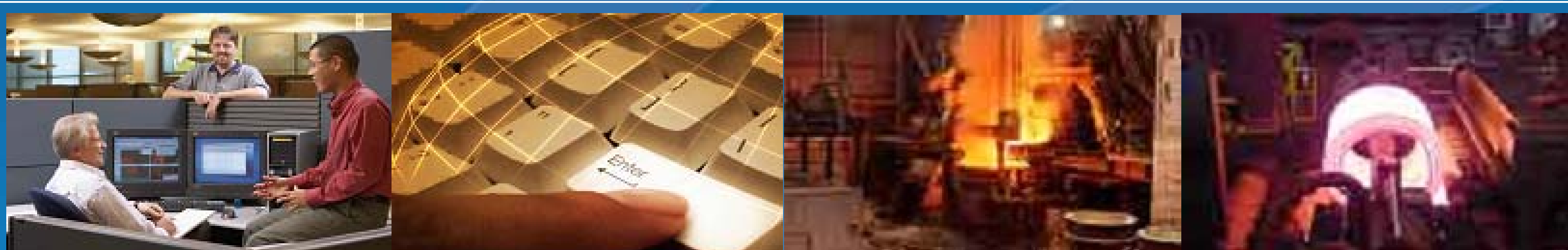
Asia Steel 2002 Conference- Bangkok

Global and Asian Steel Industry
Overview and Forecast

26 – 28 June 2002



Mike Walsh, Senior Consultant
Hatch Associates - London

Hatch Beddows

Agenda

- Introduction to Hatch Consulting
- Some Myths and Realities
- The Steel Industry Today and Tomorrow
- What's Happening in Asia
- The Shareholder Value Challenge

INTRODUCTION TO HATCH BEDDOWS

Hatch is the leading international consulting, engineering, information systems, project and construction management organisation to the metals and mining industries

Expertise

- Engineering
- Project & Construction Management
- Management Consulting
- Technologies
- Energy and Process Control
- Systems Developments

HATCH

Industries

- Iron & Steel
- Non-Ferrous
- Industrial Minerals
- Light Metals
- Mining and Mineral Processing

Hatch offers a global network of consulting and engineering services to the metals and mining industries

Hatch Consulting is the management consulting division of Hatch

Expertise

- Engineering
- Project & Construction Management
- **Management Consulting**
- Technologies
- Energy and Process Control
- Systems Developments

HATCH

Industries

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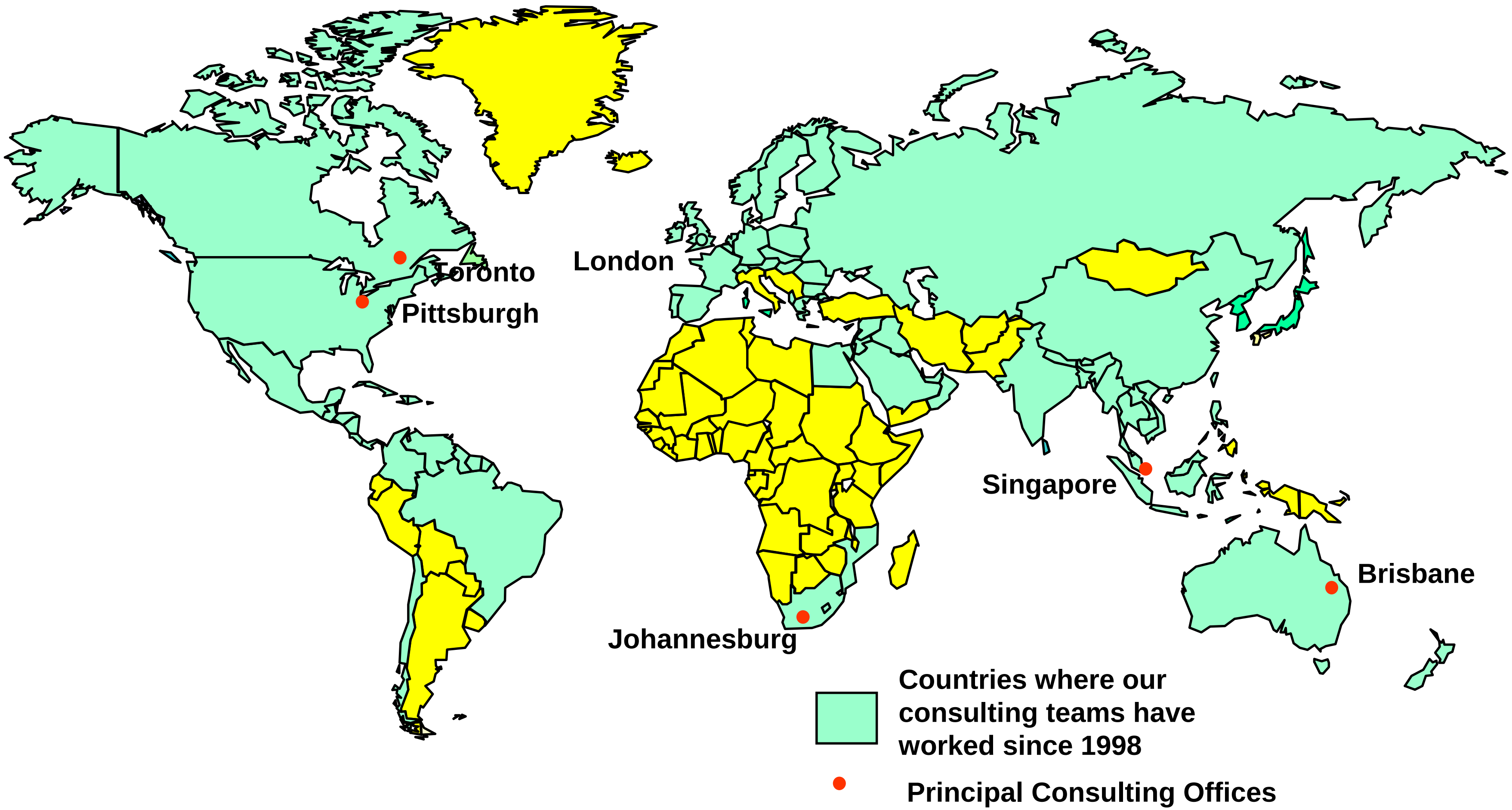
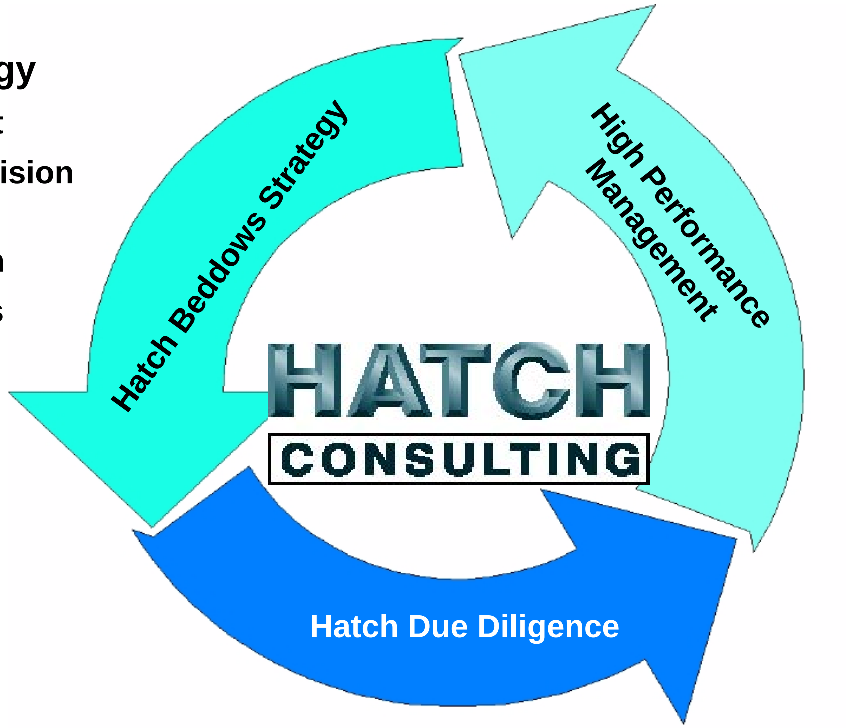
Hatch Consulting undertakes work globally from its six principal consulting offices, supported by Hatch's industry specialists



Three of our practices provide expert support to help our clients meet those challenges and achieve superior performance



Hatch Beddows Strategy

- Strategy development
- Capital allocation decision support
- Organizational design
- Mergers and alliances
- New market product planning
- E-business

High Performance Management

- Operations consulting
- Yield/productivity improvement
- Merger implementation
- De-bottlenecking
- Best practice benchmarking

Hatch Due Diligence

- Due diligence review
- Feasibility studies
- Financing proposals
- Asset/technology evaluation

SOME MYTHS AND REALITIES

Myths or Realities

Steel…..

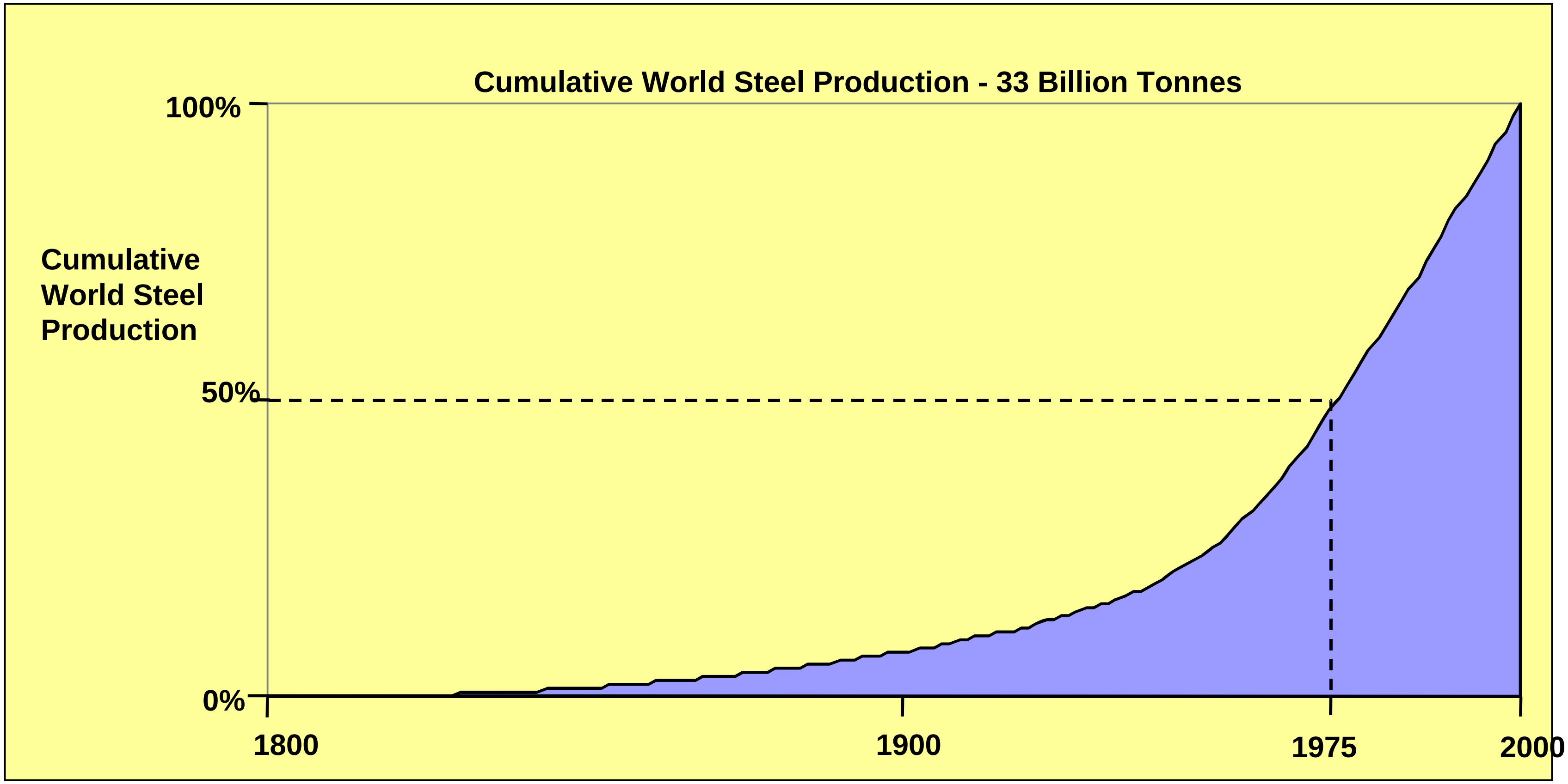
- ✓ ….. Is a zero or low growth industry
- ✓ ….. Experiences continuous material substitution
- ✓ ….. Is a labour intensive industry
- ✓ ….. Is a capital intensive industry
- ✓ ….. Experiences disabling state interference
- ✓ ….. Suffer from a continuous cost/price squeeze

……. the steel industry holds inhibiting misconceptions about itself

Steel – a low growth industry?

- Over the last 30 years
  - Crude steel growth averaged 0.8% p.a
  - Finished steel products, 2.35% p.a (2.65% without the FSU)
- Better yields (eg. 20% improvement in through-product material yields); improved inventory/WIP management; faster transportation times
- Finished steel growth similar to world GDP growth level, whereas world vehicles production growth since 1978 has averaged under 1% p.a
- Clearly there is a limit eg. yields cannot exceed 100%! …… but still prospects for attractive finished products growth

Over 50% of all steel ever made has been produced in the last 25 years



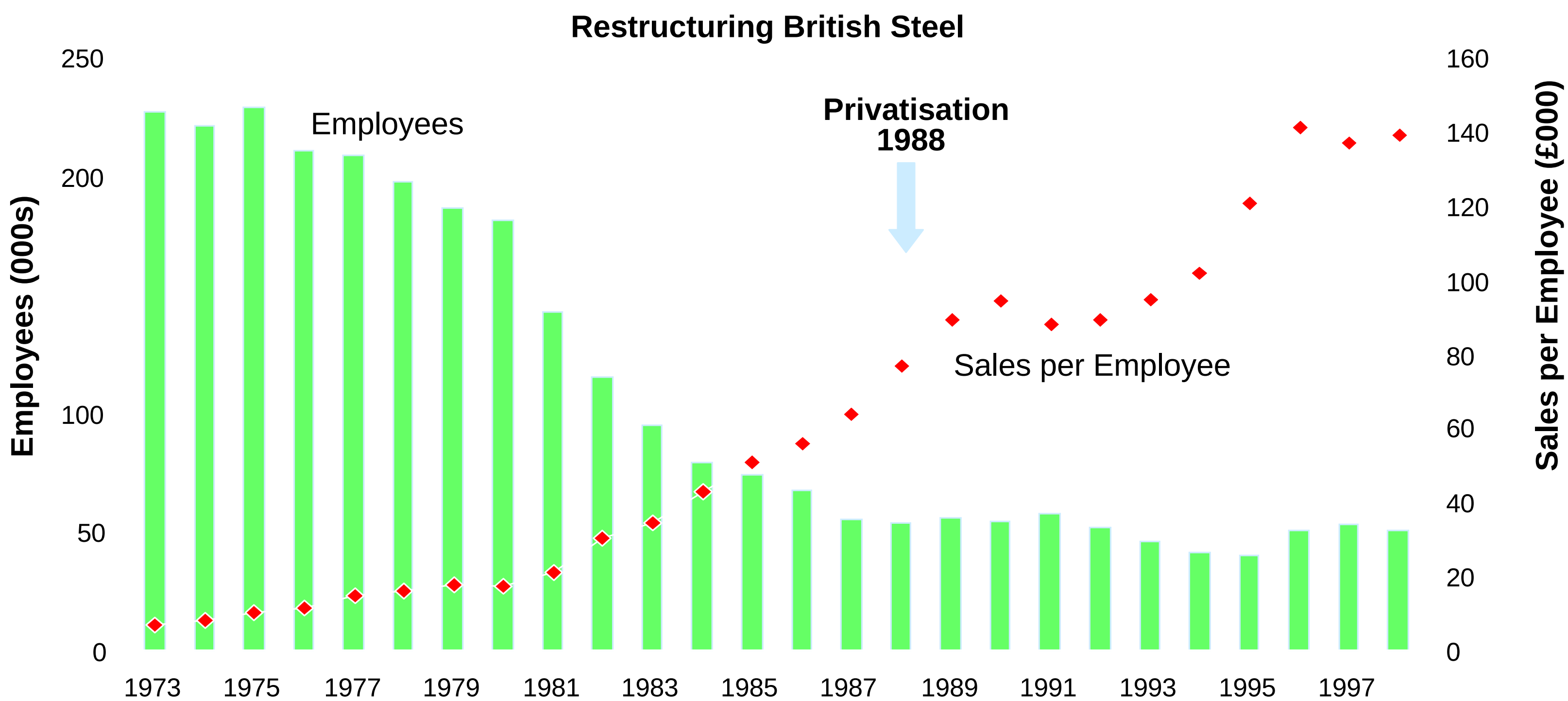
How long will it take to double today's global volumes? Another 25 years @ 2.5% p.a growth

Steel Experiences continual material substitution?

- It has for some applications … but often it shouldn't have done
- Comparisons of material prices to the German construction industry show over the last 25 years:
    - Steel (CRC), virtually no real price increase
    - Cement, price doubled
    - Aluminium, 60 – 80% more expensive than steel, since 1990
- Steel's functional performance characteristics have improved dramatically …. whereas cement has hardly changed

……. steel is well placed to defend itself against material substitution

Steel, a labour intensive industry? It was, but no longer!



- Huge improvements have resulted from new technologies eg. 12 x rise in labour productivity over 25 years
- Legacies of the old situation still exist in China and SAIL, India ….. but changes are happening ….. and steel is less labour intensive than electronics components manufacture (on a value-added basis)

Source: Company Reports

….. It's not capital intensive either, compared to other major industries

- Steel's ratio of fixed assets to sales is 0.45
- Comparable ratios for other industries are:
  - Cement 2.0
  - Power generation 2.5
  - Water 10.0
- Bulk petrochemicals and electronic components have similar rates to steel

……. so capital intensity must be a comparable or greater problem for a range of other industries

Steel experiences disabling state indifference

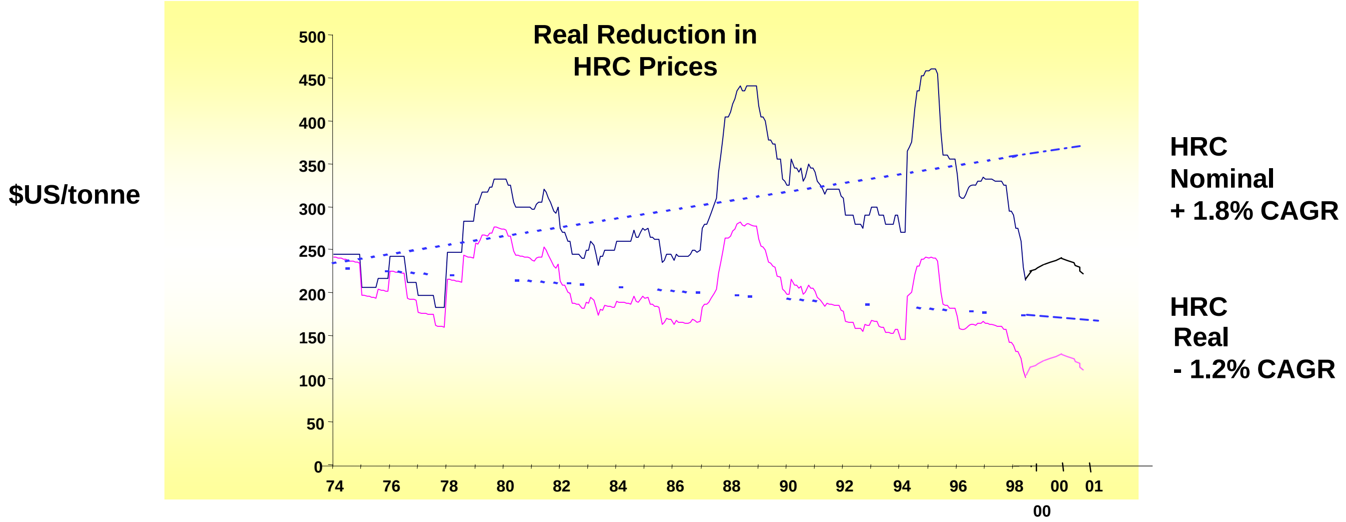
- Two aspects
  - State ownership of assets
  - Restrictions on free trade flows

- State ownership has reduced from 50% of capacity in 1984 under 10% today*

……. but the domino effect of increasing tariffs and trade protectionism is well known

* some privatization are still not fully completed

Steel suffers a continuous cost/price squeeze?

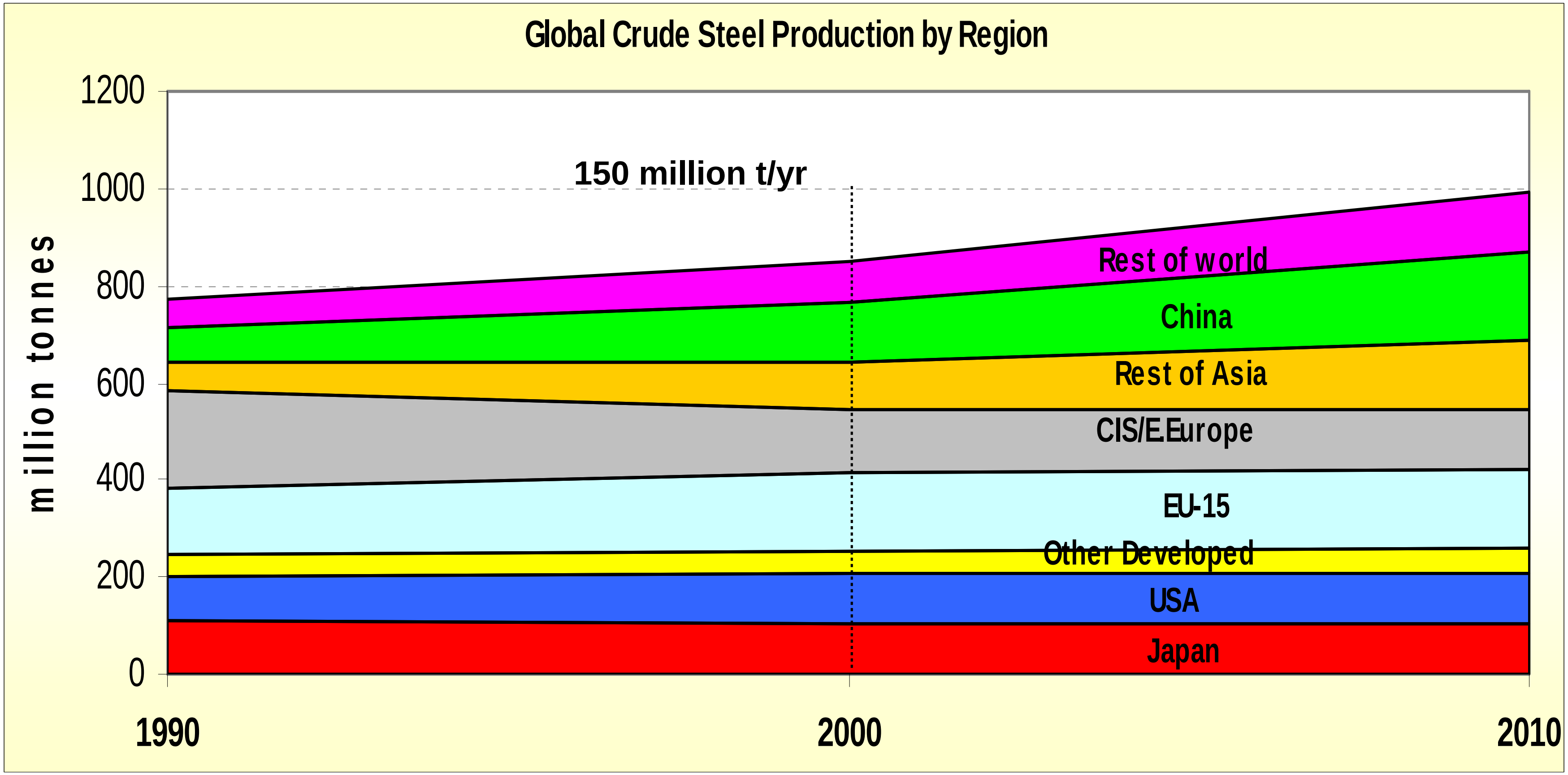


- Since 1984, HRC prices have declined by 1.2% CAGR in real terms
- Hatch Beddows analysis has shown that a 3.0 – 3.5% squeeze, occurs between the speed of such decreases in prices and the speed of decreases in factors costs (industries typically compensate by cost reductions, rationalizations, product enhancements)

….. but The Economist commodity prices index over 150 years shows real price reductions averaging 3% p.a CAGR, the same cost/price average as for steel!

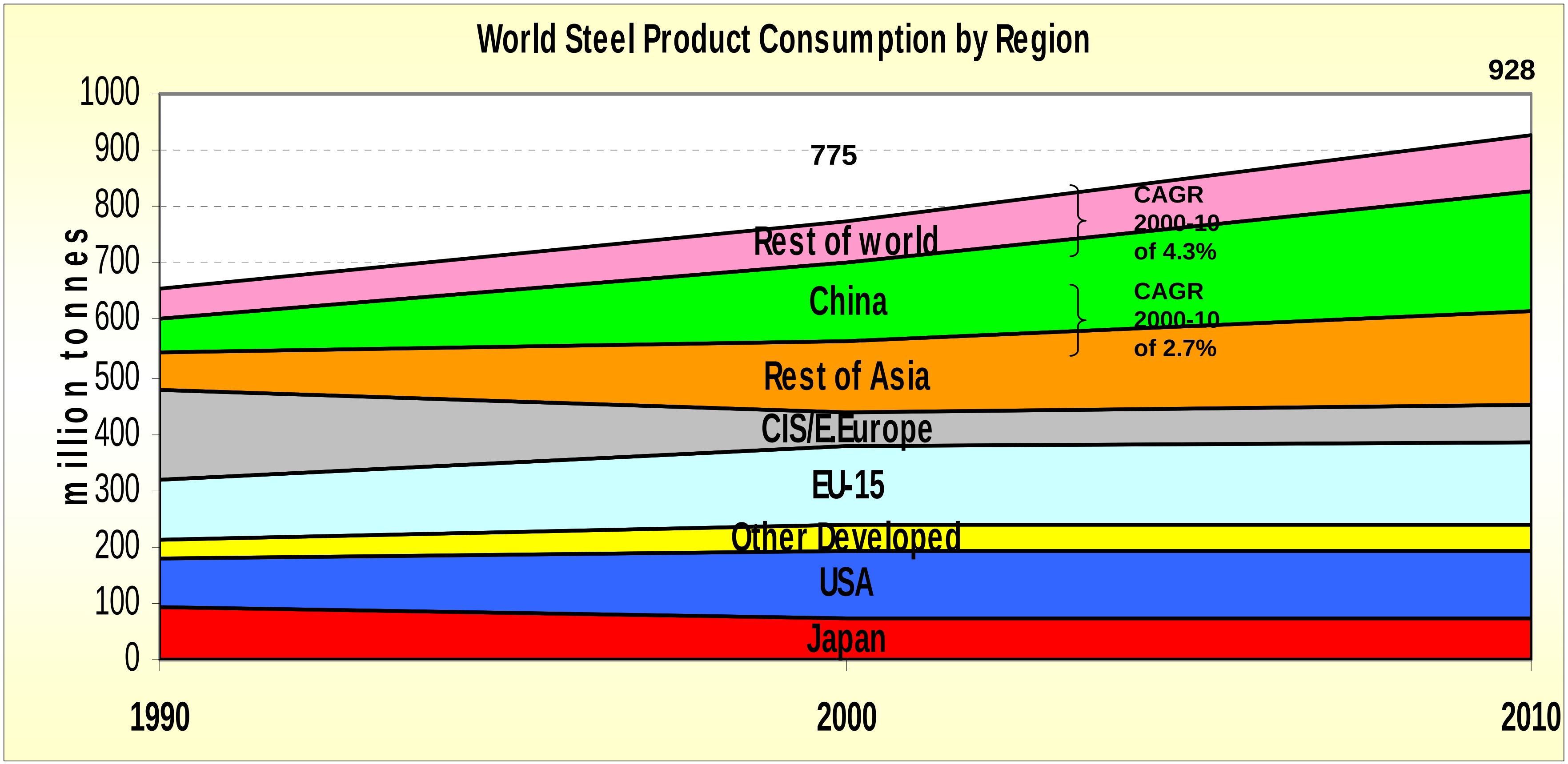
THE STEEL INDUSTRY TODAY AND TOMORROW

Annual crude steel production will reach 1 billion tonnes by 2010 – a compound annual growth rate of 1.6% from 2000 - 2010



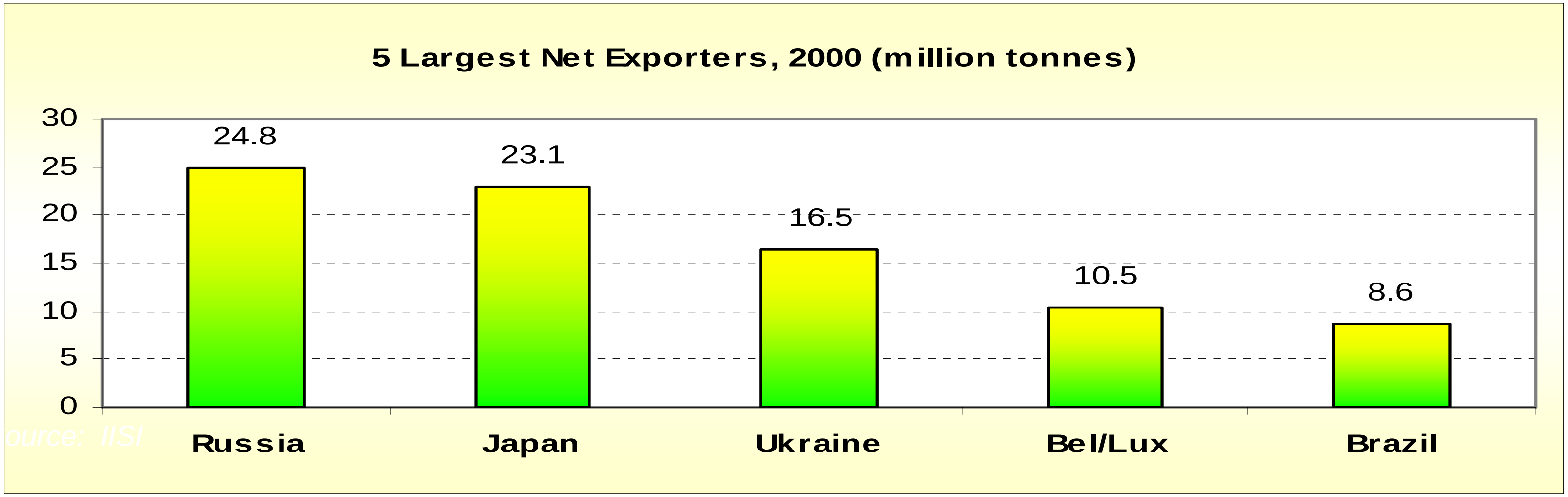
Source: World Steel Dynamics

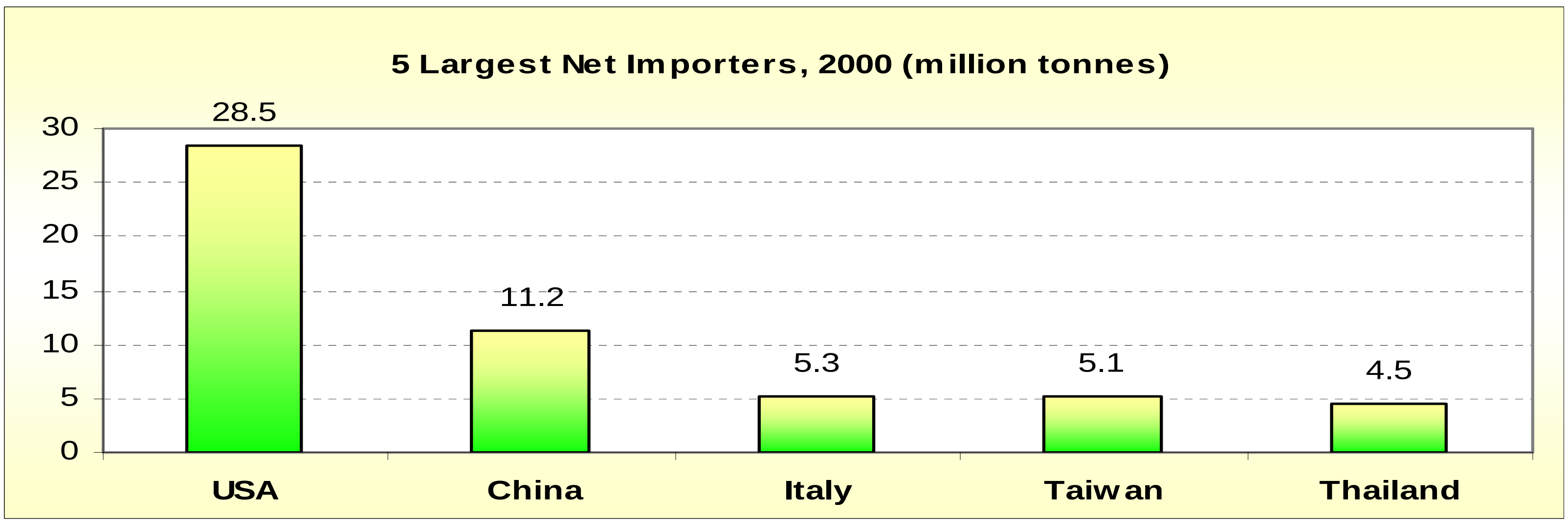
71% of the growth in steel demand from 2000 – 2010 will come from Asia (including China)



Source: World Steel Dynamics

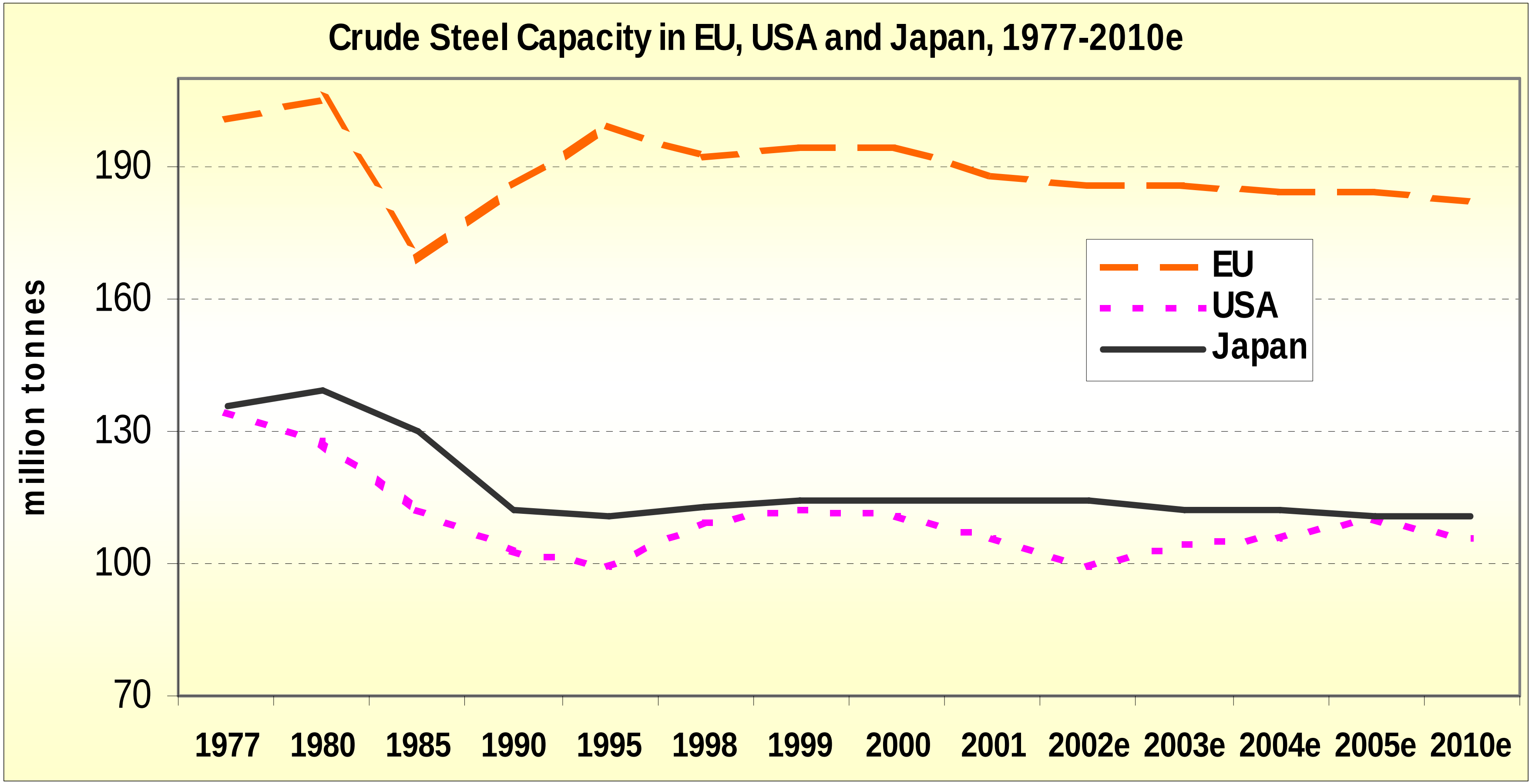
288 million tonnes of steel were traded in 2000





Source: IISI

Forecast crude steel capacity growth will be severely constrained in the developed world



Source: World Steel Dynamics

22 US steel producers have filed for chapter 11 bankruptcy, representing 44% of crude steel capacity

US Steel Companies Chapter 11 Bankruptcy Filings Since December 1997

Company	Bankruptcy Filed	Crude Capacity (mt)	Status
Calumet Steel	March 2002	0.1	Shutdown, March 2002
National Steel	March 2002	7.1	Operating
Sheffield Steel	December 2001	0.7	Shutdown, December 2001
Bethlehem Steel	October 2001	12	Operating
Geneva Steel	October 2001 February 1999	3.2	Refiled October 2001, shutdown since Emerged from bankruptcy May 2000
Laclede Steel	July 2001 November 1998	0.9	Refiled July 2001, shutdown September 2001 Emerged from bankruptcy November 2000
Republic Technologies Int'l	April 2001	5	Operating
Trico Steel	March 2001	2.2	Shutdown, March 2001
GS Industries Inc	February 2001	1.7	Closed Montana facility (0.75 mt) others plants still operating
Heartland Steel	January 2001	1.1	Operating
CSC Ltd	January 2001	0.5	Shutdown, March 2001
LTV Corp	December 2000	9.6	Shutdown December 2001
Erie Forge & Steel	December 2000	0.5	Operating
Northwestern Steel & Wire	December 2000	2.4	Shutdown, May 2001
Wheeling-Pittsburgh Steel	November 2000	2.6	Operating
Vision Metals Inc	November 2000	na	Operating
Gulf States Steel	July 2000	1.4	Shutdown, August 2000
J & L Structural Steel	June 2000	na	Operating
Qualitech Steel SBQ	March 1999	0.6	Sold August 1999, shutdown January 2001
WorldClass Processing	December 1998	0.4	Emerged from bankruptcy May 2000 Currently operating
Acme Metals	September 1998	1.2	Shutdown, October 2001
Al Tech Specialty Steel	December 1997	0.1	Emerged from bankruptcy November 1999 Shutdown, July 2001
TOTAL		53.3	

Source: World Steel Dynamics

The US tariffs will provide a time-window for corporate restructuring

- Tariffs of up to 30%. Friendly and developing countries exempted
- Progressively reduced over 3 years
- Other countries/regions have responded
- Key issue: How fast will US steel companies move to address the problem?
    - Consolidations
    - New investors
    - Pension funds
    - Financial restructuring

Alternative models for the US integrated industry

US Steel (Mark II)

- Govt. takes on Pension and Health care liabilities
- Integrated (or most) are consolidated
- Business model remains the same
- New labour contract and practices

Alternative models for the US integrated industry

Chapter 7

- Full, liquidated, bankruptcy
- Liabilities “left behind”
- New entrepreneurs, new capital
- New employment possibilities
- Possibility for a new business model
- Possibility for foreign involvement

Alternative models for the US integrated industry

North American Steel Holdings

- Companies (2+) convert to holding companies
- Assets placed in one, or more, jointly owned subsidiaries
- Liabilities held at the holding level
- Operating entities can raise new capital and attract new managements
- Possibility for a new business model (Slab Co., Auto Sheet Co. etc)
- Possibility for foreign participation
- Possibility for new labour contract (investor?)

Escalating costs are eroding the competitive advantages of former Soviet Union (FSU) steel producers

- Currency depreciation has made the costs of FSU producers hard to assess – commodity product exports have helped depress world steel prices

- 20% p.a rises in energy costs and rapidly rising labour costs are eroding these cost advantages. Higher tariffs and anti dumping charges are also making exports harder

- Major companies (Severstal, Magnitogorsk) are integrating downstream, acquiring auto companies, machinery makers, tube companies – the opposite strategy to those of western steel companies

On a global level, there is industry consolidation via mergers and alliances – a process likely to continue further

- Customer driven
  - Customer globalisation (auto, electrodomestics)
  - Specifications/quality/service level harmonization

- Cost driven
  - R & D pooling
  - Technology development
  - Product range simplification
  - Economies of scale

Japan is increasingly recognizing the need for mergers, alliances & further international collaborations

- Mainly to serve their automotive clients. The same reason Japan invested in US steel companies
- Two emerging Japanese/European groupings:

Aceralia

- **Usinor**
- **Arbed**
- **Aceralia**

Nippon Steel – **Baoshan**, **Tisco**, **Posco**

Sumitomo Metals – **Corus**

Kobe Steel – **VA Stahl**

Thyssen Krupp

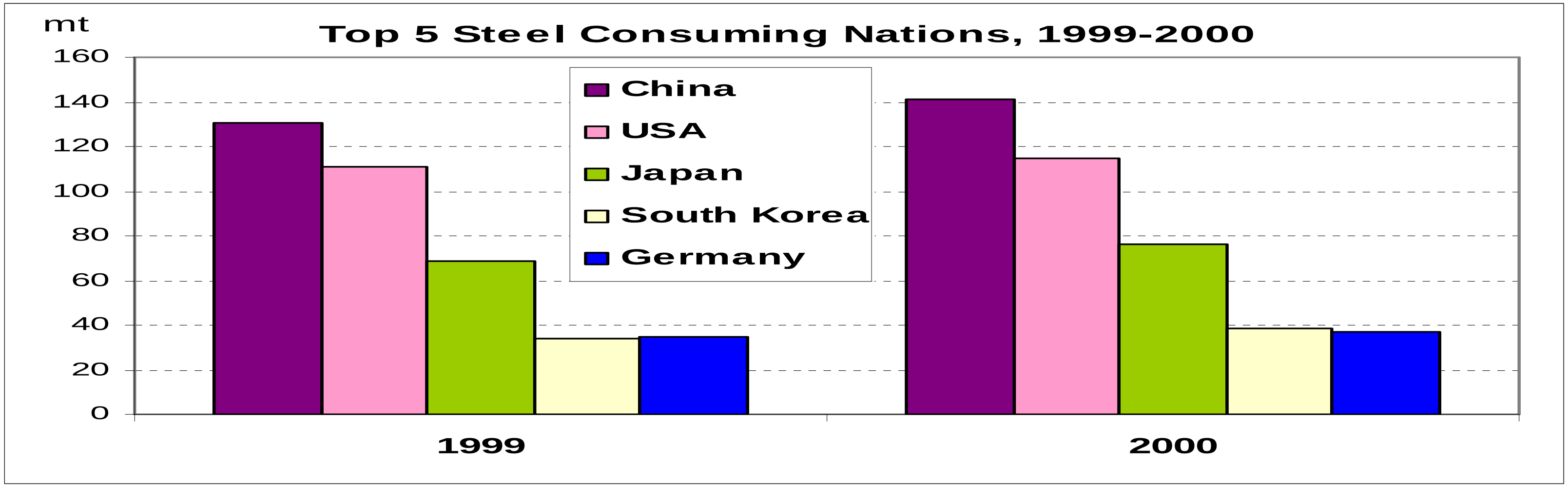
JFE

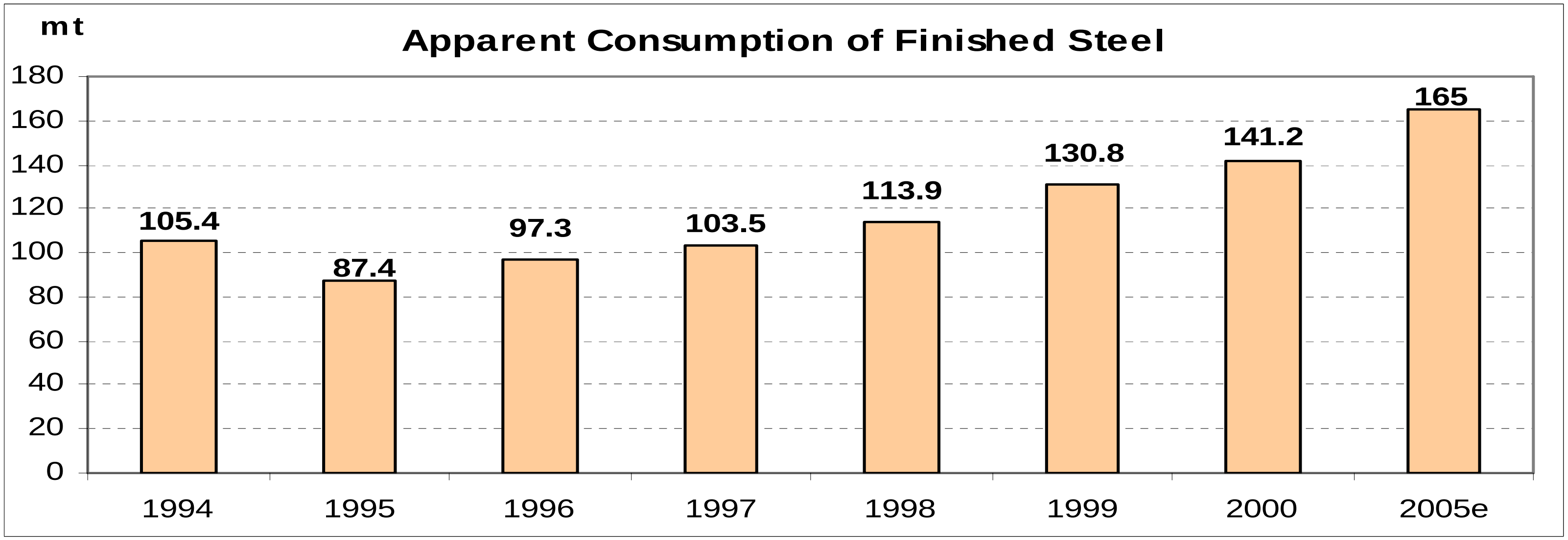
- **NKK**
- **Kawasaki**

WHAT'S HAPPENING IN ASIA?

- CHINA
- ASEAN

The China steel market is the world's largest

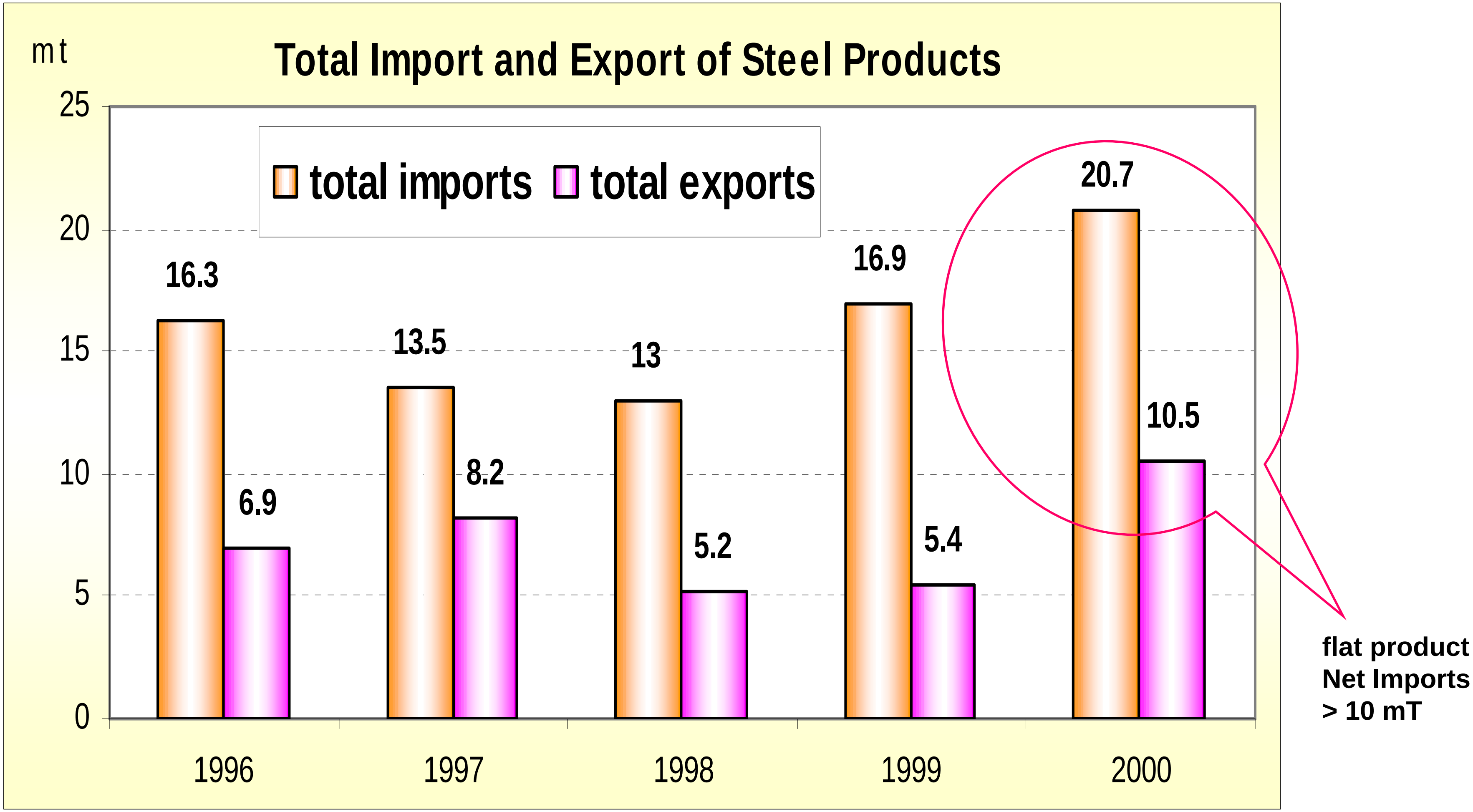




Source: IISI

WHAT'S HAPPENING IN ASIA?

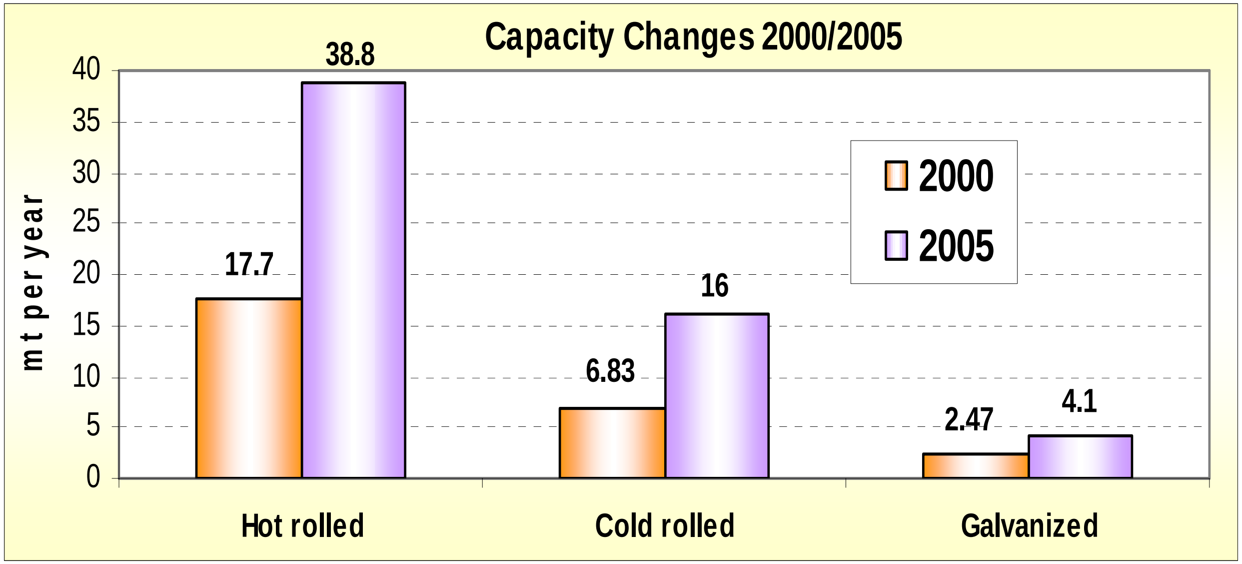
China remains a net importer of steel, especially of value added and flat products



Source: World Steel Dynamics

Planned restructuring/investments will change this ……….

- Flat product capacity will double by 2005



New / renovated plants

- 11 HRC
- 9 CRC
- 10 Galv lines

  + increased capacity for stainless, alloy, pipeline steels

- Industry consolidation will continue
  - plant closures
  - 3 / 4 world class steel groups by 2005

The Chinese steel industry faces some key challenges ……………

- Reducing long product over capacity
- Boosting production and quality of value added products
- Upgrading technology
- Tackling structural over employment
- Consolidating steel works to regional production centres
- Opening the market, post WTO

………… which provide opportunities for foreign investors

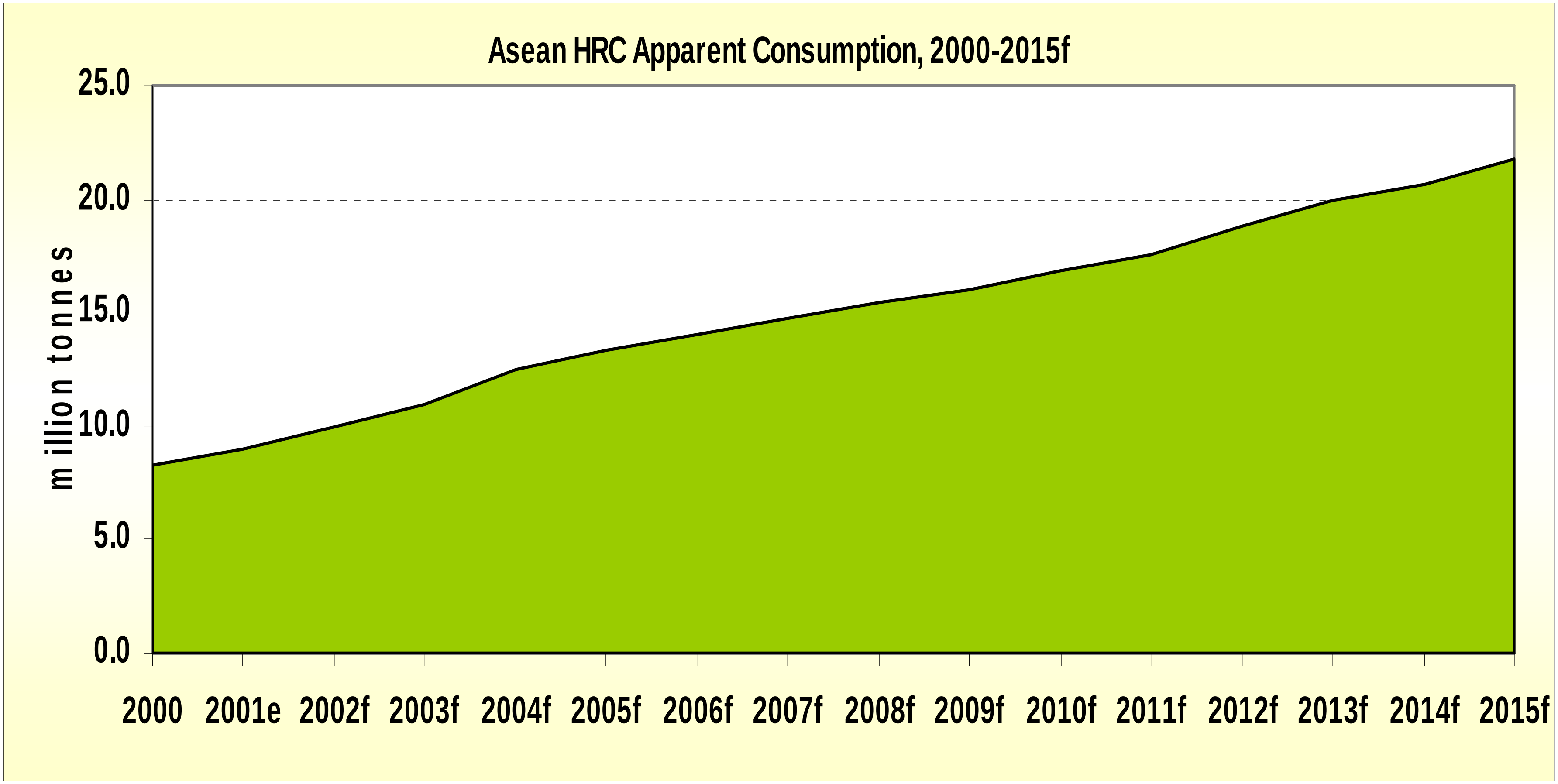
- Technology upgrading support
- Mergers and acquisitions
  - Foreign JVs
  - Corporate restructuring
- Financing support
- Market entry, post WTO

Asean long products capacity exceeds forecast demand. Producer rationalization should gather pace

- Commodity long products mainly serve local demand. Construction sectors are depressed
- Several producers have sub-optional cost structures
  - Scale
  - Location
  - Facilities
- Capacity rationalization and consolidation has begun:
  - Perwaja
  - Malayawata/Anshin
  - Cementhai/NTS

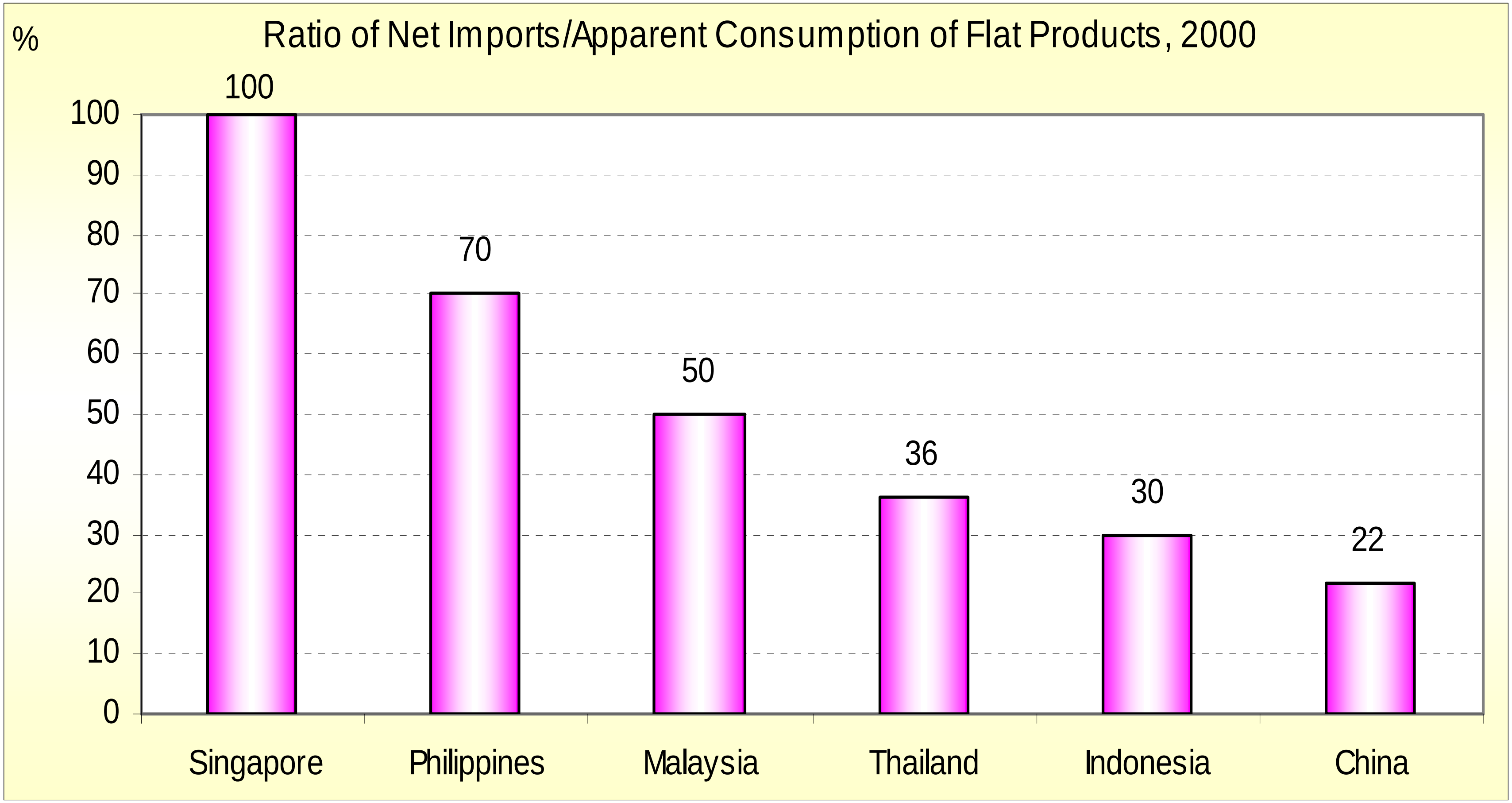
……. further steps will be needed to restore profitability

Asean hot rolled coil demand is forecast to double within 10 years



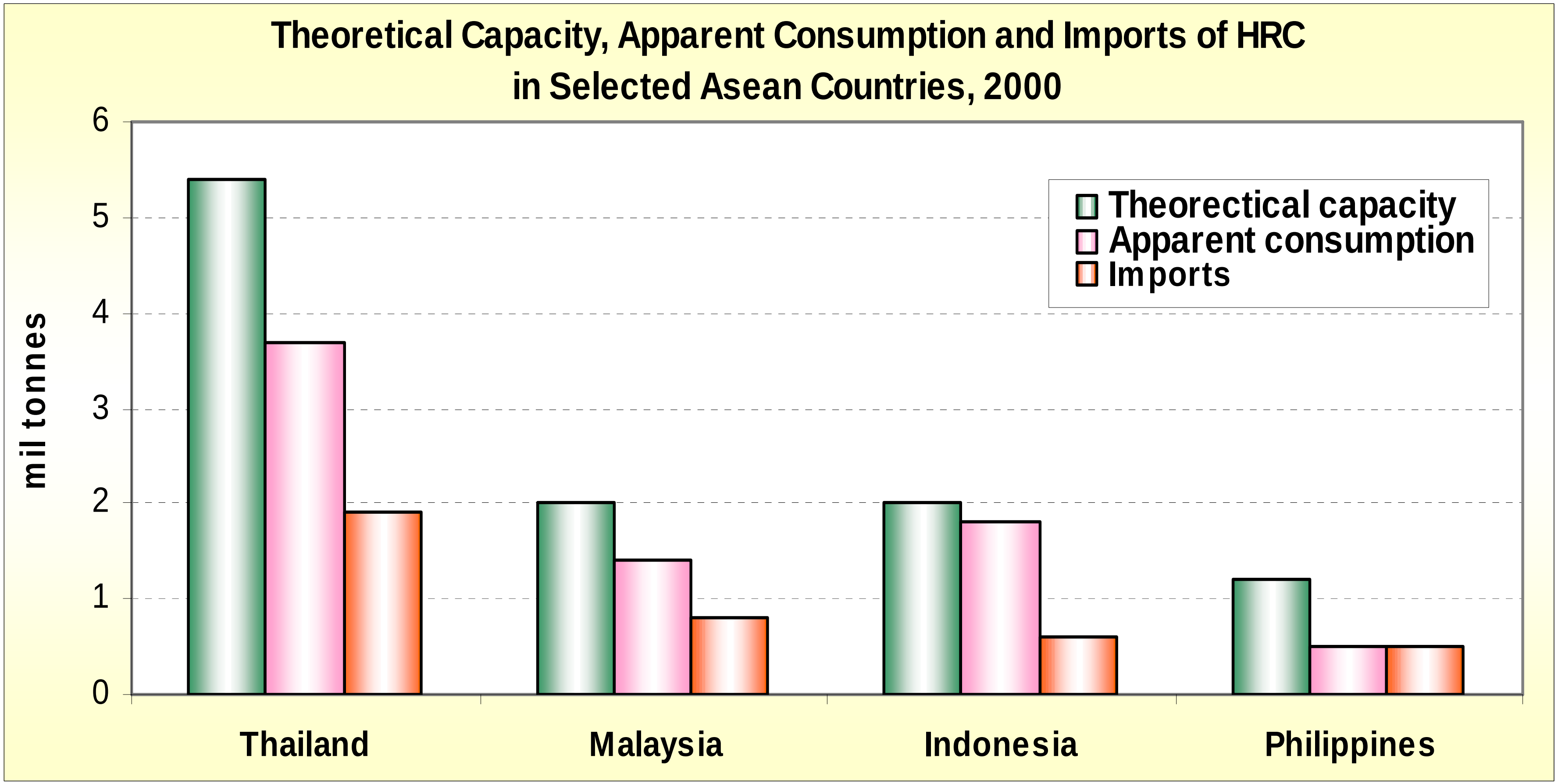
Source: SEAISI, Hatch Consulting

All Asean countries import significant proportions of their flat product needs



Source: SEAISI

HRC imports remain high, even though considerable (theoretical) excess capacity exists within the Asean region



Source: SEAISI

Industry/government collaborations could create suitable conditions for new/re-habilitated Asean HRC producers

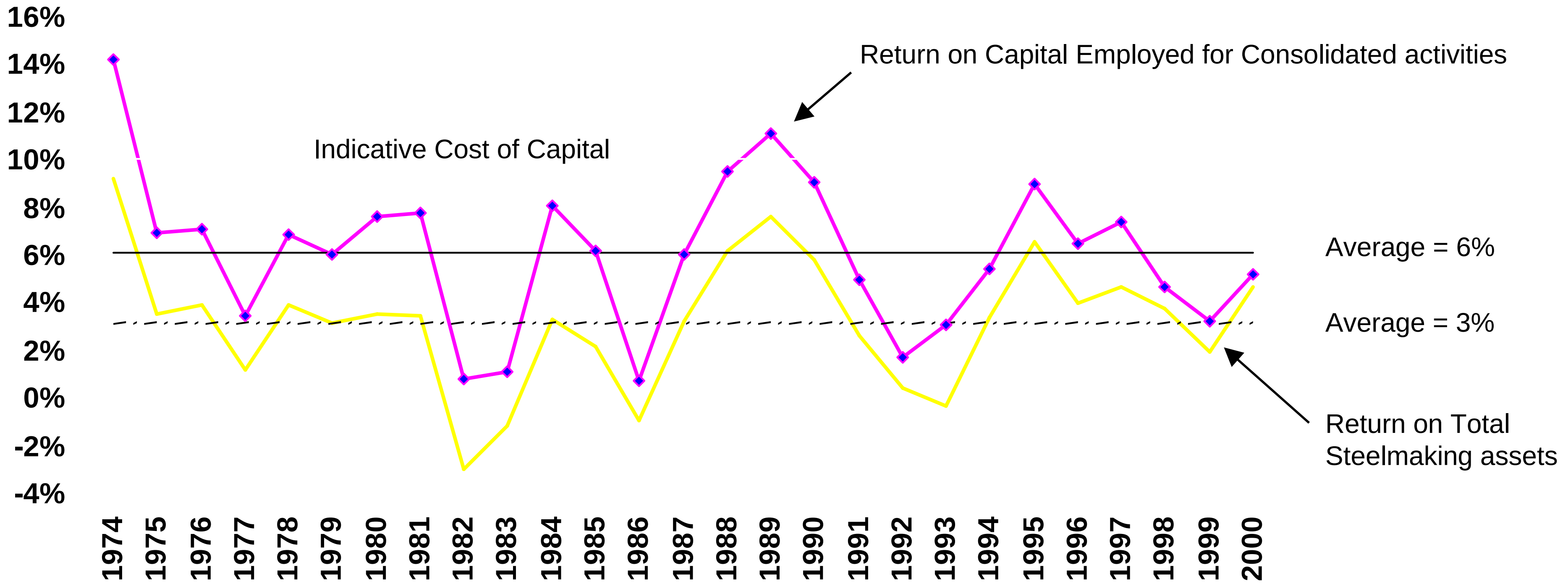
- Industry protection (whilst it lasts) will reduce the threat of cheap (former FSU originating) imports and support higher prices
- Technology developments (and management support) should enable progressive substitution of higher value (Japan originating) HRC
- Pan-Asean producer discussions should enable an orderly introduction of Asean tariff reductions in 2003
- Forecast market growth in user-industries (including investments in CR/galvanizing) will provide increasing opportunities for HRC suppliers

……. but investors will require more rigorous feasibility assessments than have (sometimes) been previously undertaken

THE SHAREHOLDER VALUE CHALLENGE

Average return on total steel sector assets is 3% between 1974 and 2000, while consolidated Return on Capital Employed is 6%

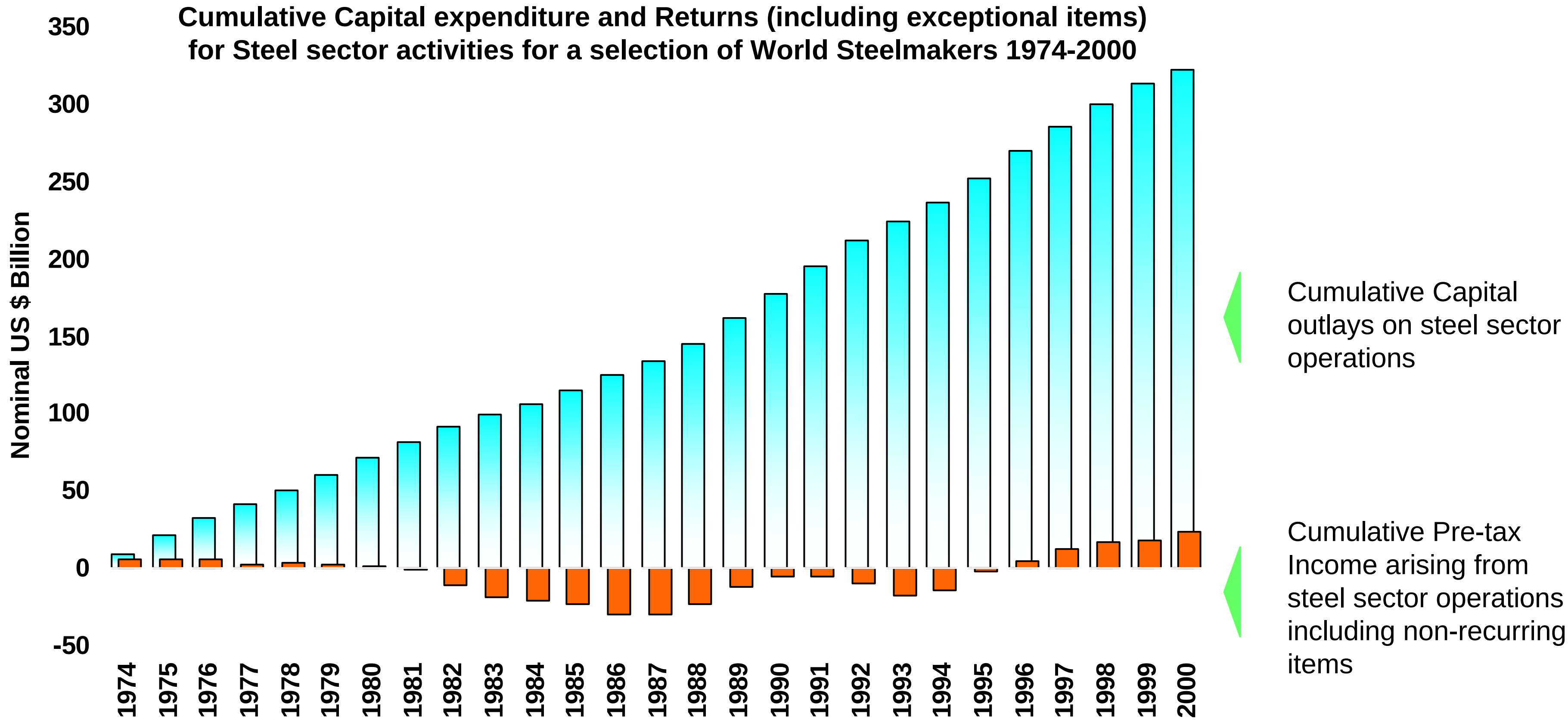
Returns on investment (including exceptional items) for a selection of World Steelmakers 1974-2000



Notes: Capital and pre-tax income relates to steel operations only and differs from reported consolidated accounts. Regions covered include USA (15 companies), Japan (8 companies), Europe (17 companies), Canada and Australia (5 companies), 'Developing Western World' (Latin America, South Africa, India Taiwan, and South Korea – 9 companies) and China (1 company). Number of companies analysed for each year varies from 42 to 60.

Source: WSD (2001), Hatch Beddows analysis

For a cumulative capital outlay of US$325 billion since 1974, steelmakers have returned a cumulative pre-tax profit of only US$23 billion



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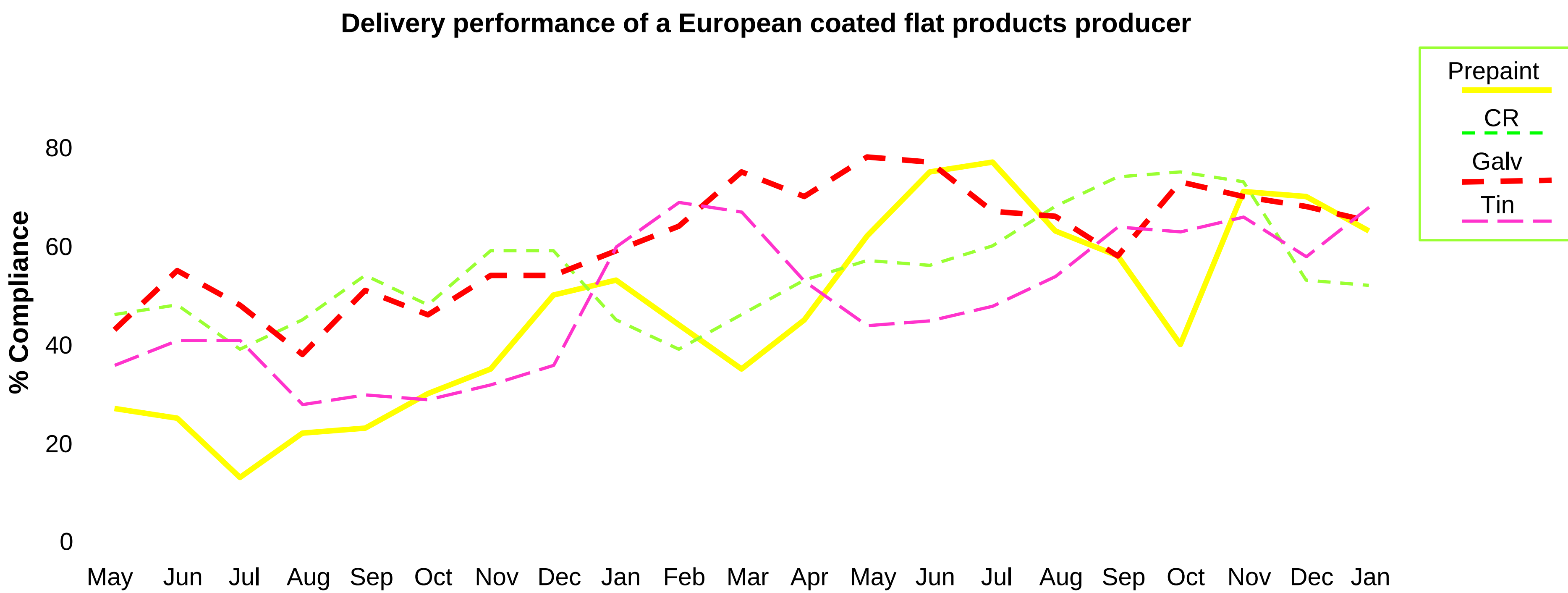
Source: WSD (2001), Hatch Consulting analysis

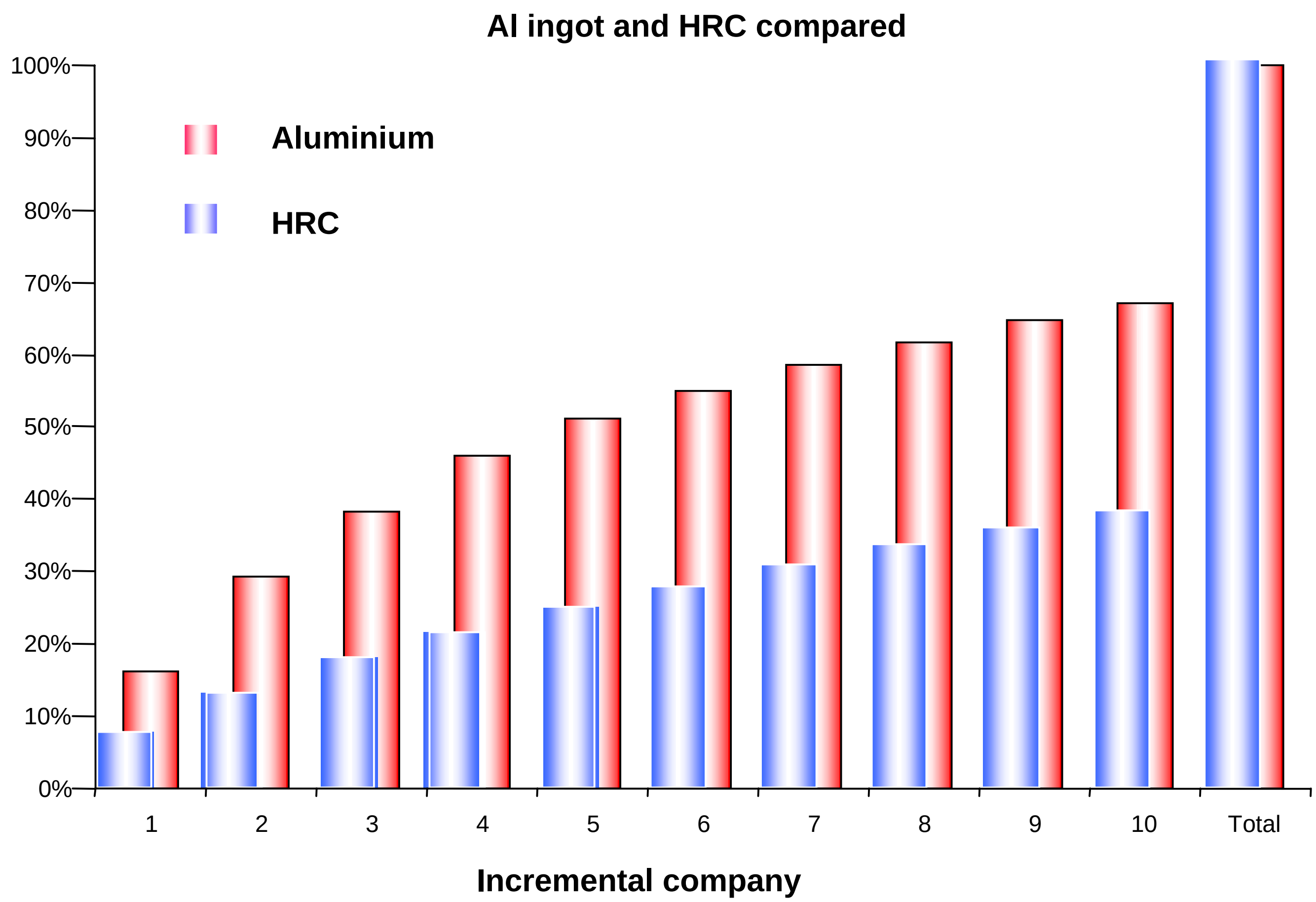
Poor delivery performance is a generic problem within the industry



- Targets often 90%
- Achievement often only 60%
- Achievable (without capex) 95%
- Target should be 99%

Source: Hatch Consulting client

The number of producers adds to the problem



Aluminium Concentration

Biggest = 16%

Top 3 = 38%

Top 20 = 80%

Total number of Companies = 78

HRC Concentration

Biggest = 8%

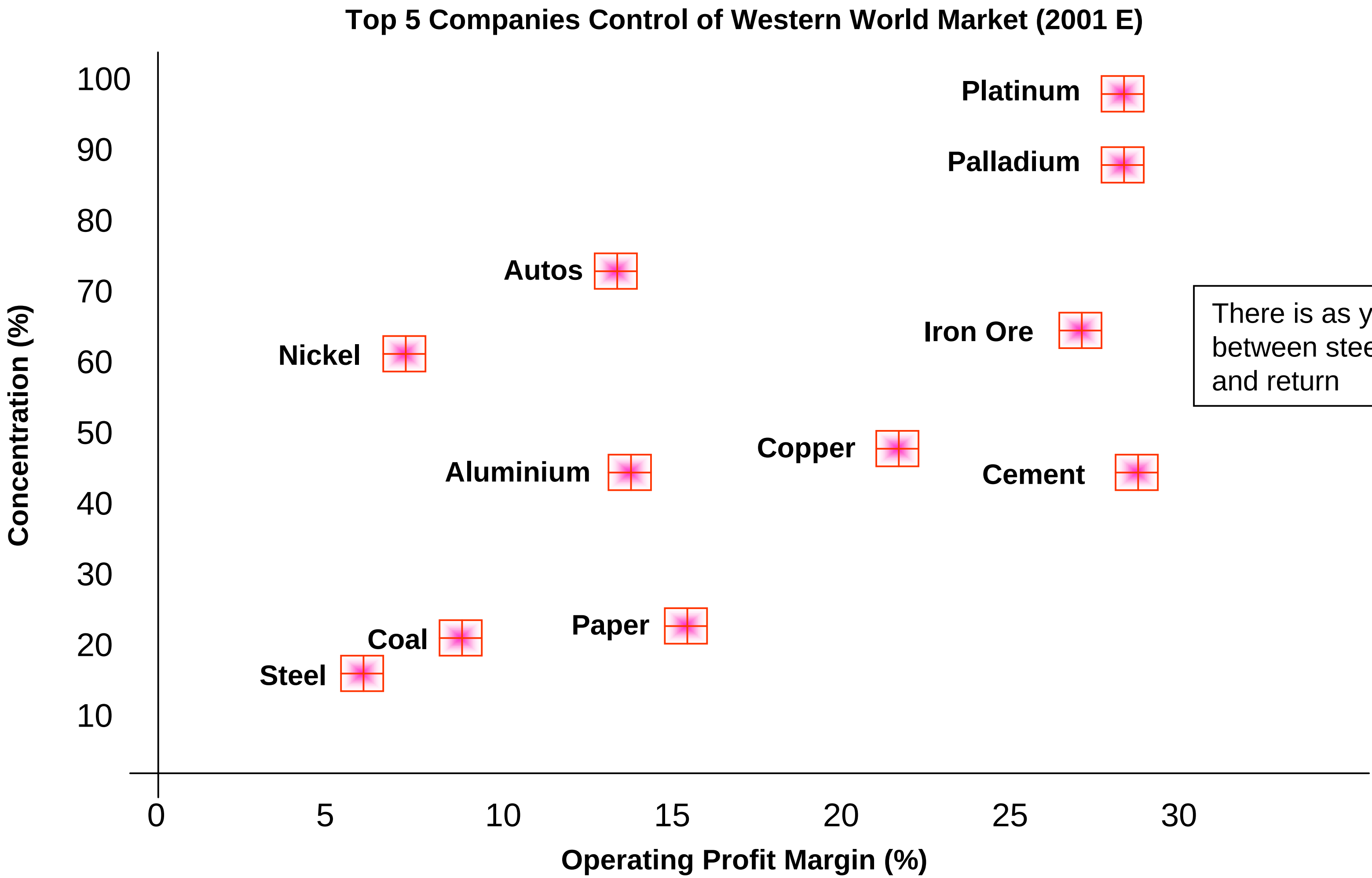
Top 3 = 20%

Top 20 = 52%

Total number of Companies = 150

Source: Hatch Beddows analysis

There is a correlation between industry concentration and returns



There is as yet no correlation between steel company size and return

Source: Morgan Stanley and Hatch Beddows analysis

Complexity drives up costs

The average HRC producer:

- Serves 50 – 100 customers directly, 10 – 20k industry
- Produces 100 grades of steel in any quarter
- Produces 25,000 combinations of grade, width and guage of steel in any quarter
- Supplies to all industrial sectors
- Competes against other steel companies and other metals and materials
- Changes its melt grades by about 70% every 10 years

The automotive industry thrives on complexity. The European Standard for QT steels contains over 75 basic grades with the automakers often specifying bespoke variations in addition to these

Representative sample of European QT grades primarily used in auto applications

✓

An enlightened Euro supplier satisfies all customer demands with only 10 grades

EN 10083-1	Germany		United Kingdom	France	Sweden SS Steel	Spain
	Alpha-Numeric Name	Material Number				
2C22	(Ck 22)	(1.1151)	(070M20)	[XC 18]	-	-
3C22	(Cm 22)	(1.1149)	-	[XC 18 u]	-	-
2C55	Ck 25	1.1158	(070M26)	[XC 25]	-	C25K
3C25	Cm 25	1.1163	-	[XC 25u]	-	C25K-1
2C30	Ck 30	1.1178	(080M30)	[XC 32]	-	-
2C35	Ck 35	1.1181	(080M36)	[XC 38 H 1]	1572	C35K
3C35	Cm 35	1.1180	-	[XC 38 H 1 u]	-	C35K-1
2C40	Ck 40	1.1186	(080M40)	[XC 42 H 1]	-	-
3C40	Cm 40	1.1189	-	[XC 42 H 1 u]	-	-
2C45	Ck 45	1.1191	(080M46)	[XC 48 H 1]	1672	C45K
3C45	Cm 45	1.1201	-	[XC 48 H 1 u]	-	C45K-1
2C50	Ck 50	1.1206	(080M50)	-	1674	-
3C50	Cm 50	1.1241	-	-	-	-
2C55	Ck 55	1.1203	(070M55)	[XC 55 H 1]	-	C55K
3C55	Cm 55	1.1209	-	[XC 55 H 1 u]	-	C55K-1
2C60	Ck 60	1.1221	(070M60)	-	-	-
3C60	Cm 60	1.1223	-	-	-	-
28 Mn 6	28 Mn 6	1.1170	(150M19)	-	-	-
38 Cr 2	38 Cr 2	1.7003	-	(38 C 2)	-	-
38 CrS 2	38 CrS 2	1.7023	-	(38 C 2 u)	-	-
46 Cr 2	46 Cr 2	1.7006	-	-	-	-
46 CrS 2	46 CrS 2	1.7025	-	-	-	-
34 Cr 4	34 Cr 4	1.7033	(530M32)	(32 C 4)	-	-
34 CrS 4	34 CrS 4	1.7037	-	(32 C 4u)	-	-
37 Cr 4	37 Cr 4	1.7034	(530M36)	(38 C 4)	-	38Cr4
37 CrS 4	37 CrS 4	1.7038	-	(38 C 4 u)	-	38Cr4-1
41 Cr 4	41 Cr 4	1.7035	(530M40)	42 C 4	-	42Cr4
41 CrS 4	41 CrS 4	1.7039	-	42 C 4 u	2245	42CR4-1
25 CrMo 4	25 CrMo 4	1.7218	(708M25)	25 CD 4	2225	-
25 CrMoS 4	25 CrMoS 4	1.7213	-	25 CD 4 u	-	-
34 CrMo 4	34 CrMo 4	1.7220	(708M32)	(34 CD 4)	2234	-
34 CrMoS 4	34 CrMoS 4	1.7226	-	(34 CD 3 u)	-	-
42 CrMo 4	42 CrMo 4	1.7225	(708M40)	42CD 4	2244	40CrMo4
42 CrMoS 4	42 CrMoS 4	1.7227	-	42 CD 4 u	-	40CrMo4-1

X

Another Euro supplier purports to supply all these individual grades

Source: BSI, Hatch Consulting

An organic coating facility substantially enhanced revenue by halving number of paint changes

Line	With Current Number of Paint changes			With Half Current Number of Paint changes		
	Foregone Tonnes	Average Price	Foregone Revenues, £m	Foregone Tonnes	Average Price	Foregone Revenues, £ m
Line 1	40,000	659	26	20,000	659	13
Line 2	25,000	678	17	12,500	678	8
Line A	1,667	695	1	833	695	1
Line B	21,000	695	15	10,500	695	7
Line A1	11,200	687	8	5,600	687	4
Total	98,867		67	49,433		33

With half the current number of paint changes,
there is an incremental revenue opportunity of £34m

Source: Hatch Consulting client study

The way forward?

- Consolidation of major players……. to ensure product specialisation and reduce complexity
  - nationally
  - Internationally
- Re-thinking the integrated model – the dilemma of front-end “push” and downstream “pull”
  - dis-aggregation
  - Improved customer focus
  - outsourcing
- Better studied investments
  - rational decisions
  - prudent investments

Thank you for your time and attention

……. the future can be better for those who face up to economic realities