC stepped in and declared a “manifest crisis”, allowing production quotas and price controls, and forcing capacity closures. Under the Treaty of Paris, the ECSC had greater powers than the EEC under the Treaty of Rome
- It more or less worked, the surviving plants were modernised and profits returned by the late 80s. Controls were lifted by 1988.
- ... At, however, a huge cost. Between 1975 and 1990 steel subsidies were around 1.5% of European GDP
- Some further closures in 1990s – early 2000s (Germany, UK, France, Belgium) but capacity has risen slightly in recent years
- Capacity utilisation peaked in 2007, now back to mid 90s level

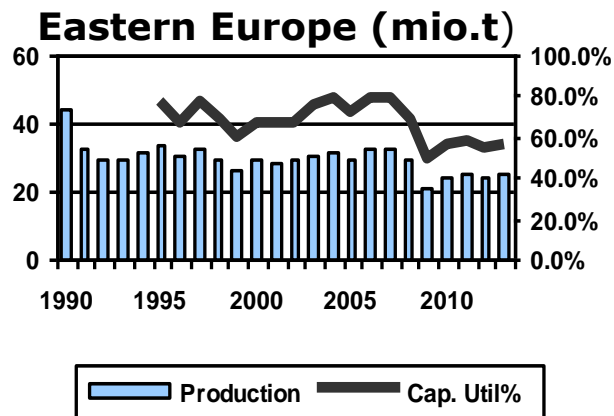
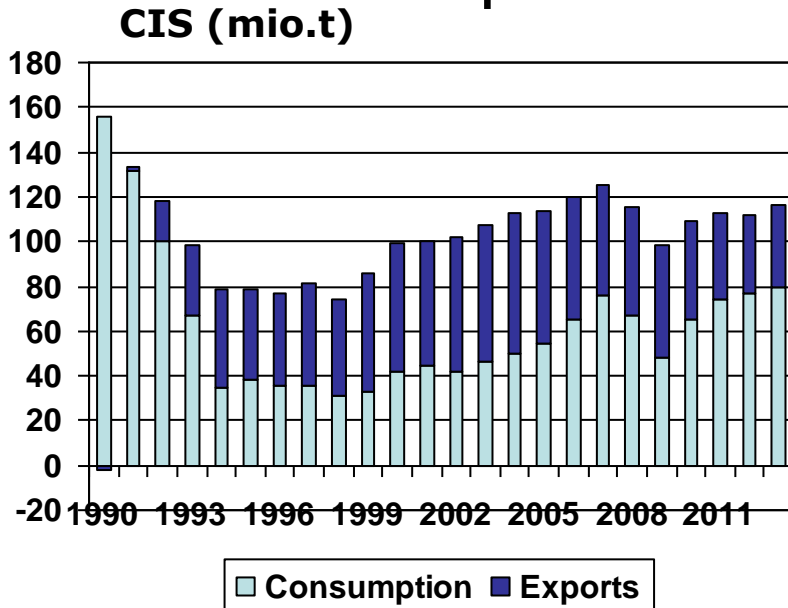
# North America was a different story



Data: OECD database

- Subsidies were not an option, except investment incentives for new competing EAFs
- Most integrateds had high “legacy costs: underfunded pensions, healthcare costs
- High wage rates due to union power
- Liberal use of anti-dumping actions kept US prices (and capacity utilisation) higher than elsewhere, but mills still lost money because of high costs
- Most producers entered managed bankruptcy (chapter 11), restructured and capacity closures in early 2000s
- US remained net importer, and modernisation lagged ...meanwhile new EAF capacity expanded

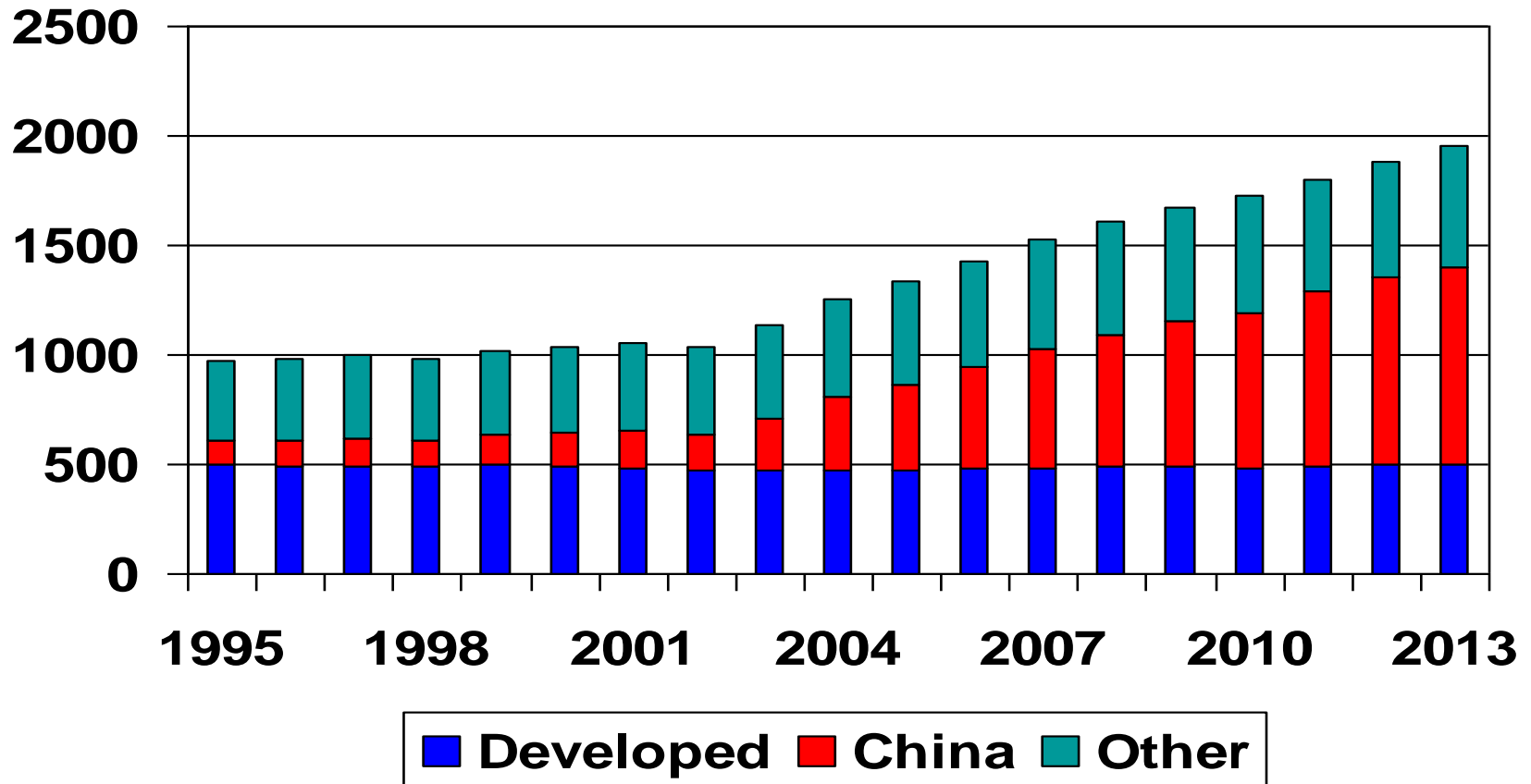
# Eastern Europe and CIS: escape through exports



- After the collapse of central planning after 1990, consumption collapsed, and steel mills were inefficient.
- Old OHFs closed, but BOFs did not because of export surge, and modern control equipment and automation could modernise Soviet technology more cheaply than expected
- Mittal and US Steel main acquirers of E.European mills, CIS split into five main producers in Russia + two in Ukraine
- Since 2008 low utilisation in E.Europe – some closures likely

# Meanwhile, Chinese capacity exploded after 2000

Crude steel capacity, mio.tpy

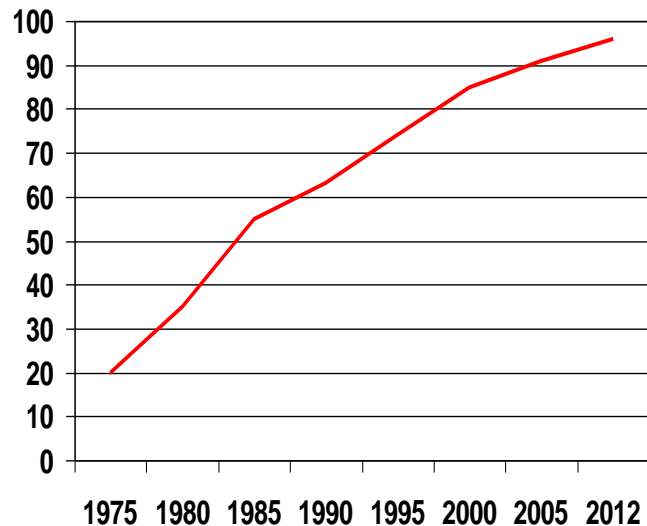


Data: Metal Bulletin, OECD database



# Plant modernisation and cost reduction

**Continuously cast % of global crude steel production**

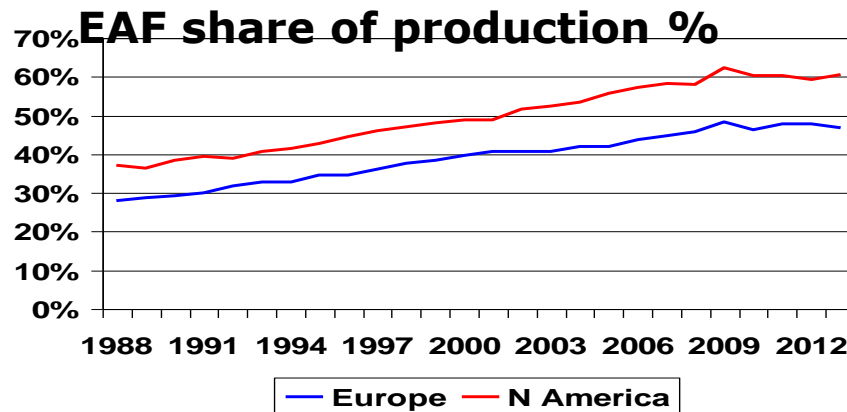
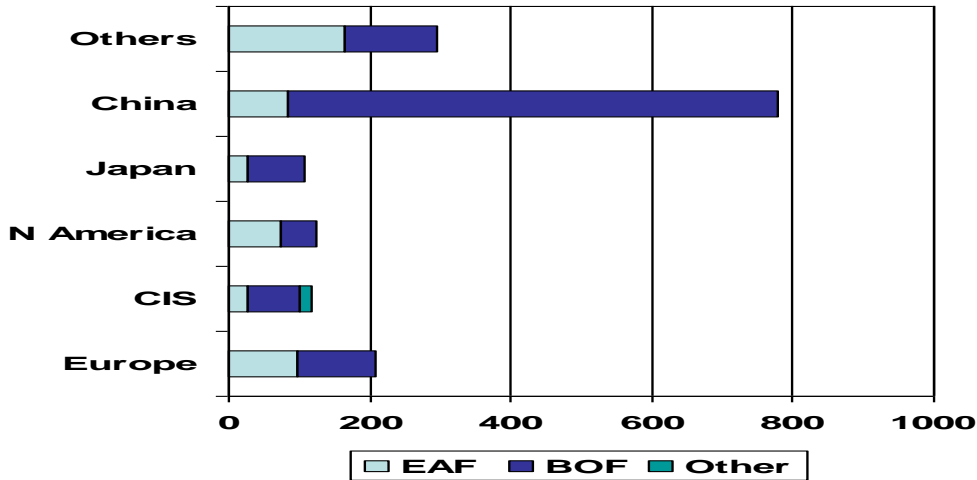


Data: World Steel Association

- Continuous casting (now virtually universal)
- Coal injection (PCI)
- Larger, more efficient blast furnaces
- Higher quality imported raw materials
- Automation and process control
- Environmental: sinter plants, coke batteries, offgas collection, waste water

# The rise of the EAF- but not in China

## Crude steel production by process, 2013

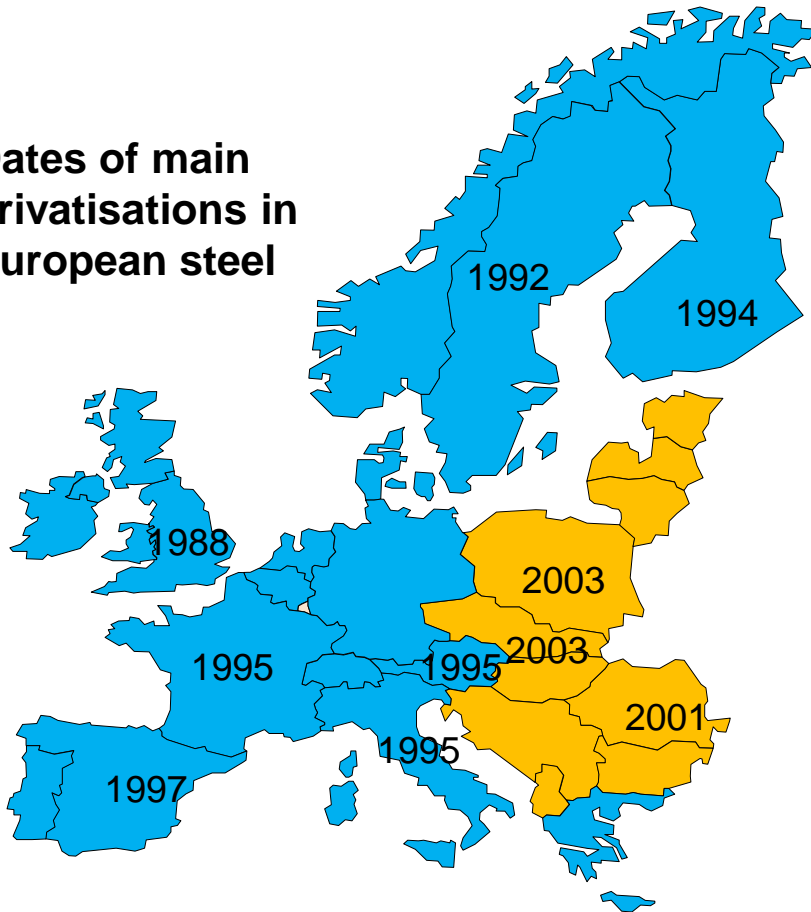


Data: World Steel Association

- Electric arc (EAF) old technology, constraint is scrap supply, especially old scrap
- This is scarce when production rising fast from low base (China today) as average recycling time 10-15 yrs
- Plentiful in developed world, especially in N.America (steel importer), less so in Japan (exporter).
- Mainly commodity long products, but US producers also make flat products
- Mainly different producers to integrations, less consolidated
- Capacity adjustment easier (smaller, fewer labour or environmental issues), less variable margins, but low value added
- Gas fuelled DRI based EAFs important in Middle East, SE Asia, coal based DRI in India

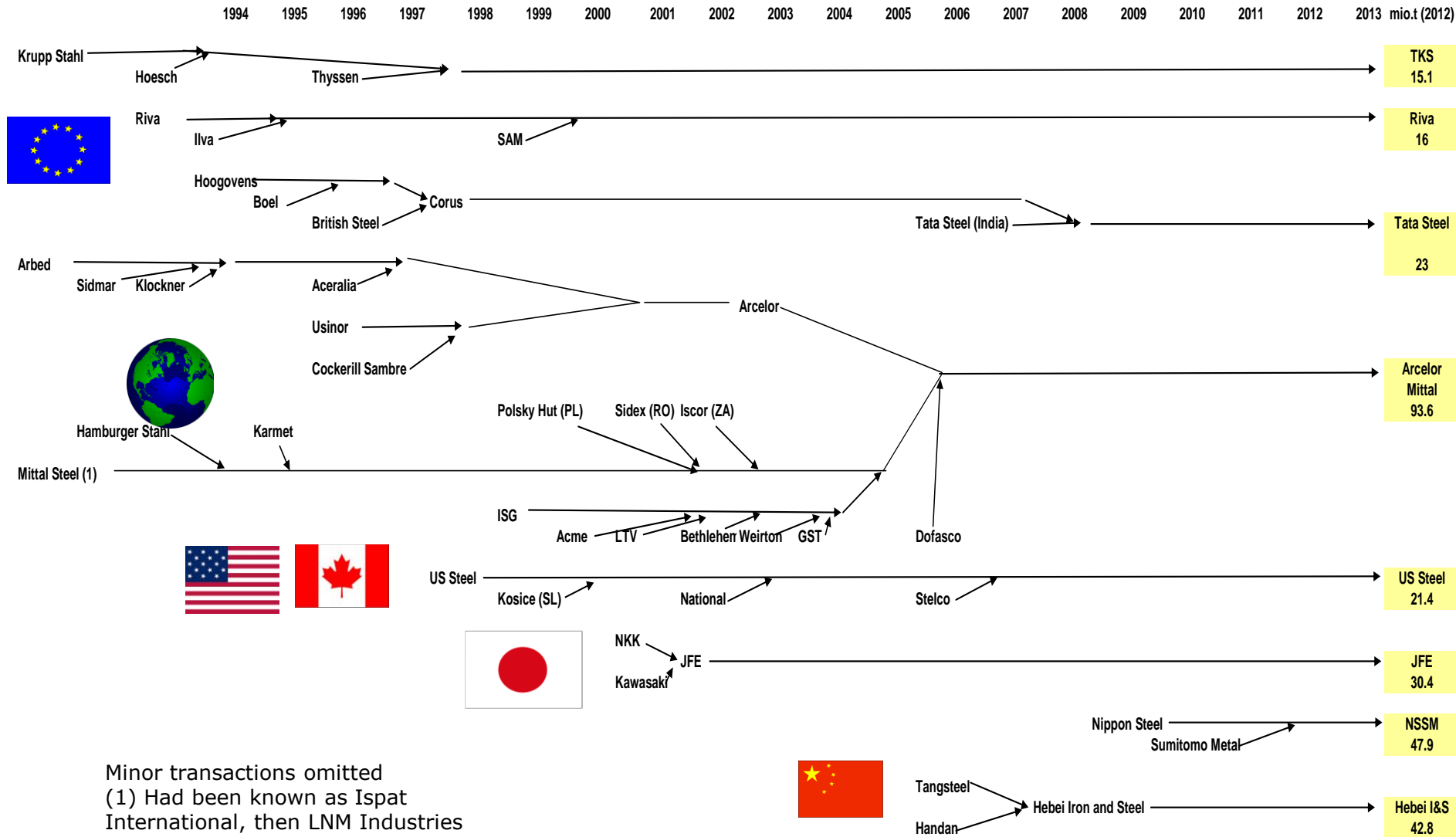
# Privatisation

Dates of main privatisations in European steel

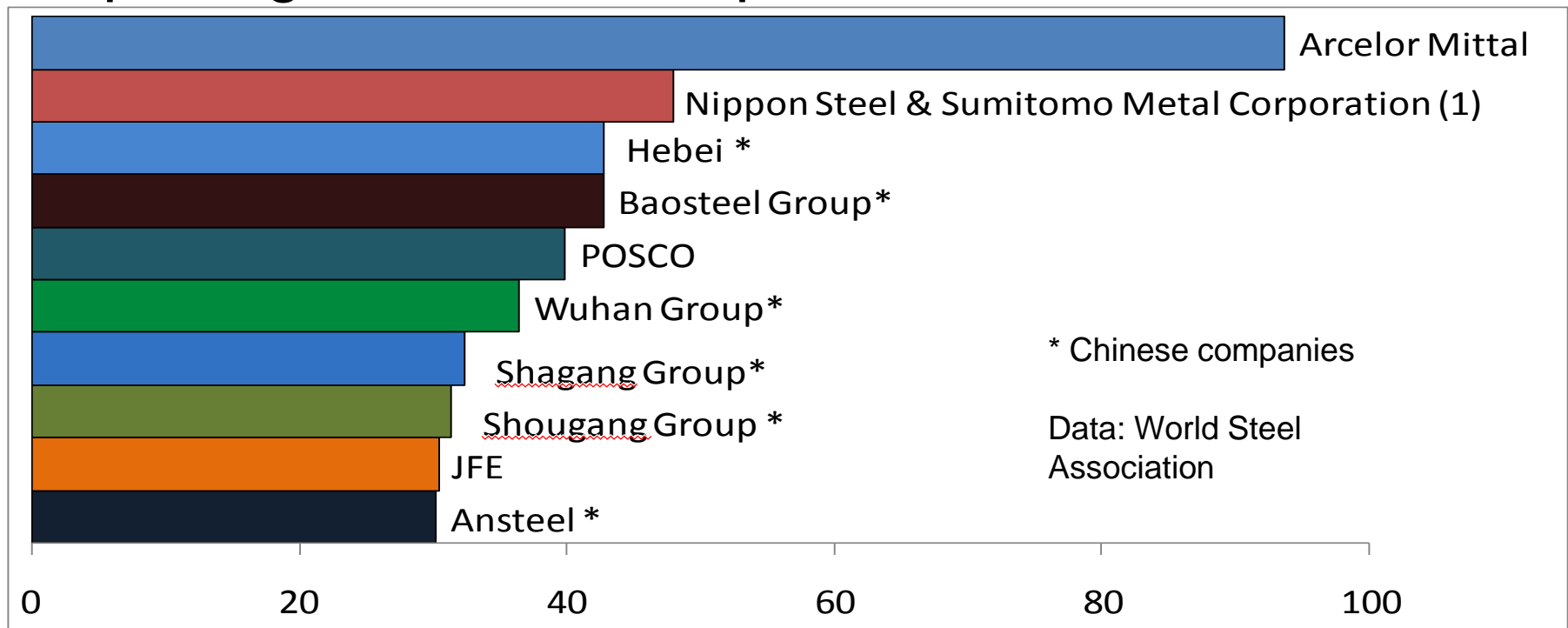


- Following the successful privatisation of British Steel in 1988, most state holdings in Western Europe were sold off in the 1990s, mostly by flotation
- in Eastern Europe in the 2000s, mostly by direct sale, with Mittal and US Steel the main buyers, some CIS mills also bought assets
- Brazil: Siderbras sold off to five producers 199-93. Highly successful, especially in export markets, but capital costs had been sunk; economics of greenfield projects in Brazil more dubious
- South Africa: Iscor floated in 1989. Acquired by Mittal 2003.

# Consolidation Timeline



# Top ten global steel companies, 2012 (Mio.t crude steel)



- Cumulative share of top 10 28%, compared to 20% in 1990. Still very low compared to e.g automotive (top 10 >90%) or seaborne iron ore (top 4=70%)
- Greater local concentration in some regional markets, especially flat products, but market power constrained by trade

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# The pros and cons of consolidation

## ***For:***

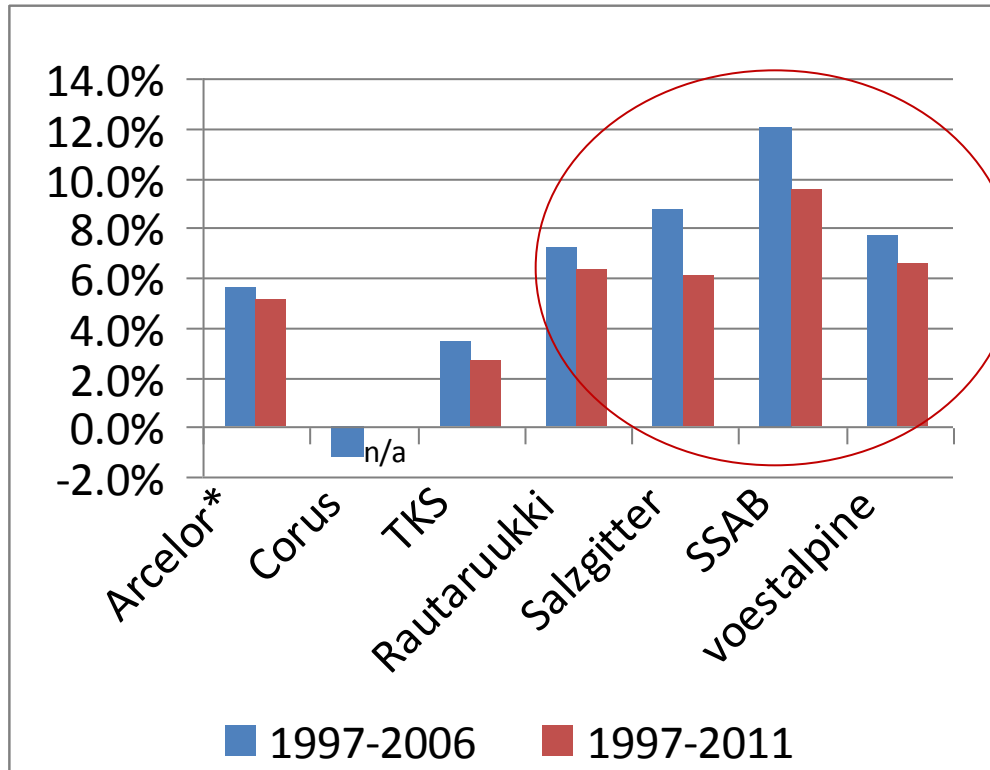
- **Rationalisation of Assets.** Yes, but less than expected
- **Improving underperforming assets.** Especially evident in E.Europe. Arcelor Mittal stress spreading best practice
- **Market Power.** Still low against automotive customers and raw material suppliers, construction industry never had purchasing power
- **Economies of scale.** Overheads, R&D, marketing, purchasing, but production only up to 8m tpy for an integrated mill
- **Managing demand and price leadership.** Some evidence of that in Europe, USA, none in China

## ***Against:***

- **Poor return on investment,** especially on assets overpaid in merger manias e.g 2004-8
- **Corporate culture clashes**
- **Benefits not sustainable** Barriers to entry low in steel industry.

## Some smaller European producers have been more profitable than major consolidators by focussing on high value downstream niches

**Average EBITDA/Sales Ratios for European Steel Producers, %**



High cost mills, usually at remote or inland locations. They did not close, but survived by niche added value focus, often with barriers to competition:

- Rautaruukki** – downstream construction, engineering
- Salzgitter** – pipes and tubes, trading
- SSAB** – heat treated plate, high strength steels, prefabricated construction
- Voestalpine** – rails, profiles, pipe and tube
- Dillinger** (15% average margin 2004-11) – only 5 metre wide plate mill in W. Europe

Not all downstream investments have been successful, and few emulators elsewhere (Bluescope of Australia in SE Asia, USA, with limited success)

\* Includes Arcelor Mittal flat carbon Europe 2007-11.

Data: company reports, 10Ks

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# Low level of upstream integration into raw materials

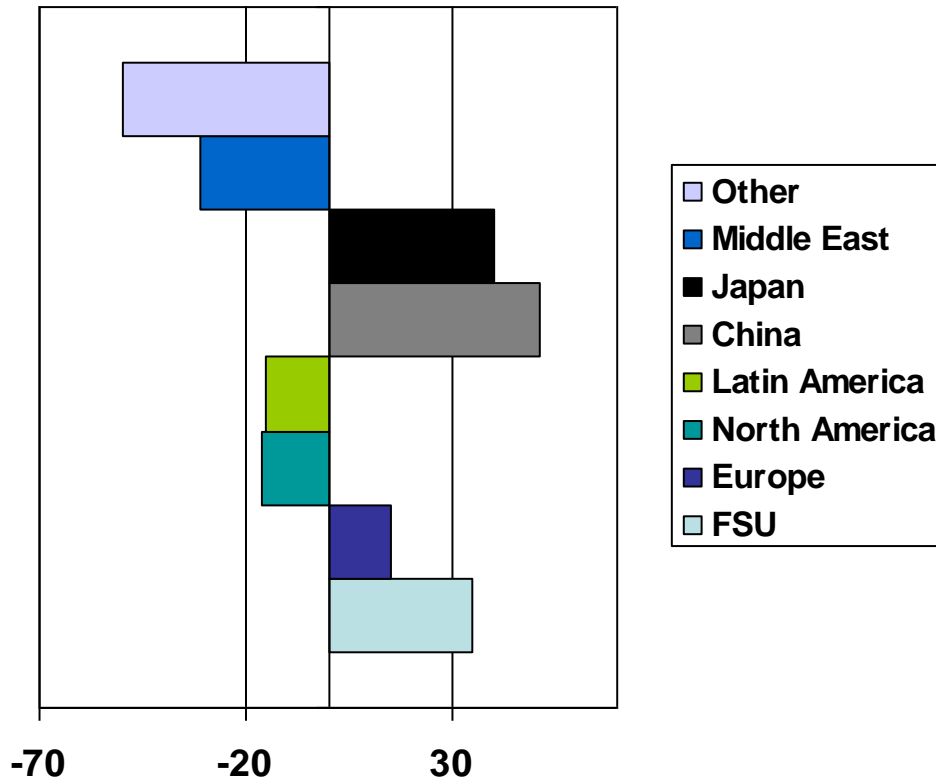


- Global average only ~15% for iron ore, The only significant integrated regions are:
  - Russia and the Ukraine, where all the major producers own iron ore mines, except MMK;
  - North America, especially Arcelor Mittal and AHMSA (Mexico)
  - Brazil, where CSN, Usiminas and Gerdau own mines, but only CSN is currently self sufficient (indeed a major ore exporter)
  - India (SAIL and Tata)
- Even less for coal (only USA, Russia)
- Steel mills sold mines before 2003 when iron ore cheap
- Arcelor Mittal have ambitious plan to raise self sufficiency to 75%
- Constraints on investment: cost, quality of available assets, lead times, expertise, timing (downturn possible)



# Trade and protectionism

Net exports, 2012 (mio.t  
crude steel equivalent)



Data: GTIS,ISSB

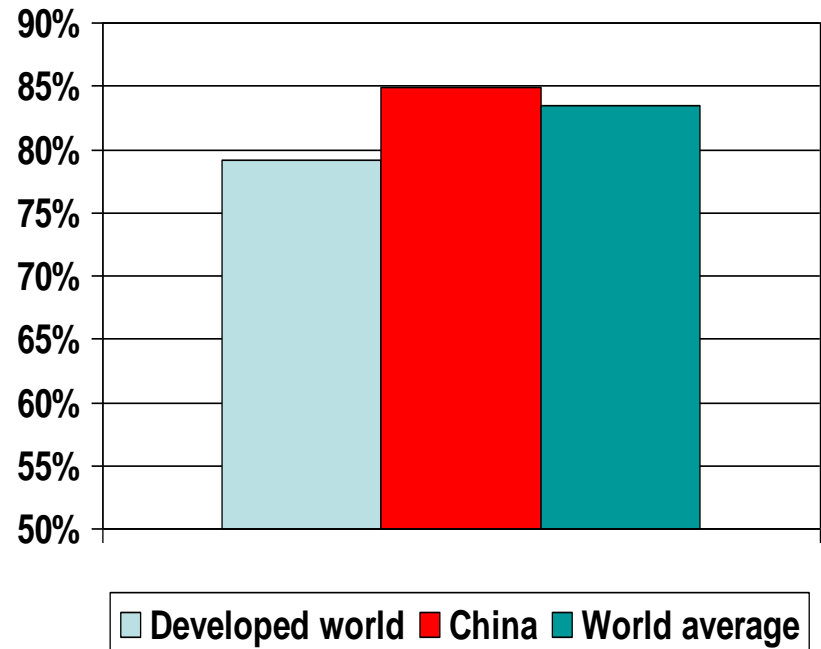
Protectionist tools:

- tariffs low or zero in major markets
- Anti-dumping
- Distribution systems
- Quotas (not allowed for WTO members)
- Technical barriers/certification

# Chinese market supercompetitive

- Chinese prices lowest in the world, mills currently producing below cost, some closing...but reported data suggests utilisation rates above world average?
- But...
  - Capacity probably underreported
  - Highly competitive market structure
  - Commodity products at low margins
- Chinese market focus of overcapacity problem

Reported crude steel capacity utilisation, %, 2013

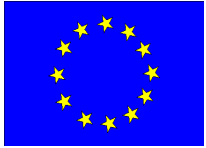


Data: World Steel Association

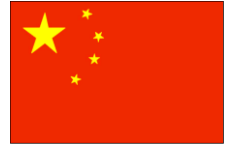
# Barriers to consolidation in China



- Of the largest Chinese steel companies, only Hebei Iron and Steel achieved this through consolidation, the others through organic growth.
- Major barrier to consolidation: most producers SOEs, but owned at different levels of government. Seems to be very difficult to merge across levels
- Ansteel (centrally owned) ordered to merge with nearby Benxi (provincially owned). Merger has not been effective
- Conversely, Hebei I&S's Tangsteel and Handan Steel both provincially owned



# Europe after 1975 v China Today



## ***Similarities***

- The largest competitive market in the world, private and state producers, imported raw materials .
- In theory central power (EEC Commission or Chinese central government) has strong powers, in practice local powers important
- Because of importance of integrated mill employment, local subsidies as growth declined
- Market forces alone would lead to closures being focussed on weaker regions, politically unacceptable

## ***Differences***

- EEC industry invested in new cost reducing technologies (e.g concast), most Chinese industry new and modern – but environmental enforcement is lax
- No significant EAF sector

# Some ideas for China



Consett steelworks, UK, closed 1980



Consett's largest employer today

- Accurate production and capacity data
- Encourage/assist weaker regions to create alternative consumer-focused employment (as in France, UK after 1975) not fight steel closures to the last (as in Belgium, Italy)
- Exports not a solution
- Enforce environmental regulations, starting with centrally owned mills
- Privatisation? (may not be ideologically acceptable)
- Focus on value added

Seek to avoid the wasteful subsidies that happened in Europe!