Steel Industry Responses to Overcapacity

OECD Steel Committee
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The three ages of post war steel

World crude steel production (million t)

1950-73: 5.6% p.a
Europe, USA, USSR, Japan
(750 m pop)

1974-98: 0.5% p.a
Only Korea + Chinese Taipei
(60m pop) rapid growth.
E Eur/FSU collapse in 1990s

1999-2013: 5.4%
p.a. China (1.4bn)

Crisis overcapacity
Chronic overcapacity

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

Growth rate 2014-2023 2.7% p.a

But it could well be slower, as breaks of trend are usually underestimated – will we see a repeat of the 1980s?

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 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.

Data: OECD database
North America was a different story

- 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

Data: OECD database
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

- 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

Data: World Steel Association
The rise of the EAF— but not in China

Crude steel production by process, 2013

- 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 integrateds, 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

Data: World Steel Association
Privatisation

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.

Consolidation Timeline


Krupp Stahl 15.1
TKS
Riva 16
TKS
Hoesch
TKS
Thyssen
TKS
Ilva
TKS
Hoogovens
TKS
Boel
TKS
British Steel
TKS
Corus
TKS
SAM
TKS
Tata Steel (India)
TKS
Tata Steel
TKS
Klockner
TKS
Aceralia
TKS
Usinor
TKS
Cockerill Sambre
TKS
Arcelor
TKS
Arcelor
TKS
Mittal
TKS
Mittal
TKS
Sidmar
TKS
Arbed
TKS
Karmet
TKS
Hamburger Stahl
TKS
Mittal Steel (1)
TKS
Hamburg Stahl
TKS
Karmet
TKS
Mittal Steel (1)
TKS
Hamburg Stahl
TKS
Karmet
TKS
Mittal Steel (1)
TKS
Hamburg Stahl
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Karmet
TKS
Mittal Steel (1)
TKS
Hamburg Stahl
TKS
Karmet
TKS
Mittal Steel (1)
TKS
Hamburg Stahl

Minor transactions omitted
(1) Had been known as Ispat International, then LNM Industries
• 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
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 consolidateds by focussing on high value downstream niches.

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)

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*Includes Arcelor Mittal flat carbon Europe 2007-11.

Data: company reports, 10Ks
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)

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

Data: GTIS, ISSB
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

- 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!

Consett steelworks, UK, closed 1980

Consett’s largest employer today

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