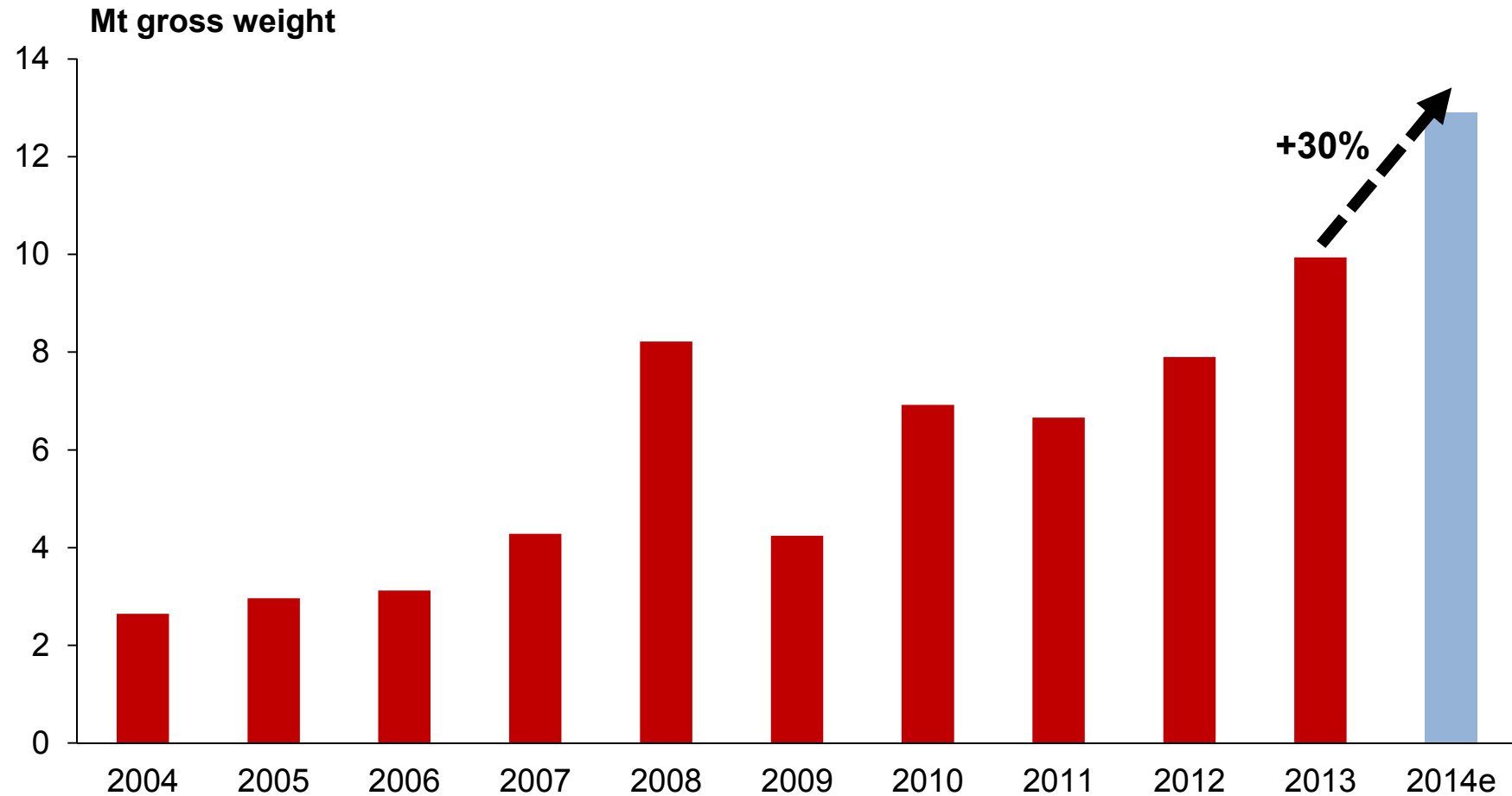
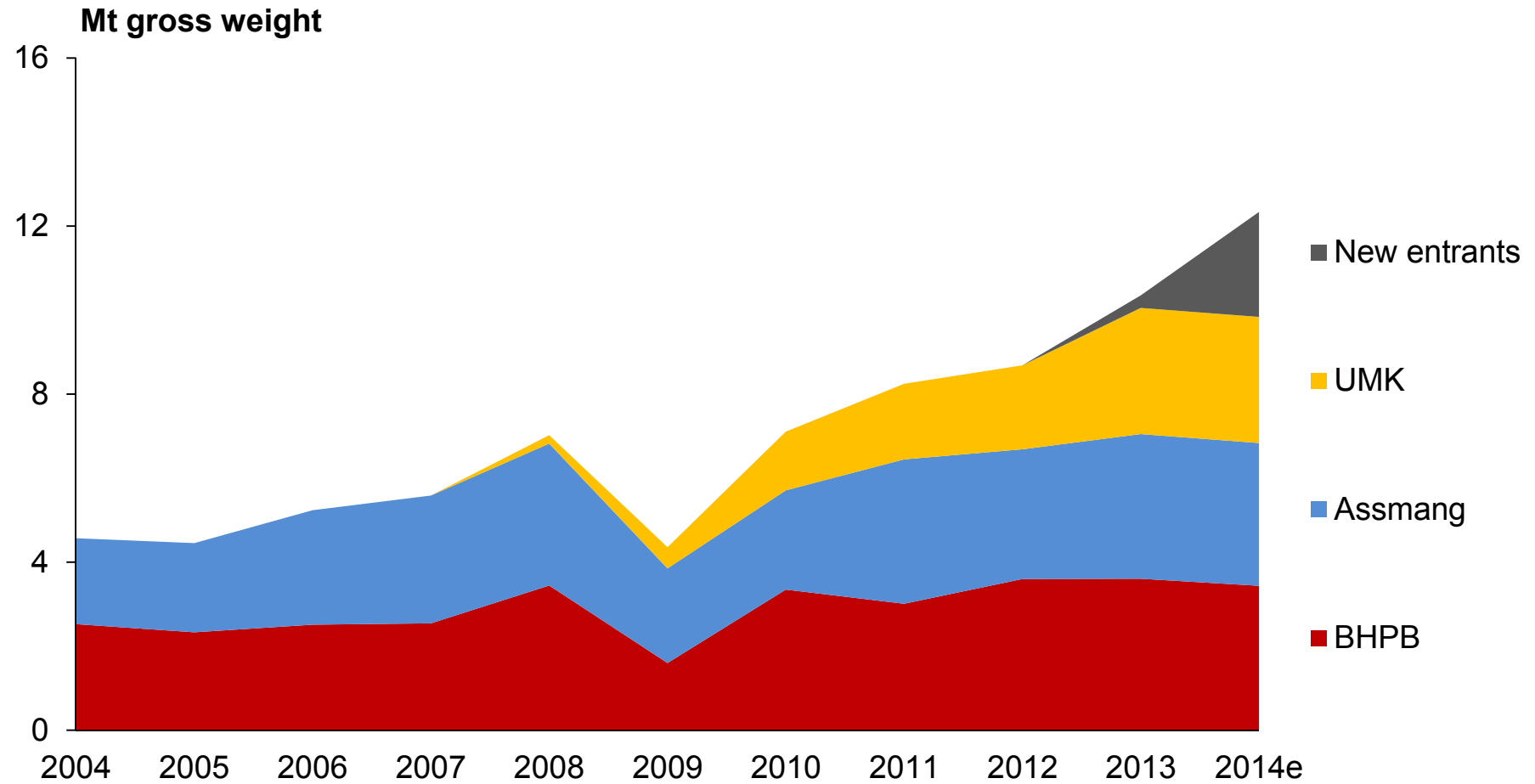


South Africa Mn ore exports



Estimated South Africa Mn ore production



For discussion: Manganese ore

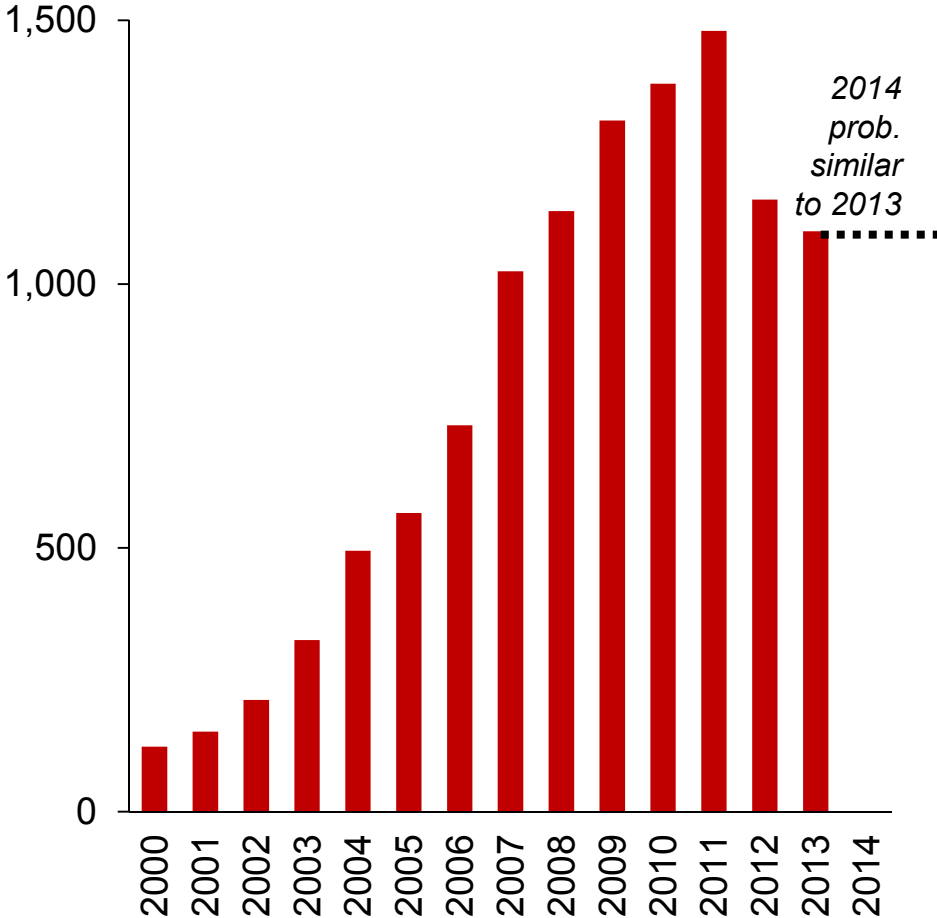
- Export of Mn ore from South Africa now exceeding capacity of “official channels” by many millions of tonnes per year
 - Iron ore paths through Saldanha (up to 4Mtpa?)
 - Widespread trucking & containerisation
 - Competitive boost from devaluing Rand
 - How sustainable is the situation?
 - Where does it leave Transnet’s plans for a new terminal at Coega?
 - Are we going to see oversupply & depressed prices indefinitely? Could lower oil prices + even weaker Rand bring down trucking costs and bring prices even further down?
- BHP Billiton are over 20% of world Mn ore production (much higher % of seaborne production). How could the spin out of their Mn business affect the ore market?

For discussion: Manganese alloys

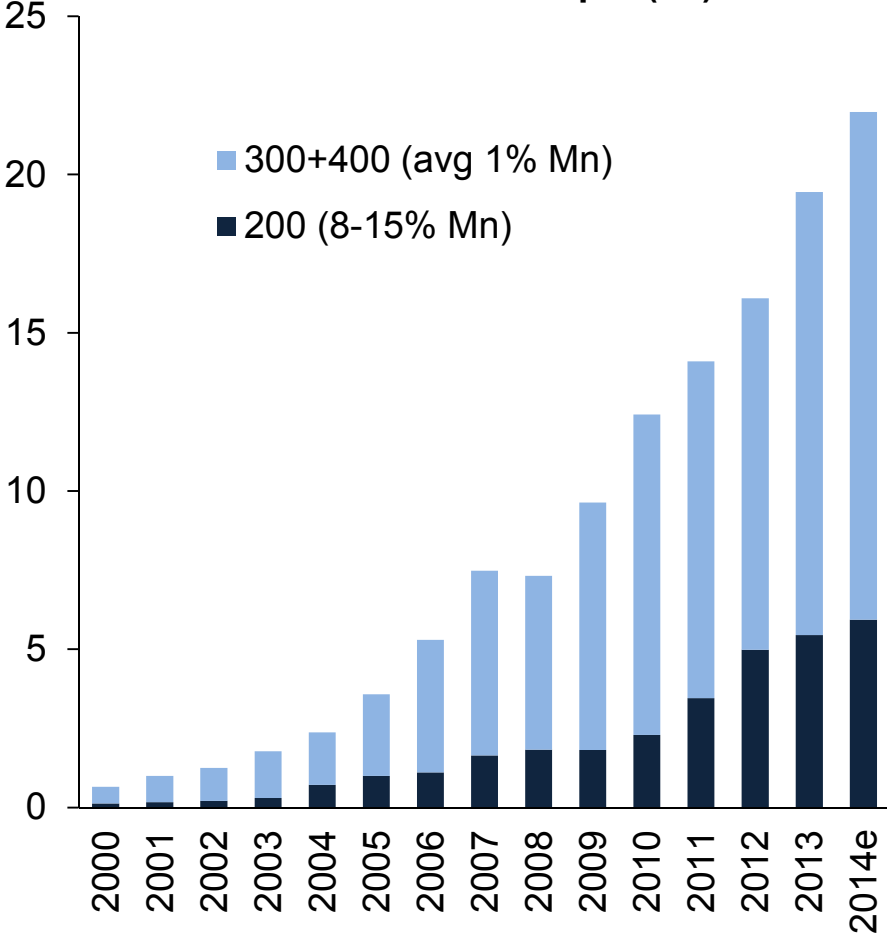
- What is happening with the Malaysian projects?
 - First two projects appear to be somewhat behind original schedule
 - Will the Assmang JV plant be the first of the three to start?
 - How do developments re. South African ore production impact on the business case of the projects? Will they reach their target volumes and when?
 - What impact does the resurgence of Chinese FeSi exports have (and continued increase of smuggling via Vietnam)?
- BHP Billiton potential spin-out – will the new entity bring Mn alloy sales back in-house, and how will this impact the markets?
- Situation in Ukraine

The curious case of manganese metal

Chinese Mn metal production (kt)



Chinese stainless steel output (Mt)



The curious case of manganese metal

- China accounts for 97% of world Mn metal production. Its output has fallen by approx. 300ktpa since 2011, despite main consumption sector for Mn metal (stainless steel 200) growing quite strongly
 - Not likely that production has rebounded much in 2014, given increase in prices & continued press stories about plant closures? What of Ningxia Tianyuan's enormous production ambitions (up to 800ktpy)?
 - What is feeding the increased demand from stainless steel, if not EMM?
 - Refined alloys (LC SiMn)? What share does this now have of supply to the Chinese stainless market? Who are the producers and do they produce? What impact has Eramet's new Guilin plant had on this?
 - Are we seeing "better 200"? (ie. less Mn, more Ni?). Less EMM going into other applications (carbon steels)?
- New EMM plant in Gabon, and projects in North America, and their likely impact on the market