OVERVIEW OF THE MERCHANT PIG IRON MARKET AND SOME CURRENT ISSUES

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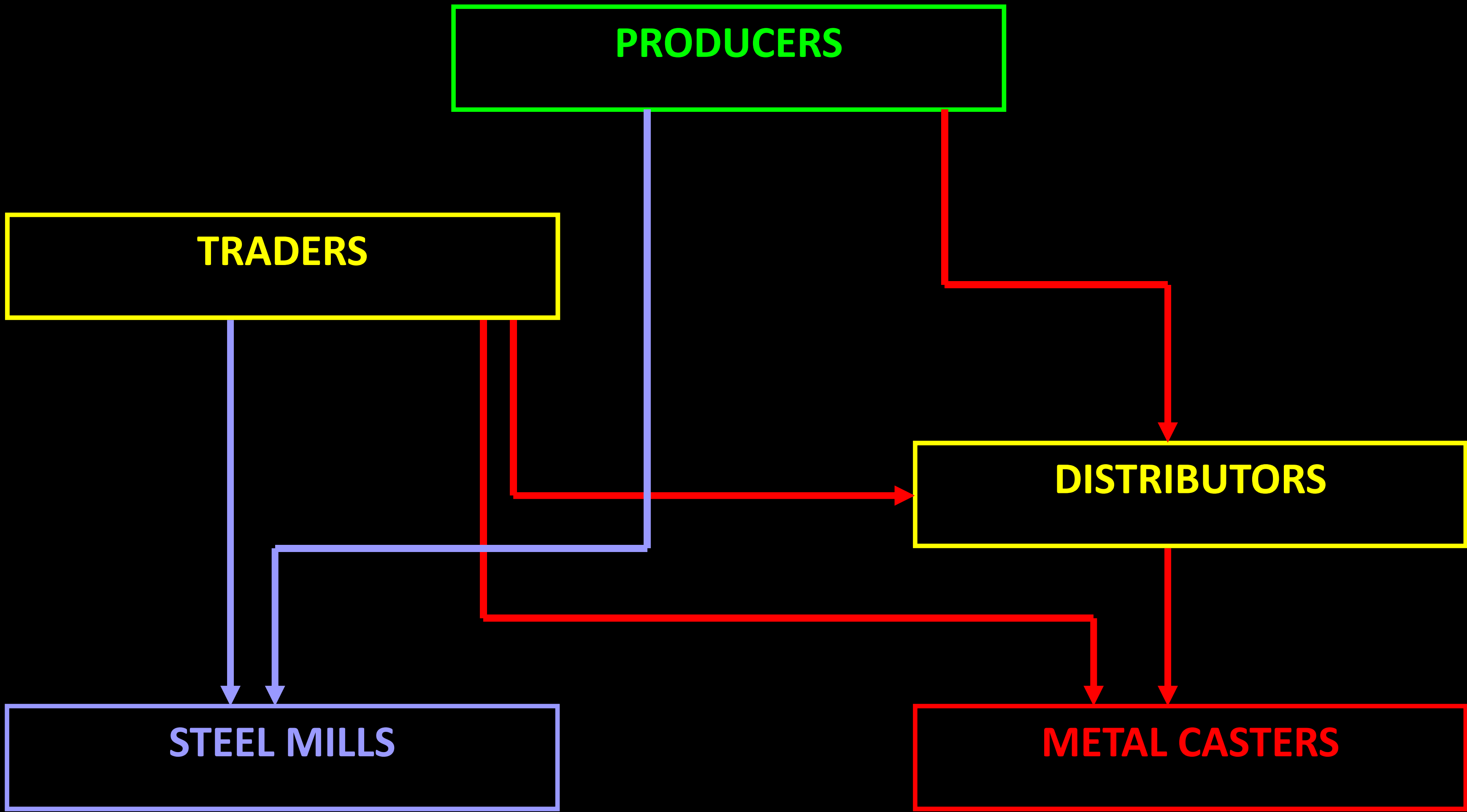
BASICS

- The International Pig Iron Association is an industry association for PRODUCERS and TRADERS of Merchant Pig Iron
- Merchant Pig Iron is:
  - ❖ Pig iron produced by dedicated merchant plants for sale to external customers
  - ❖ Pig iron produced by integrated steel mills that is surplus to in-house requirements and offered to external customers
- Merchant pig iron is produced
  - ❖ by smelting iron ore in blast furnaces
  - ❖ by smelting ilmenite in electric furnaces

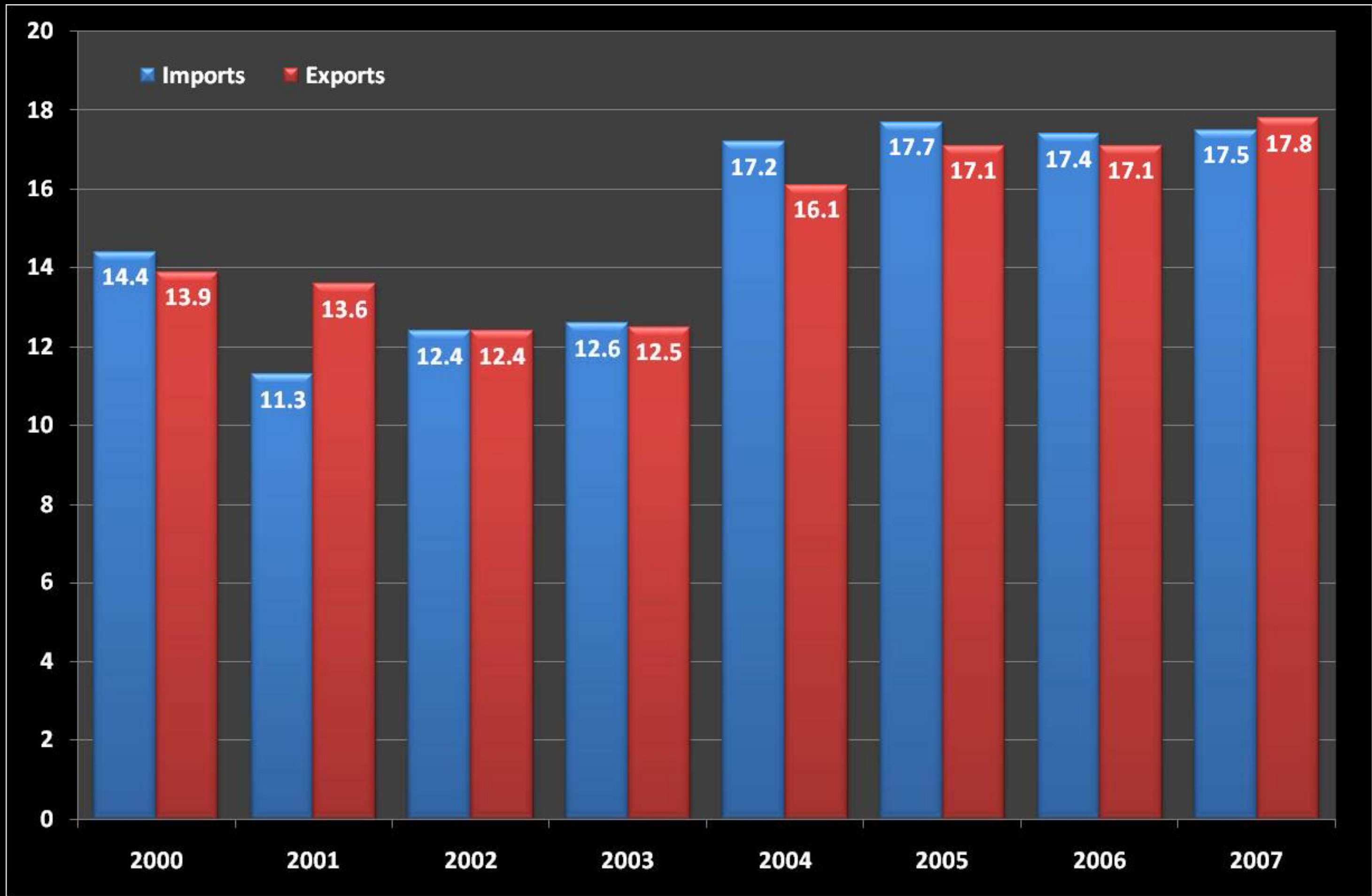
TYPES OF MERCHANT PIG IRON

- **BASIC PIG IRON - for EAF steel production [and also iron castings]**
  - **3.5-4.5% carbon, <1.5% silicon, 0.5-1.0% manganese, <0.05% sulphur, <0.12% phosphorus**
- **HAEMATITE or FOUNDRY PIG IRON - for grey iron castings**
  - **3.5-4.5% carbon, 1.5-3.5% silicon, 0.5-1.0% manganese, <0.05% sulphur, <0.12% phosphorus**
- **NODULAR PIG IRON - for ductile iron castings**
  - **3.5-4.5% carbon, <0.05% manganese, <0.05% sulphur, <0.05% phosphorus**

MARKET STRUCTURE



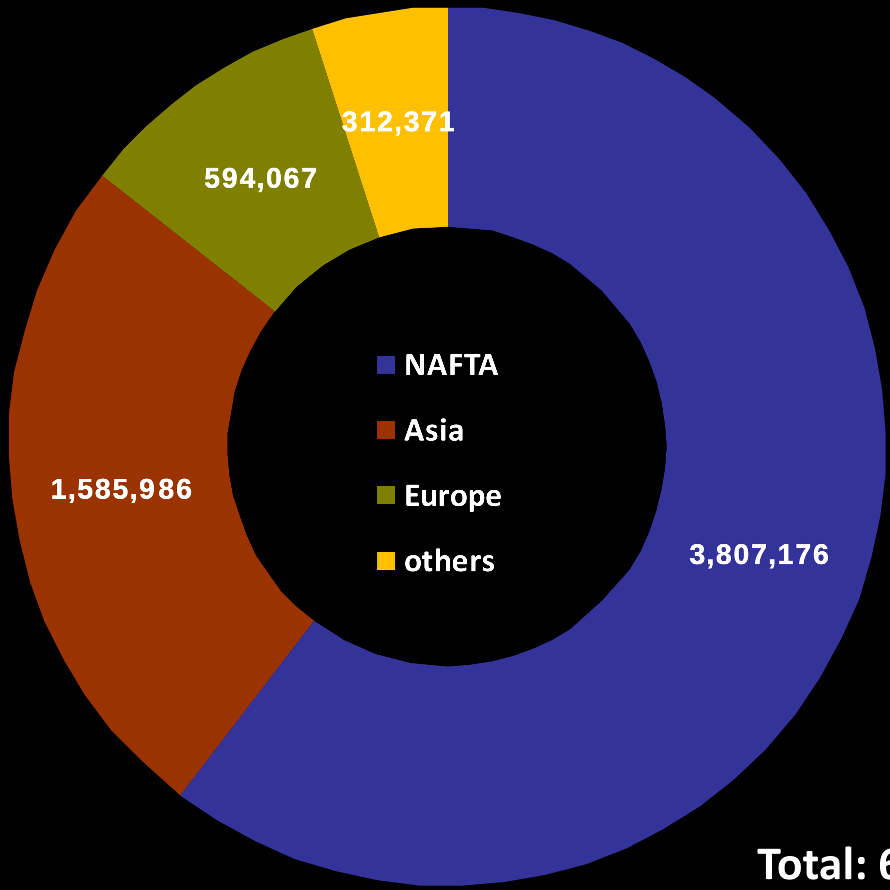
GLOBAL INTERNATIONAL TRADE



GLOBAL TRADE

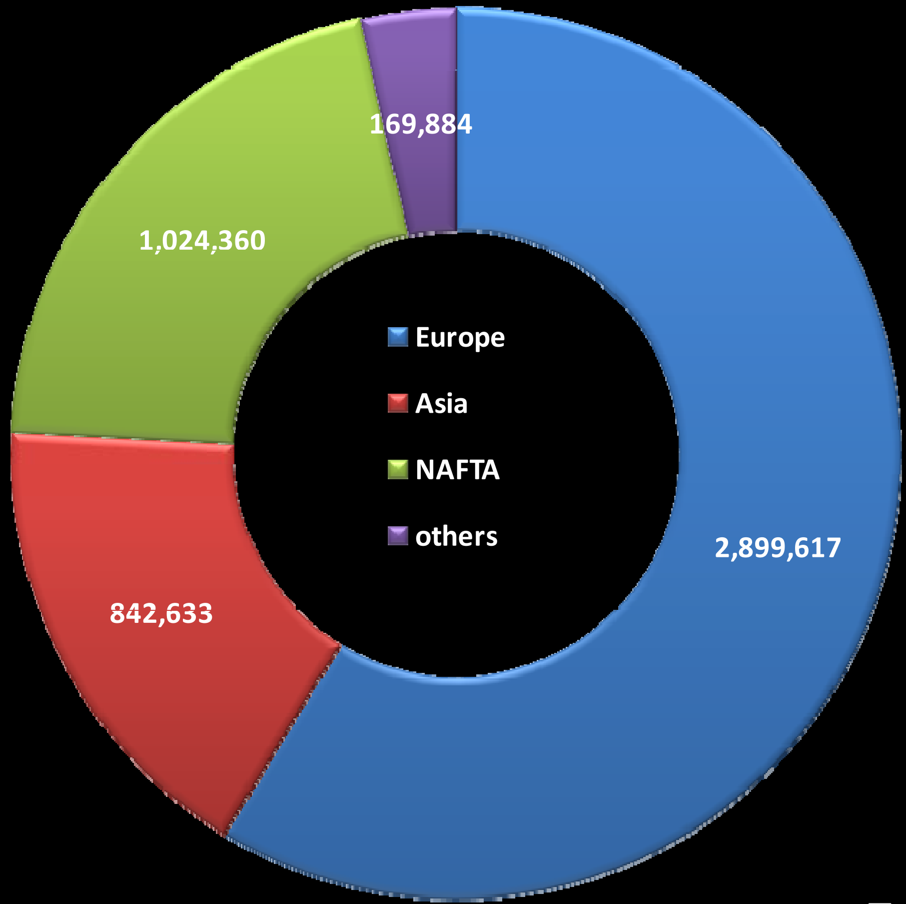
- **In addition to international trade in pig iron there is domestic trade:**
  - **in Russia/Ukraine: 1.6 mt**
  - **in Brazil: 3.5 mt**
  - **in European Union countries: 0.75 mt**
  - **in India: 2.5 mt**
  - **in Japan: 0.6 mt**
  - **Others: about 0.75 mt [Canada, South Africa, South Korea, etc.]**
- **Total global pig iron trade - *excluding China* - in 2007 was about 27.5 mt**
- **Add perhaps >30 mt for China = >57.5 mt in 2007**

BRAZILIAN MPI EXPORTS 2008



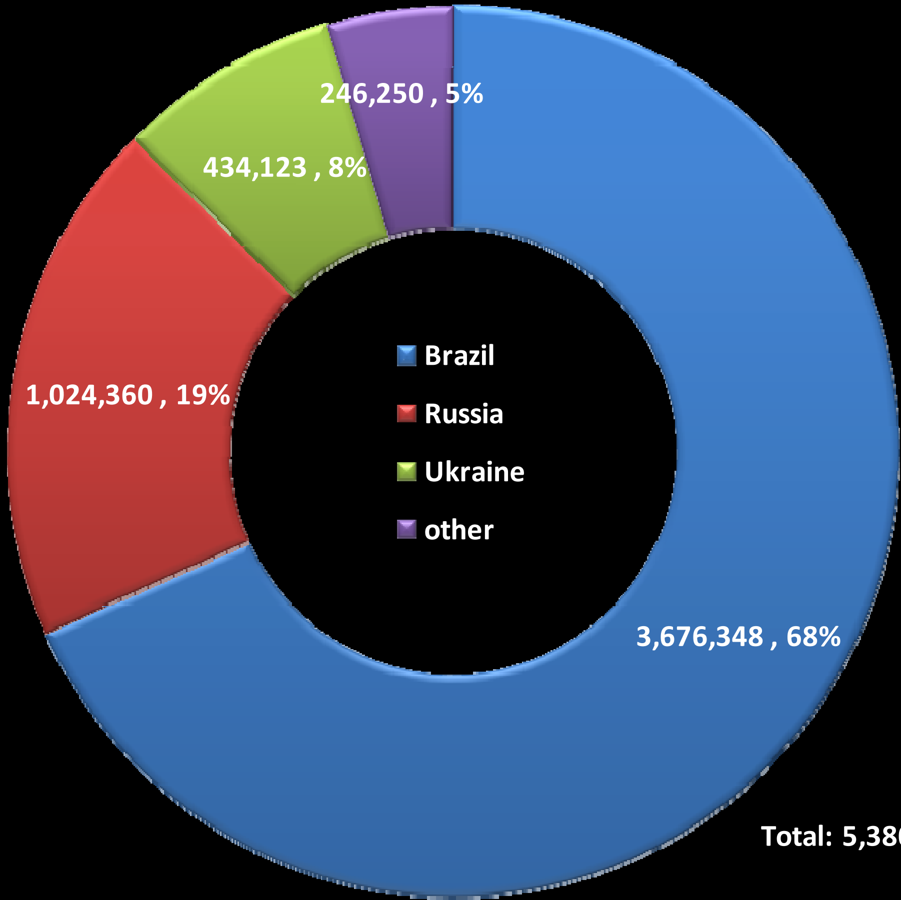
Total: 6,023,838 tonnes

RUSSIAN MPI EXPORTS 2008



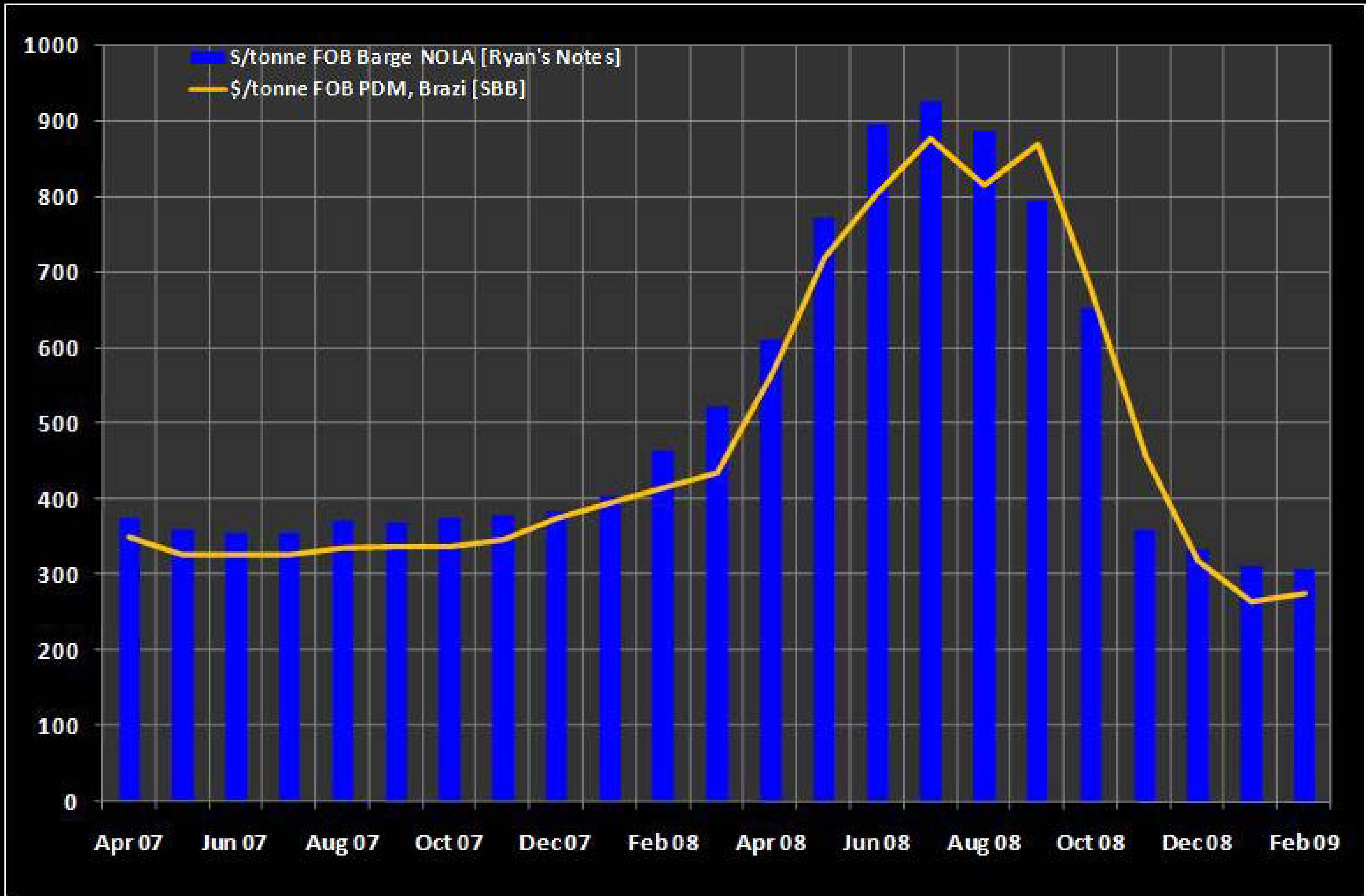
Total 4,936,494 tonnes

USA MPI IMPORTS 2008



Total: 5,380,081 tonnes

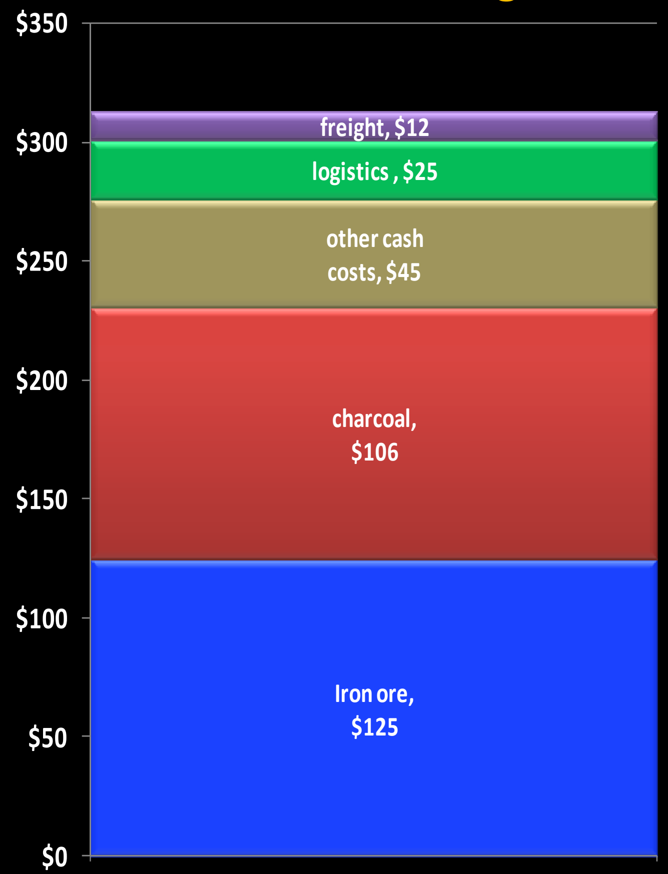
MPI PRICE DEVELOPMENT



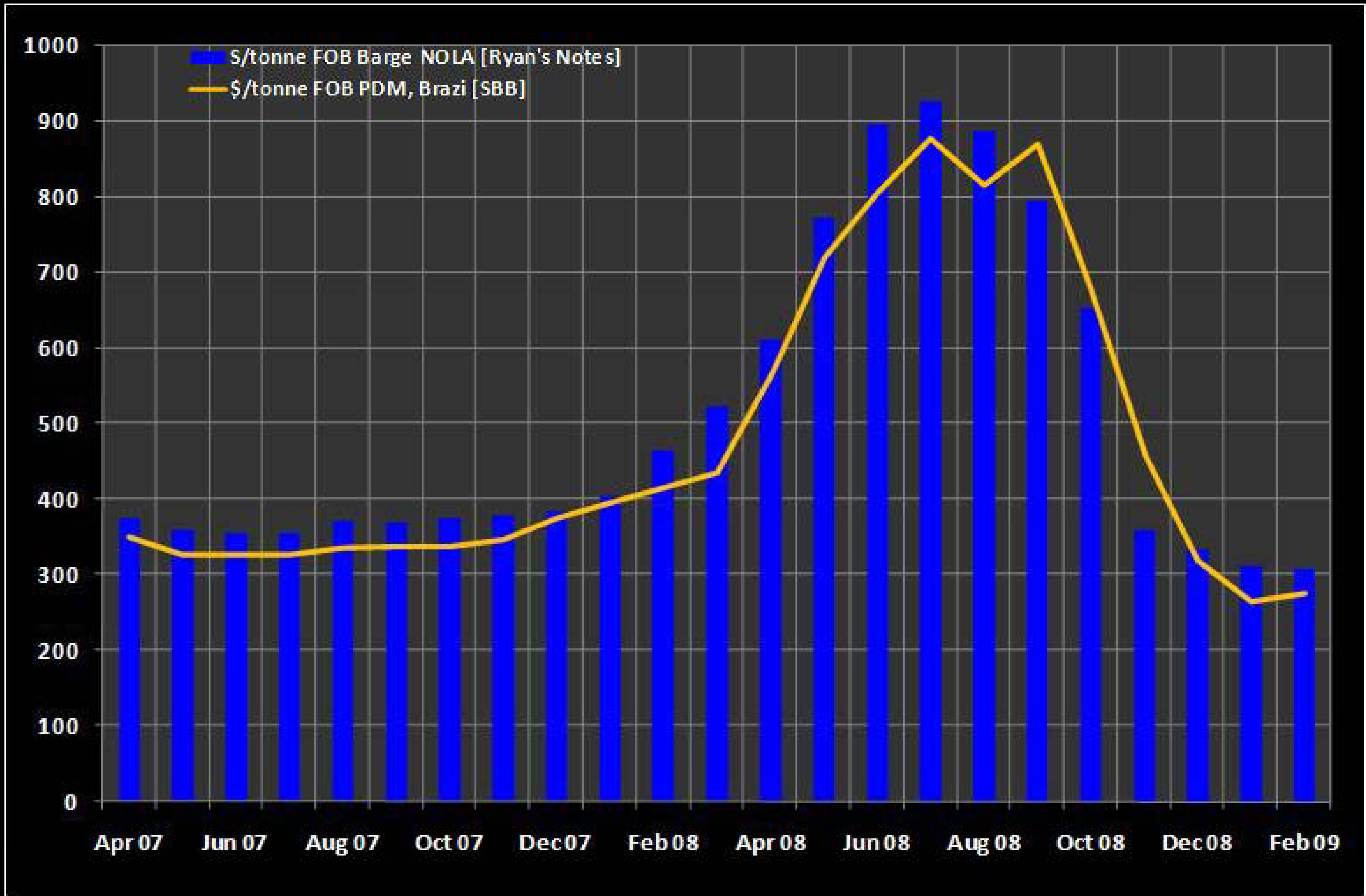
VALUE CHAIN

- **Raw Materials**
  - Iron ore [~1600 kg / 1000 kg pig iron]
  - Coke or charcoal [500-600 kg or 2.5-3.0m³ / 1000 kg pig iron]
  - Fluxes, etc.
- **Production**
  - Smelting + metal treatment + casting
- **Logistics**
  - Delivery to FOB [barge/rail/terminal, etc.]
  - Ocean freight
  - Delivery to customer [discharge/barge/rail/truck/stockyard, etc.]
- **Financing**
- **Trader/distributor margin**

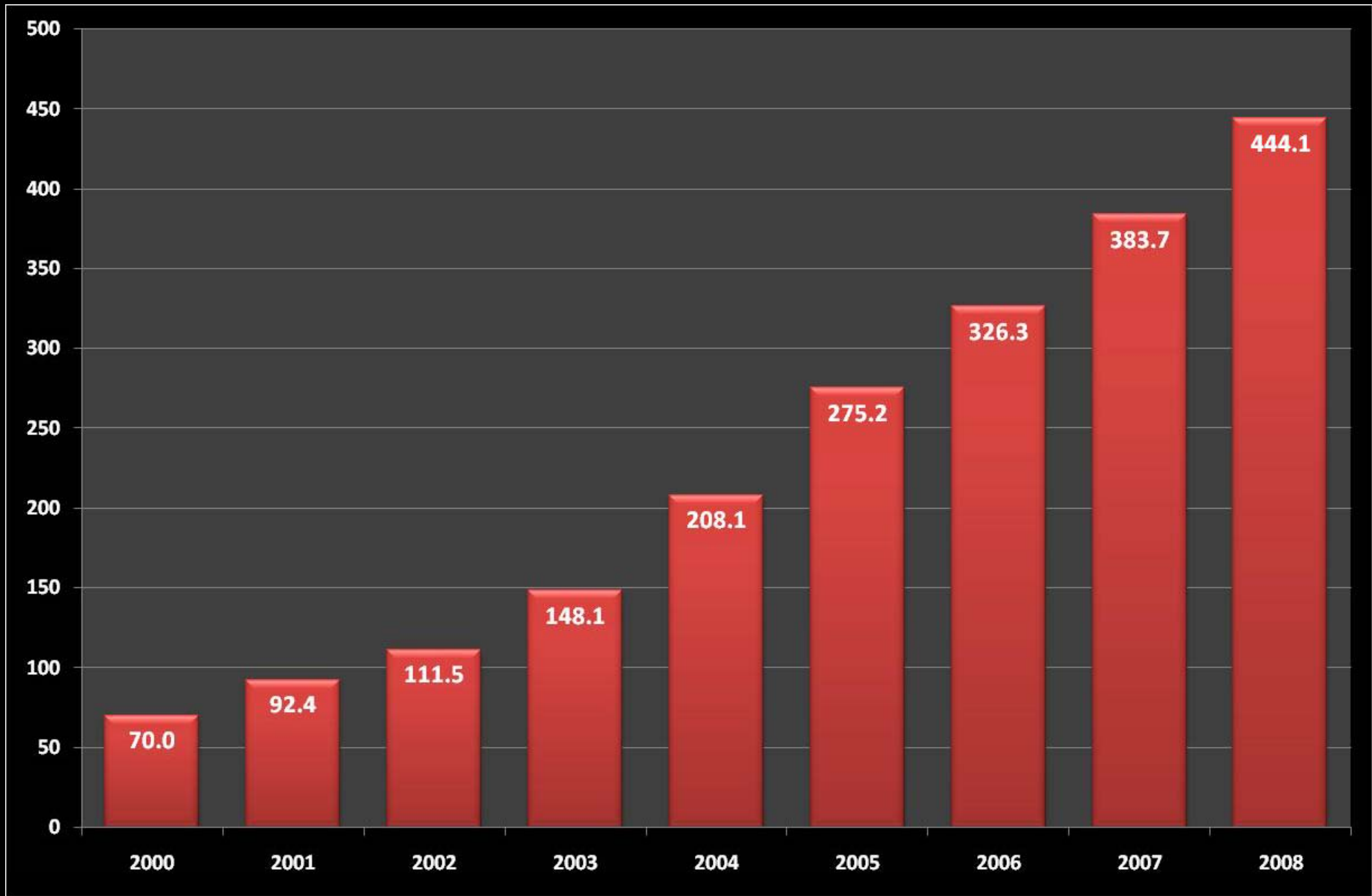
Cash costs to FOB barge NOLA



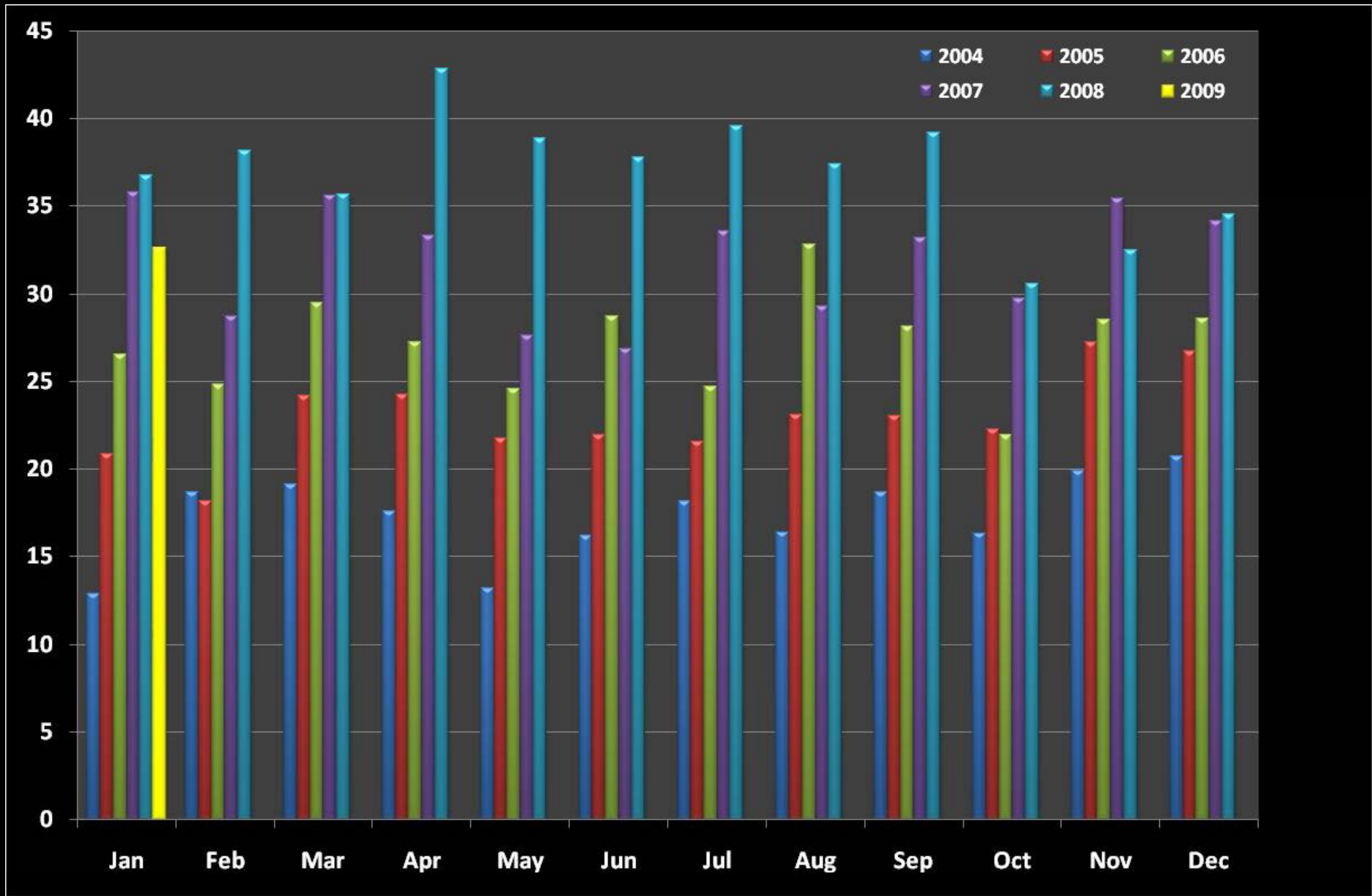
MPI PRICE DEVELOPMENT



CHINESE IRON ORE IMP0RTS



CHINESE IRON ORE IMPORTS



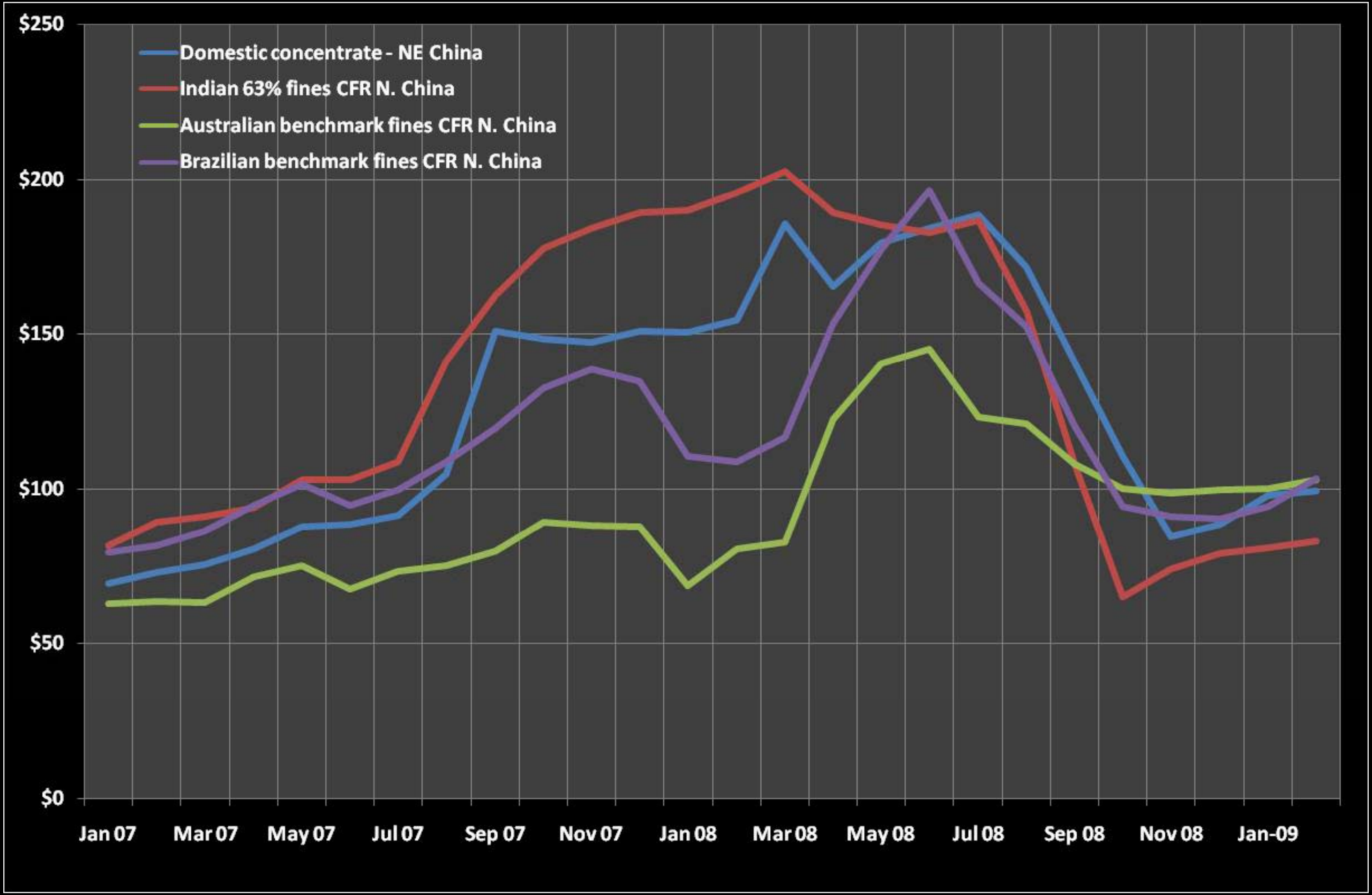
IRON ORE MARKET STATUS

- Most producers have scaled back production with reduced demand, while some have increased sales to the spot market.
- Chinese demand picked up over Q4 2008 and more or less held firm in January.   Buying activity appears to have slackened in February.
- Pellet market has all but collapsed - major producers have cut back production drastically - what is different this time is that demand has fallen back from both the BF and DR sectors.
- Annual benchmark price negotiations have started, but may be protracted as producers hold out for improved market conditions - opening positions are far apart.
- Spot prices have fallen in line with weak demand and much reduced freight rates.

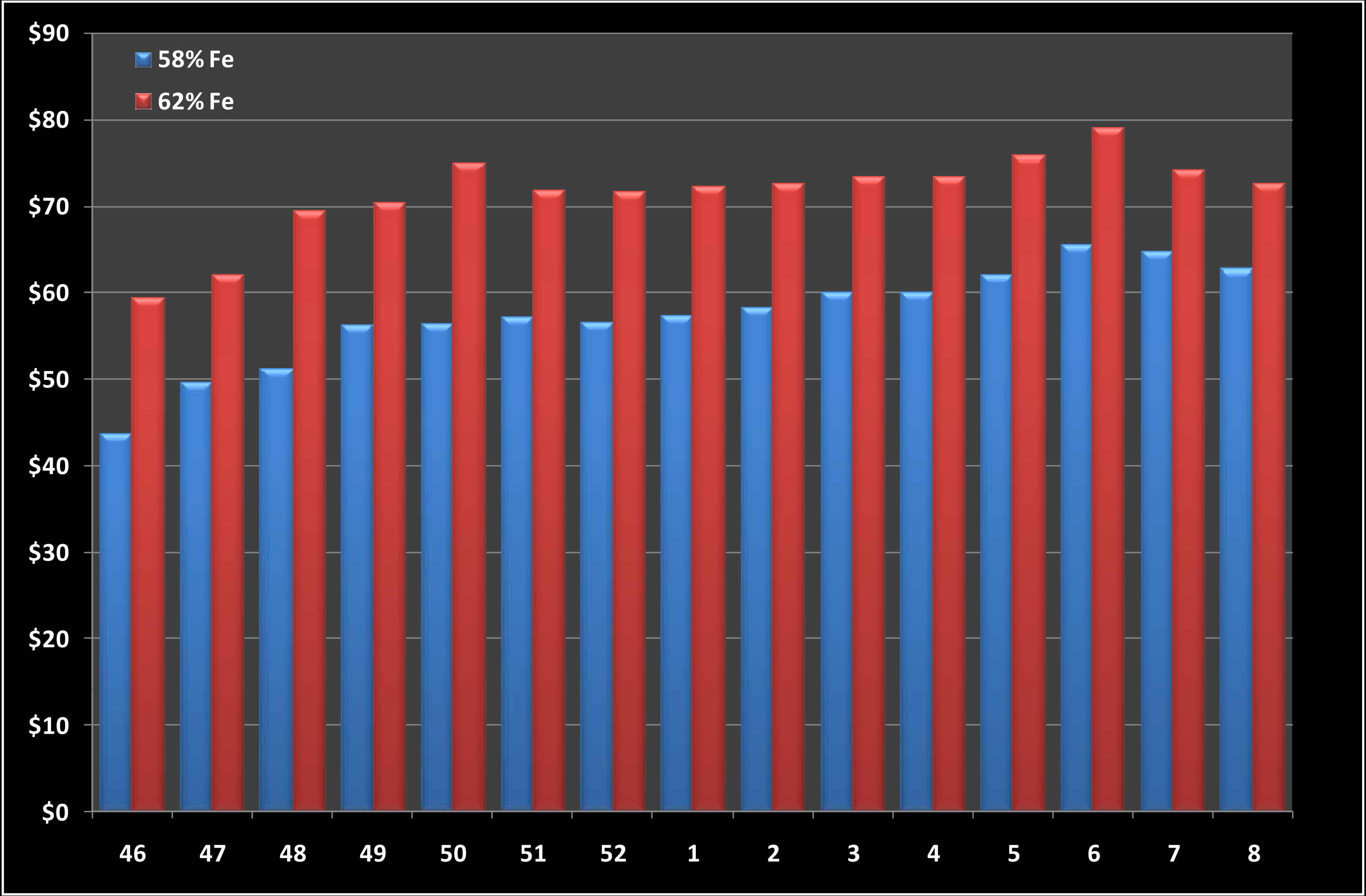
IRON ORE PRICE OUTLOOK

- **Until January the consensus forecast for benchmark fines was a reduction of 20-40% . More recently, with spot market prices having firmed, forecasts have become less bearish - Credit Suisse has estimated no change to -9% for Brazilian fines and -20% for Australian fines. Some are even talking about increases.**
- **However, there is a weak tendency in the spot market with the large tonnages booked in January arriving in March - perhaps 40 mt is on the way.**
- **The logical conclusion should be that benchmark contract prices will converge with the spot price level - a moving target with both spot prices and freight rates subject to rapid change. Eventually someone will take a view.**
- **Pellet and lump premiums are likely to fall significantly.**

IRON ORE PRICE DEVELOPMENT



SBB IRON ORE INDEX: WEEKLY DATA

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