

Energy in the shape of a ferroalloy: FeSi from a European perspective

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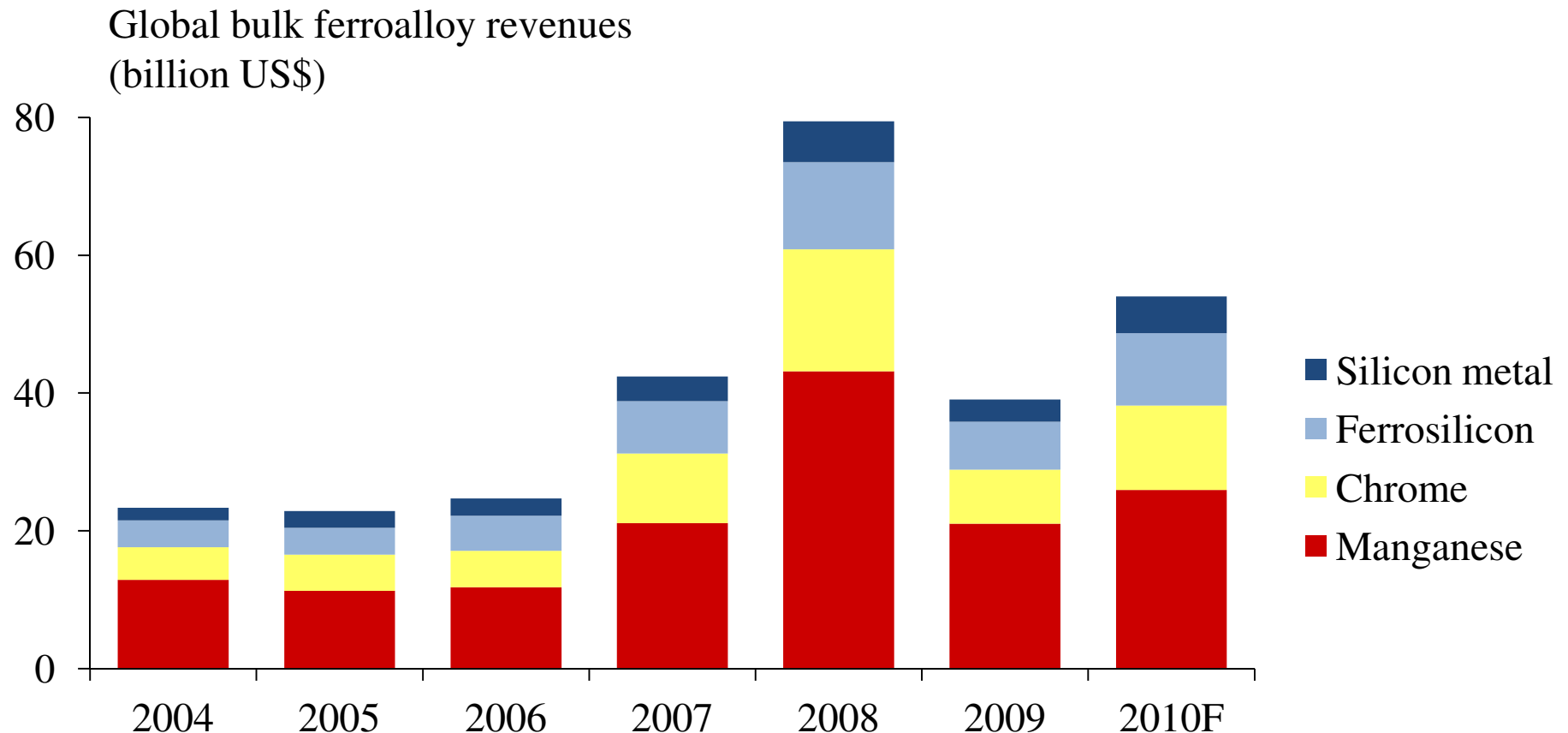
15th November, 2010



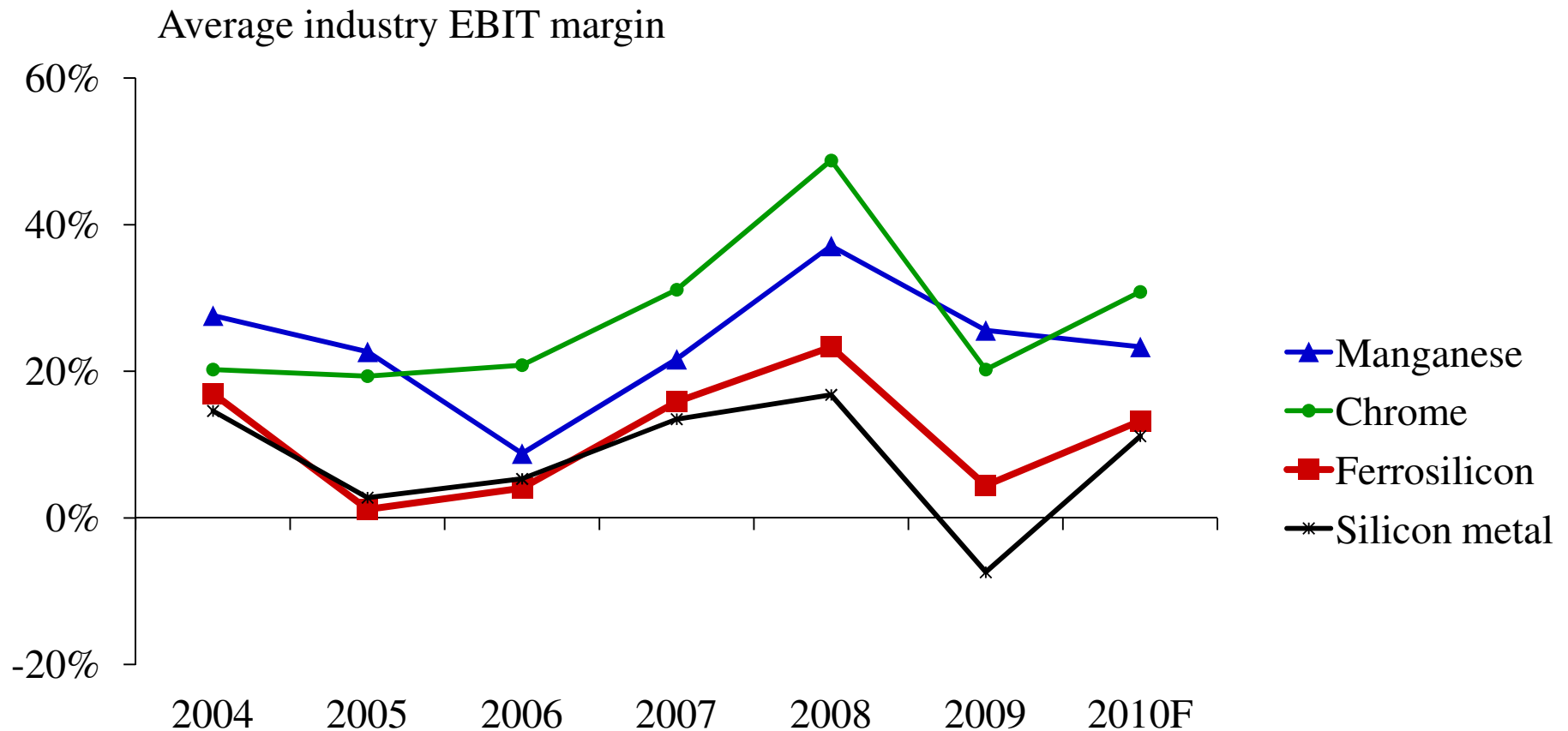
What is ferrosilicon?

- A ferroalloy of iron and silicon (FeSi), normally ~75% Si
- Used extensively in molten crude steel as a de-oxidising agent
- Also used to add electrical conductivity and corrosion-resistance properties to steel
- Average Si content of steel is 0.3%. Many individual grades are much higher in Si – stainless steel (up to 1% Si), electrical steels (up to 7% Si)
- Around 70% of global FeSi output is used in steel
- Other important applications are for de-carburising molten grey iron for the production of foundry castings (20% of global FeSi consumption) and for producing magnesium metal in China (7% of global FeSi consumption)

FeSi accounts for 20% of the ferroalloy sector, with projected global revenues of US\$11bn in 2010

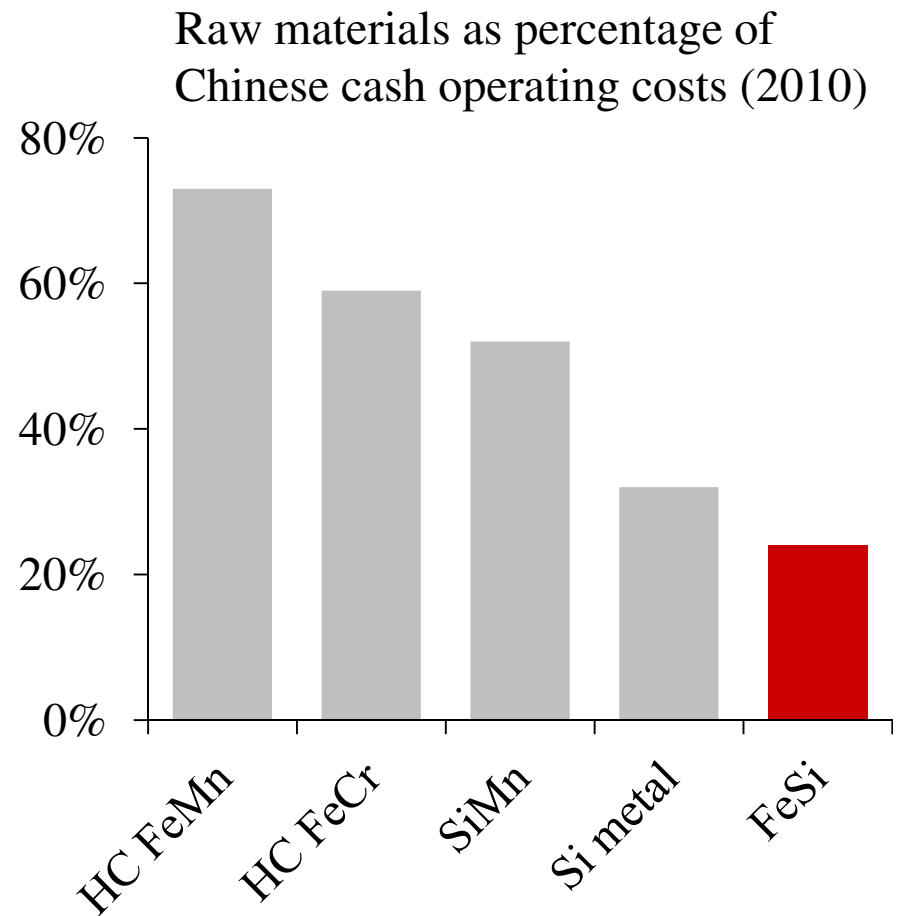
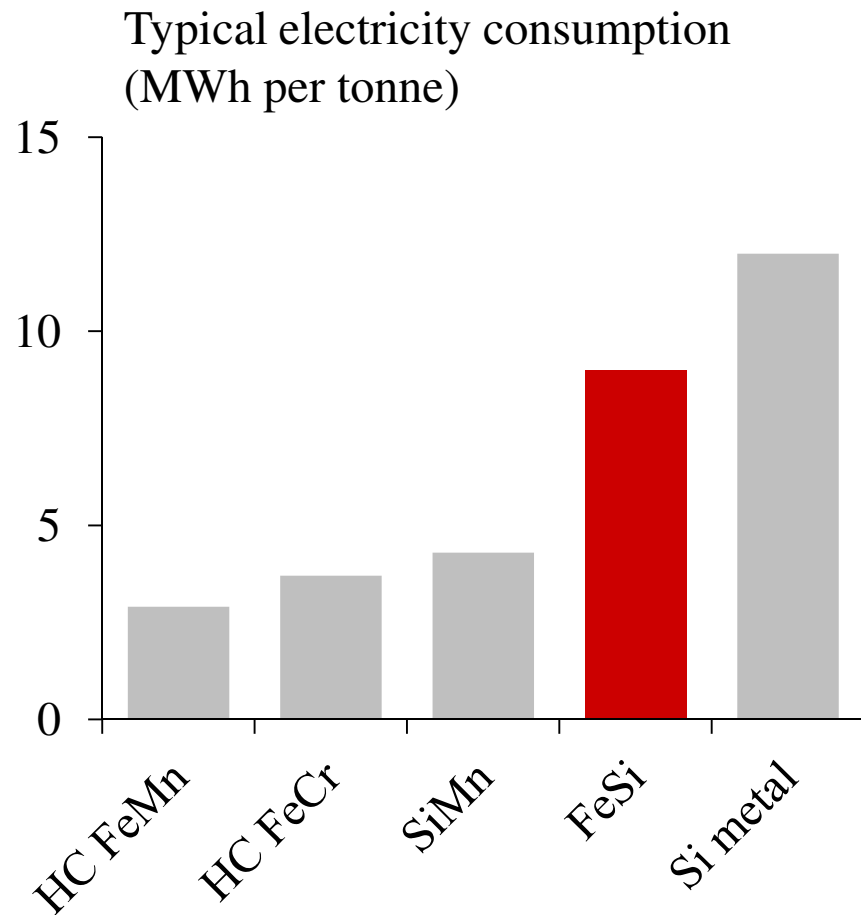


The FeSi business has been consistently less profitable than the manganese and chrome businesses



Based on analysis of financial results of 50 major ferroalloy producers

FeSi is driven by electricity rather than raw materials – a fundamental difference from FeMn/SiMn and FeCr

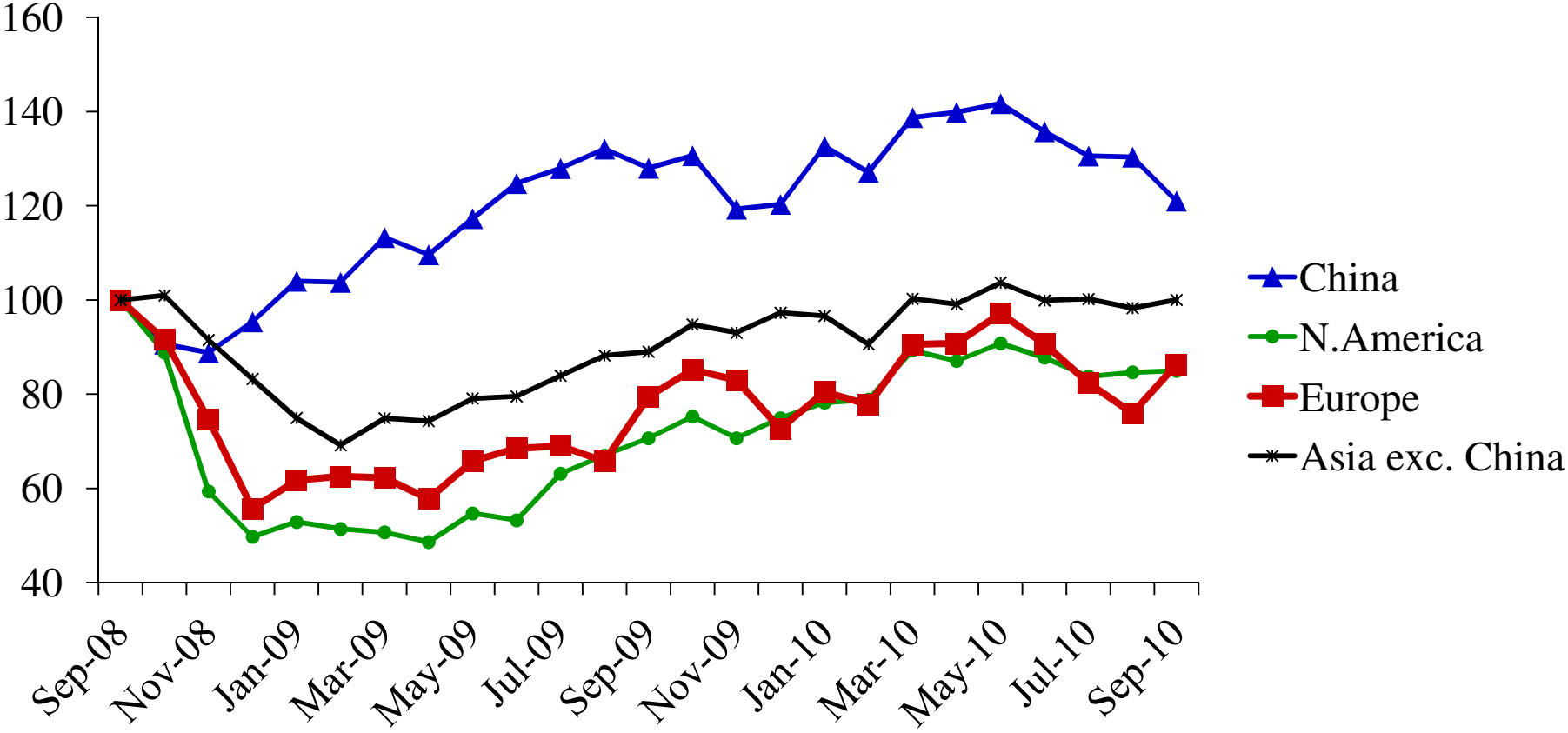


Ferrosilicon market characteristics

- “Standard” ferrosilicon accounts for ~85% of global FeSi consumption (Standard FeSi is 75% Si, 1.5% Al, 0.1% Ti, 0.1% C, balance Fe)
- The remaining 15% of global FeSi output is special grades – magnesium FeSi and inoculants for foundry castings, high-purity and refined FeSi for alloy and electrical steel production
- Standard FeSi production is overwhelmingly dominated by China and Russia
- Special FeSi grades continue to be mainly produced by established western producers in Europe, N.America and Brazil

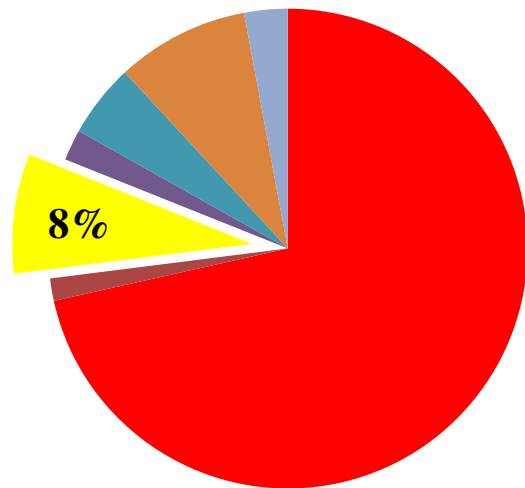
European steel output has recovered only sluggishly, reducing Europe's share of global FeSi demand

Crude steel production since collapse of Lehman Brothers
(Index, Sep 2008=100)

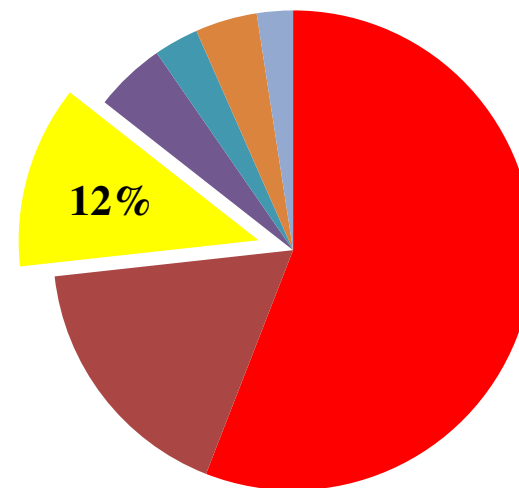


Europe now only represents 12% of world FeSi consumption and 8% of production

World FeSi
Production (2010)



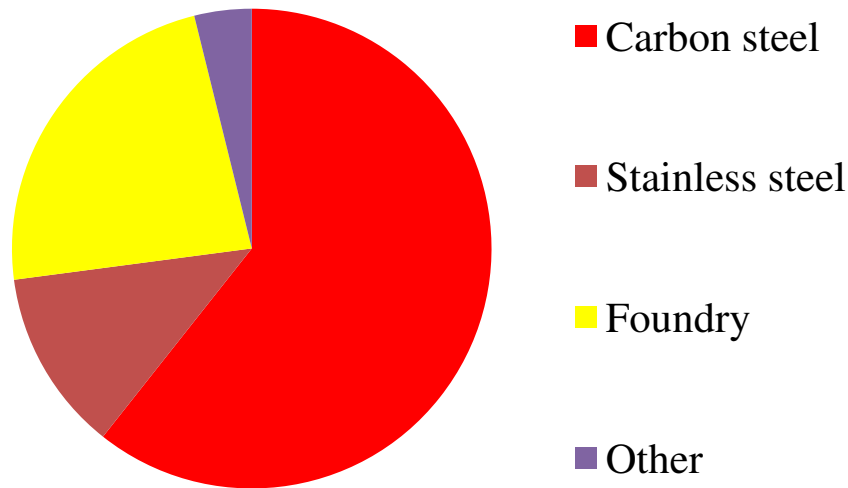
World FeSi
Consumption (2010)



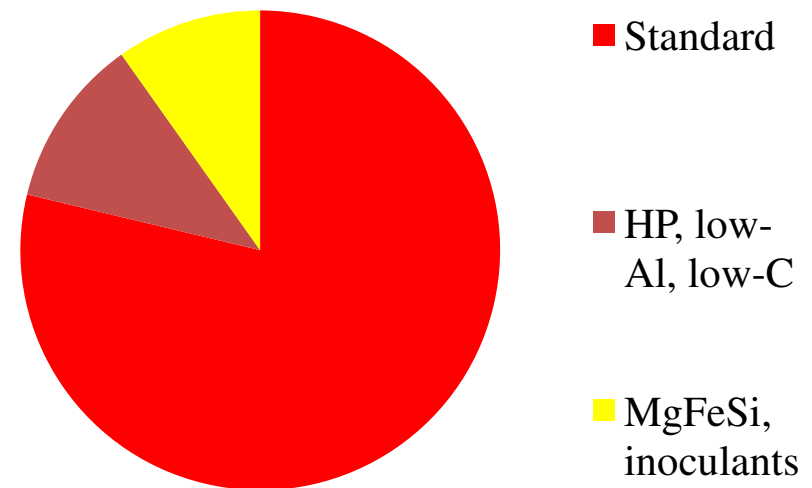
Total volume 6.9 million tonnes

Speciality grades make up over 20% of the European FeSi market, more than in most other regions

European FeSi consumption by end-use



European FeSi consumption by grade



Anti-dumping duties have had a significant impact upon the European FeSi market

- The European Commission imposed provisional anti-dumping duties on ferrosilicon imports in August 2007. The final duty rates were imposed in February 2008
- The exporting countries affected by the duties were China, Egypt, Kazakhstan, Macedonia and Russia
- Since the duties were imposed, there has been a significant reduction in ferrosilicon exports to the EU from all these countries, most notably China. Spot prices in Europe now normally trade at a premium
- Duties are for the standard 5-year term but can be subject to interim review. Macedonia's duty was eliminated by a review in 2009. A review into the duty on Russia was instigated in 2010

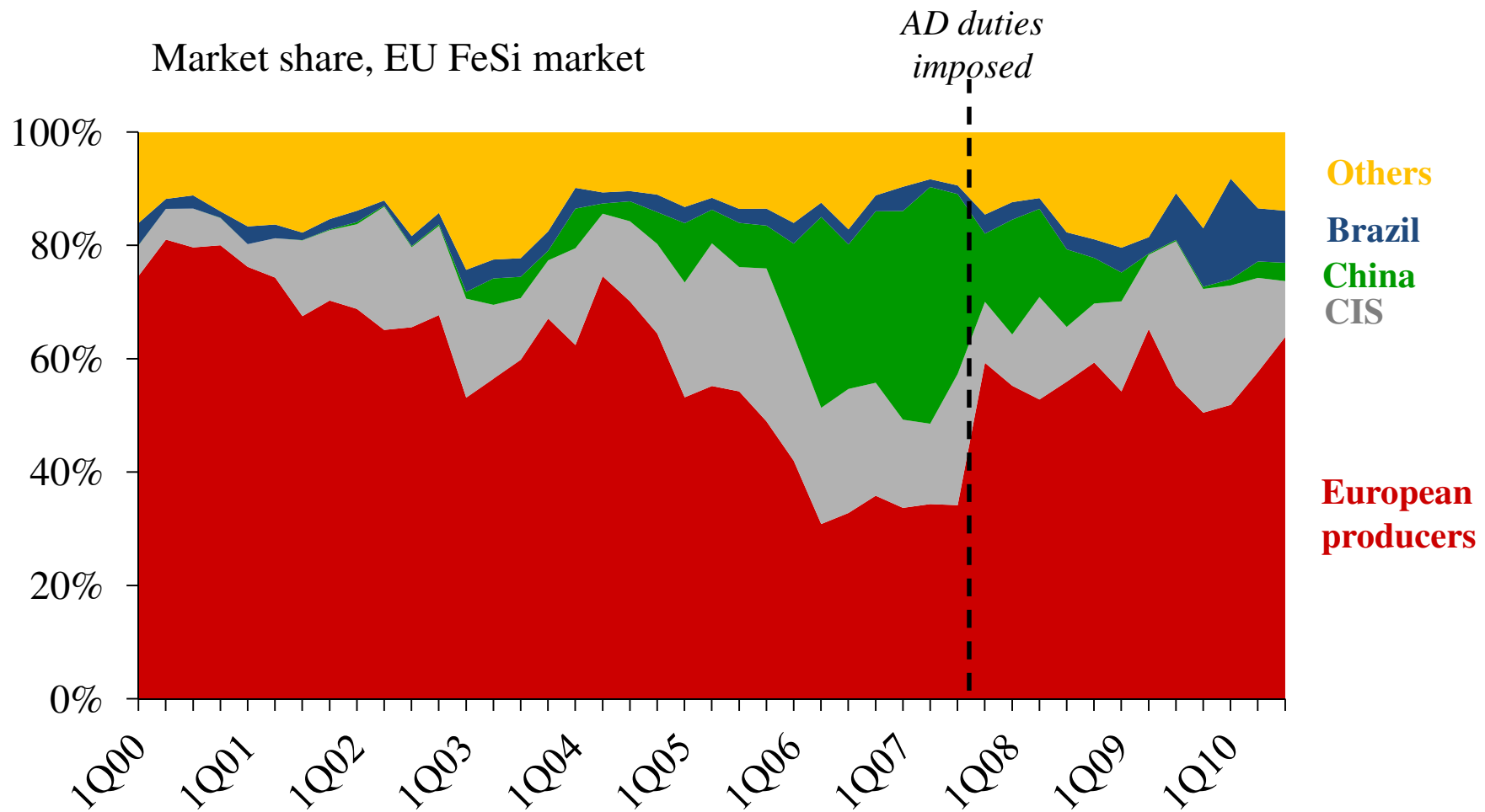
FeSi anti-dumping duty rates in the European Union

China – Erdos	16%
China – others	29 – 31%
Egypt	15 – 18%
Kazakhstan	34%
Macedonia	5%*
Russia	18 – 23%**

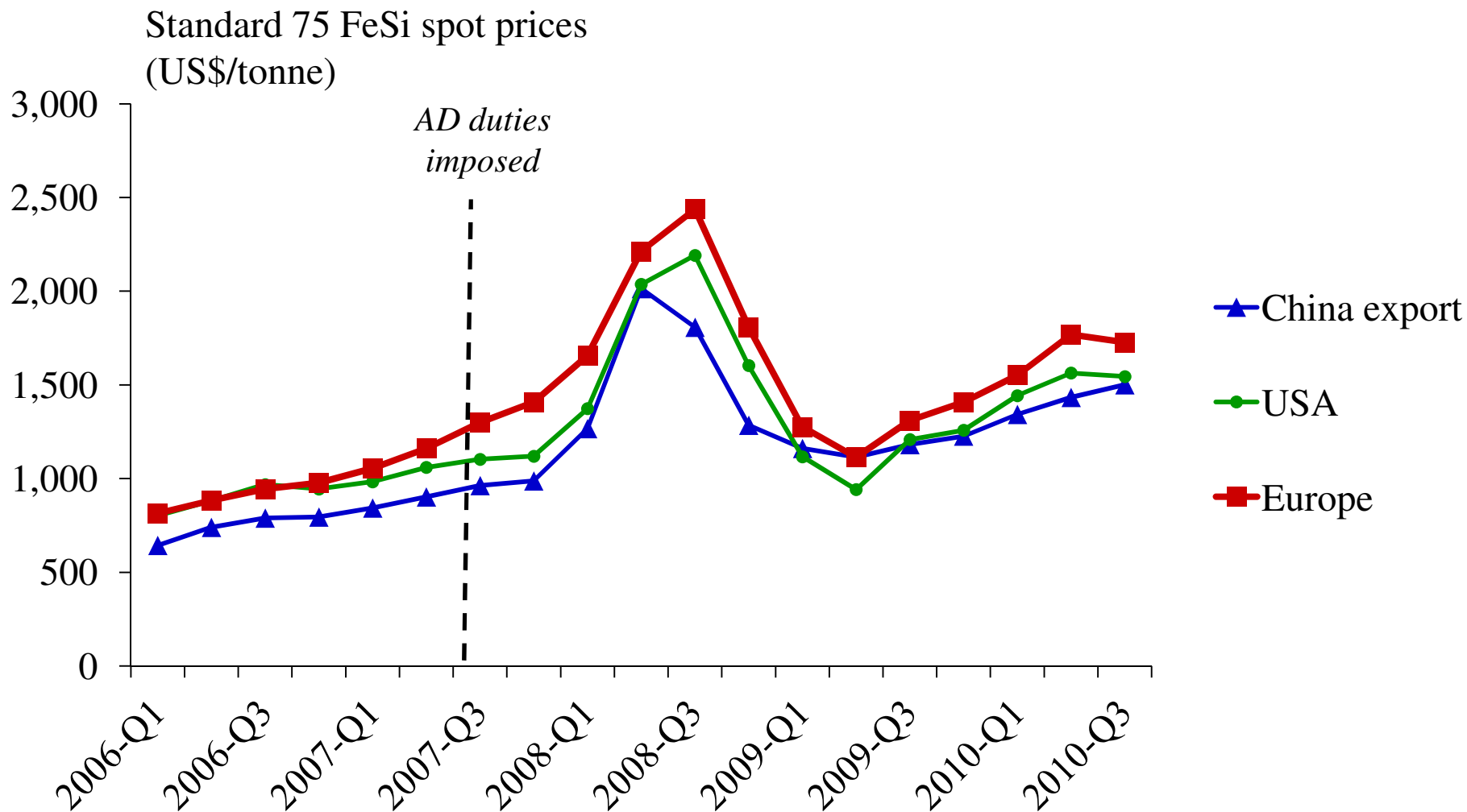
* Reduced to zero in review, Dec 2009

** Currently subject to review

European producers have significantly recovered their market share since AD duties were imposed

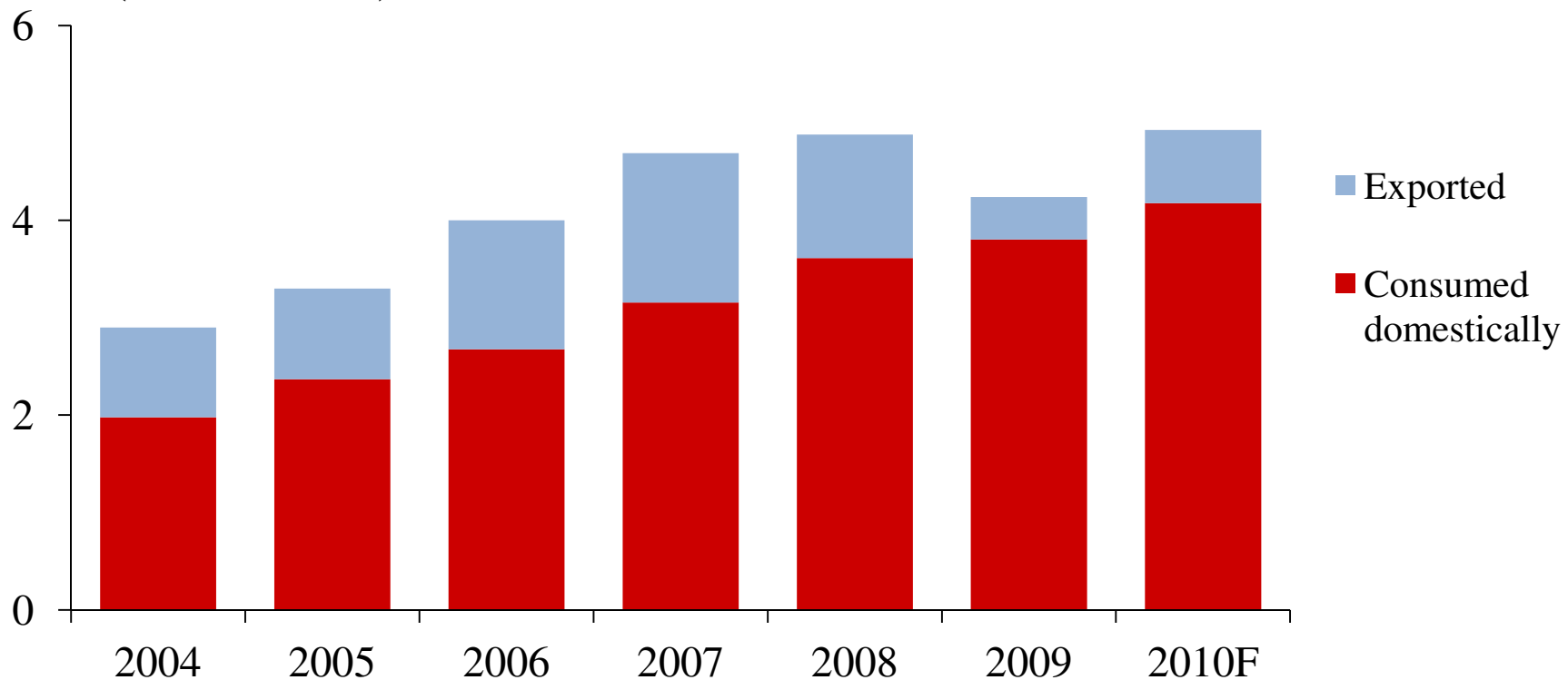


Since AD duties were imposed, European FeSi prices have held a consistent premium over other regions



China's FeSi exports unlikely to return to 2007-2008 levels due to rising domestic demand and export tax

Chinese FeSi production by destination
(million tonnes)

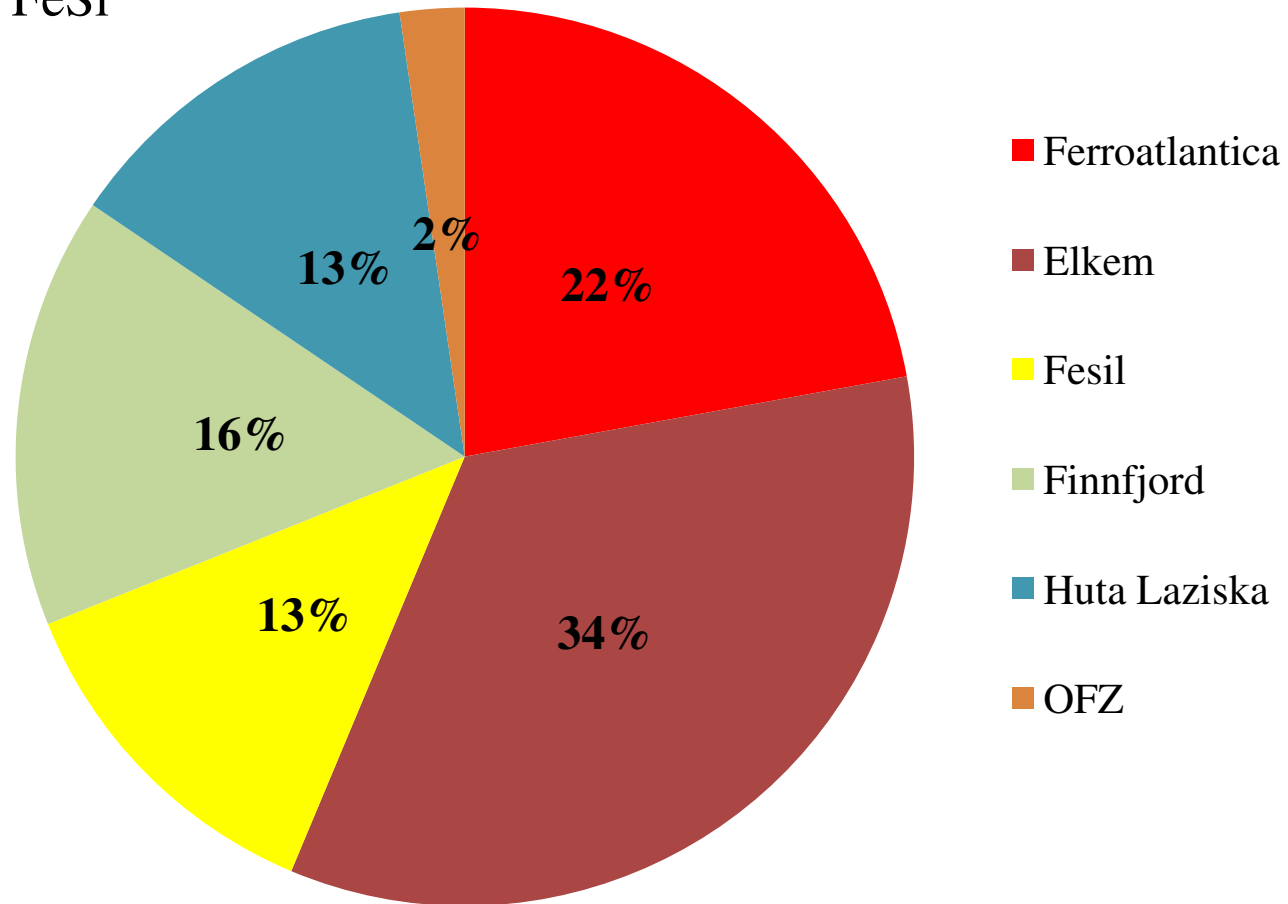


A map of the European ferrosilicon industry



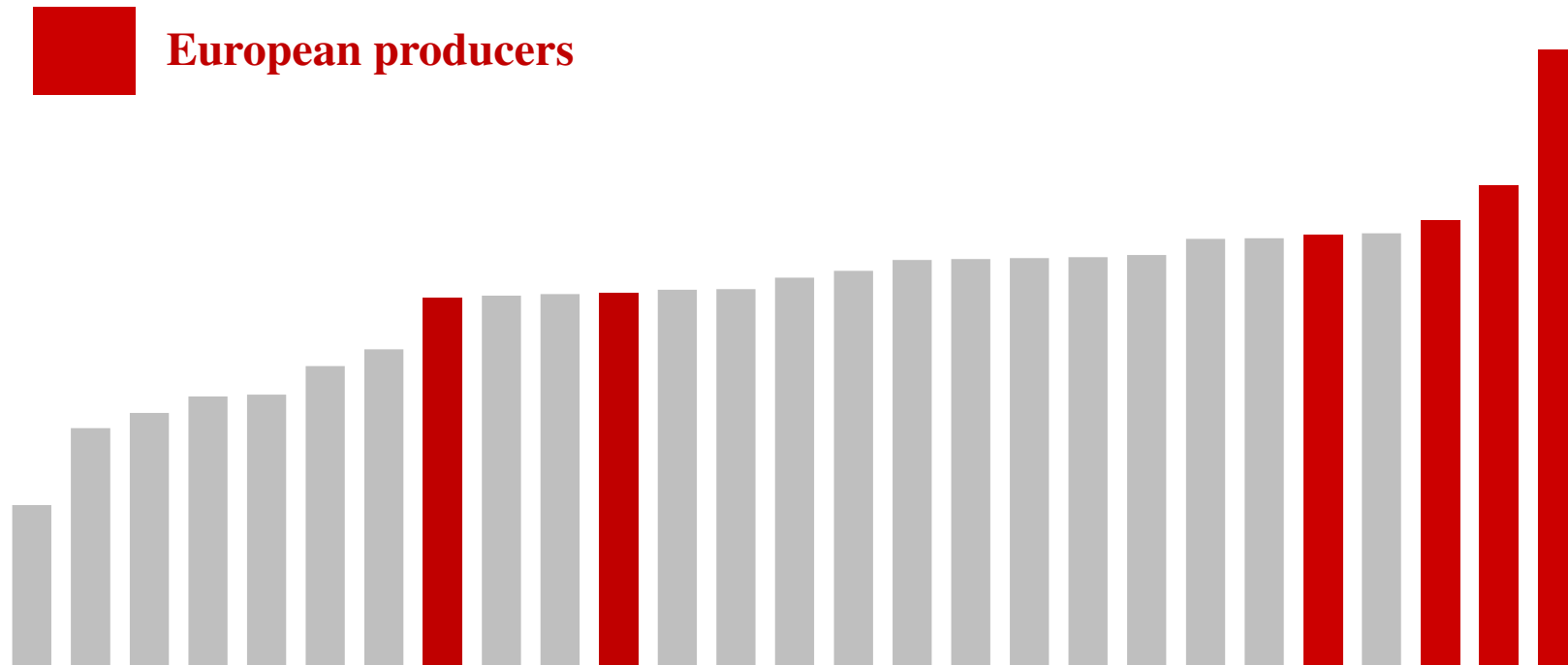
Over 50% of European FeSi output is controlled by two companies, and 98% is controlled by five companies

Share of European FeSi production (2010)



European FeSi production costs tend to be high, but that does not necessarily question their survival

Full production cost curve, FeSi
(global ex-plant ranking, excluding taxes and duties)



Reasons to be cautiously optimistic for the future of the European ferrosilicon industry

- The major producers remain leaders in the production of premium-priced speciality grades, with only limited competition from overseas. The European producers are also technology leaders in an era of increased environmental awareness and legislation
- Economics of exporting ferrosilicon from China to Europe are bad, even disregarding the existence of anti-dumping duties. China pulling back from exporting to other markets has also reduced exports to Europe from other sources
- Anti dumping duties against China likely to remain in place for next 2-3 years at least
- Changes in ownership structure of the European FeSi industry are likely, and should be a good thing

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