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The economics of Oil & Gas Sea Transportation

ABSTRACT

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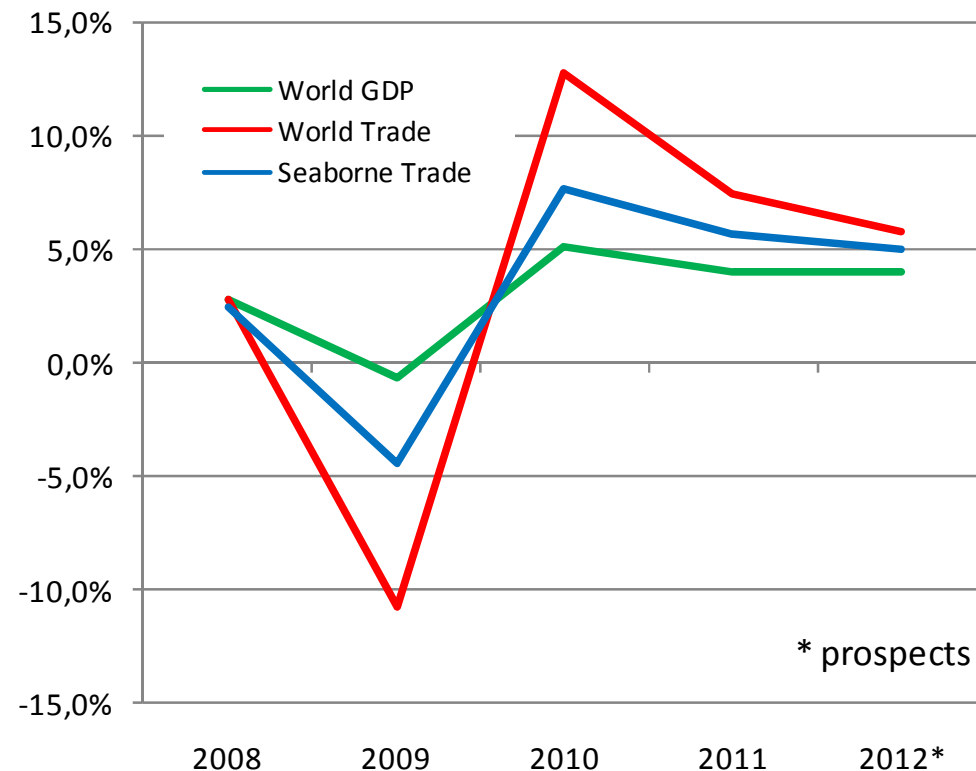
Presentation layout

- ❖ Oil & Gas sea transportation in a global context
- ❖ Main aspects and idiosyncrasies
- ❖ The economics of energy shipping
- ❖ Reflections on latest and upcoming developments

Taking a global view

- ❖ The economics of the **SHIPPING** industry are closely associated with **GLOBAL** economic developments
- ❖ ...even more so when we are talking about **ENERGY cargoes**
(add the **GEOPOLITICS** of energy dimension)

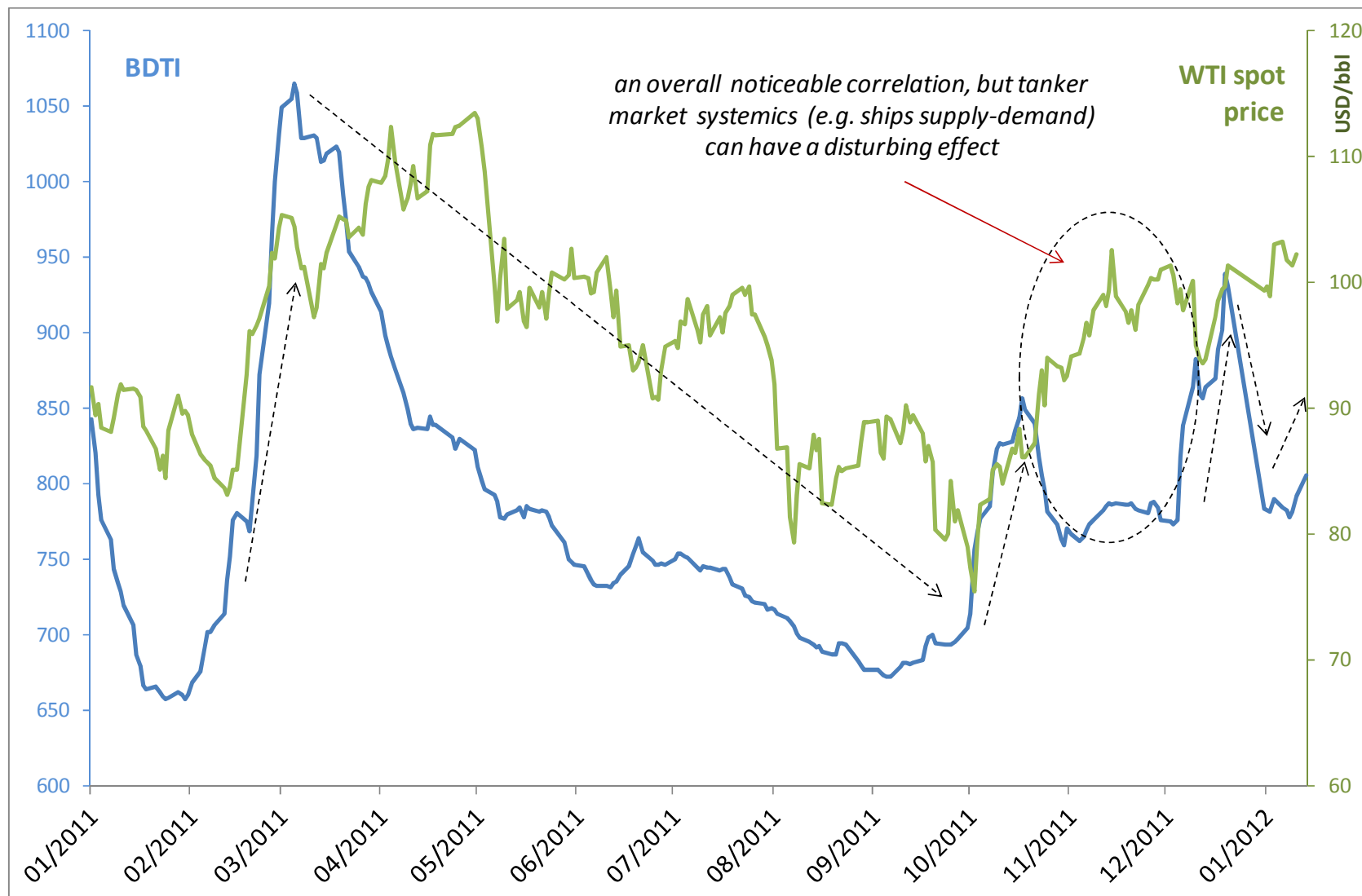
World GDP Growth vs Trade





Taking a global view

Shipping rates are not irrelevant to global economic indicators





Main aspects and idiosyncrasies of Oil & Gas shipping

ENERGY cargoes (*Crude Oil, Products & LPG, Steam Coal, LNG*)

Oil and Liquefied Natural Gas shipping:
similar, yet so different as two extremes

❖ Some similarities

- ❖ Both liquid cargoes transported with tankers
- ❖ Both with international “energy- critical” trade patterns

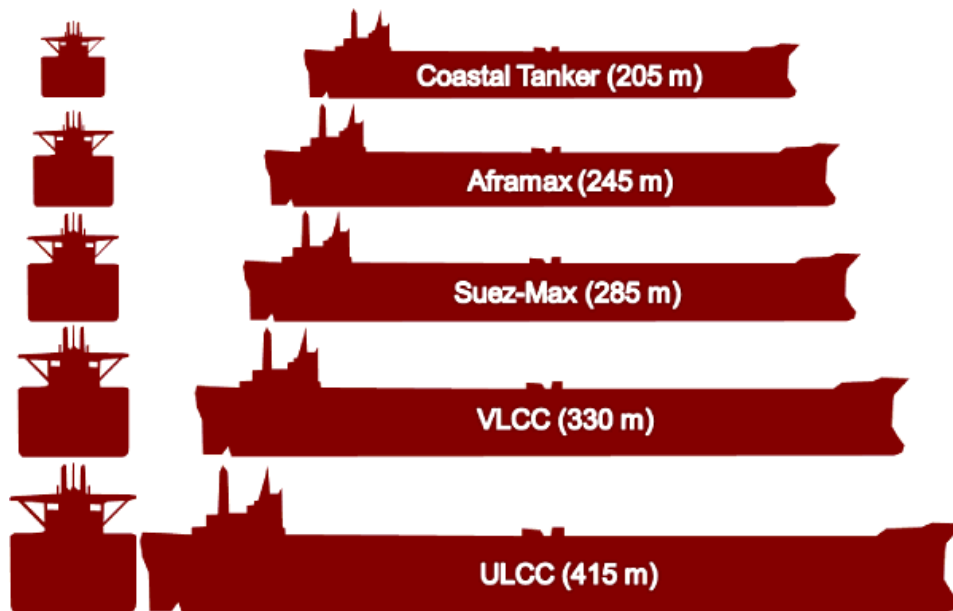
❖ Many differences

- ❖ *Oil*: traditional and established / *LNG*: developing, the future
- ❖ *Oil*: perfectly competitive and fluid / *LNG*: rigid structure
- ❖ *Oil*: many players / *LNG*: few layers , “closed” club
- ❖ *Oil*: not expensive to transport / *LNG*: the most expensive bulk shipping segment

The economics of energy shipping

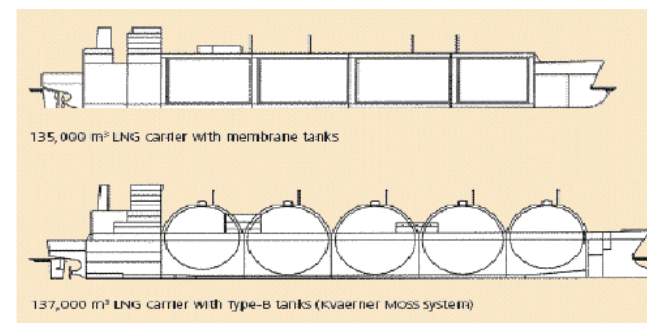
- ❖ The **energy trades** dominate (more than 50%) bulk shipping (the international shipping industry is responsible for the carriage of about 90% of world trade)
- ❖ The cost of carrying small cargoes is much higher than the cost of large cargoes: **economies of scale** dominate shipping economics

Oil tankers



Source: hofstra.edu

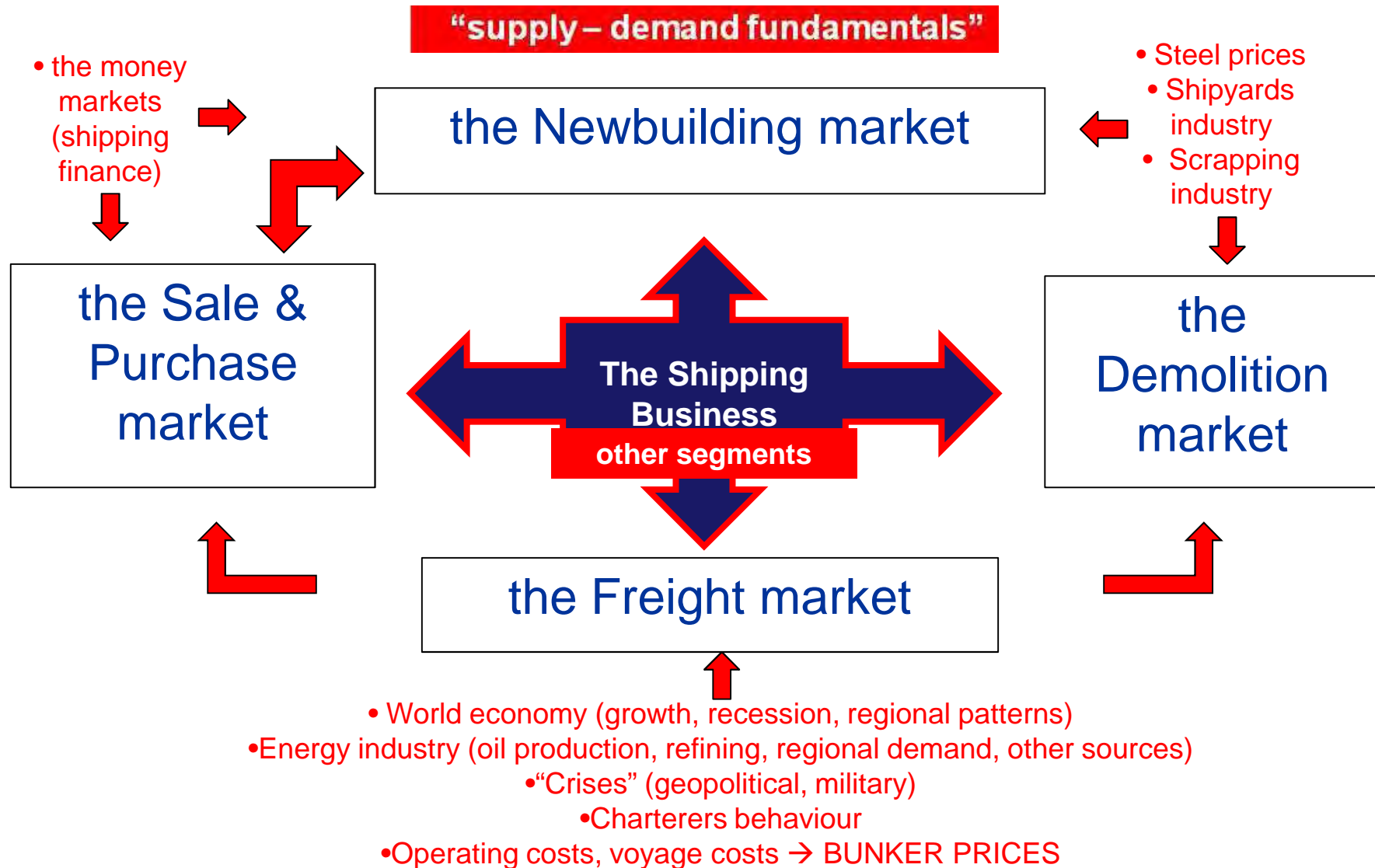
LNG carriers



	LOA (m)	Breadth (m)
135k cu.m. membrane	280	43
216k cu.m. membrane	303	50

The economics of energy shipping

❖ The mechanisms



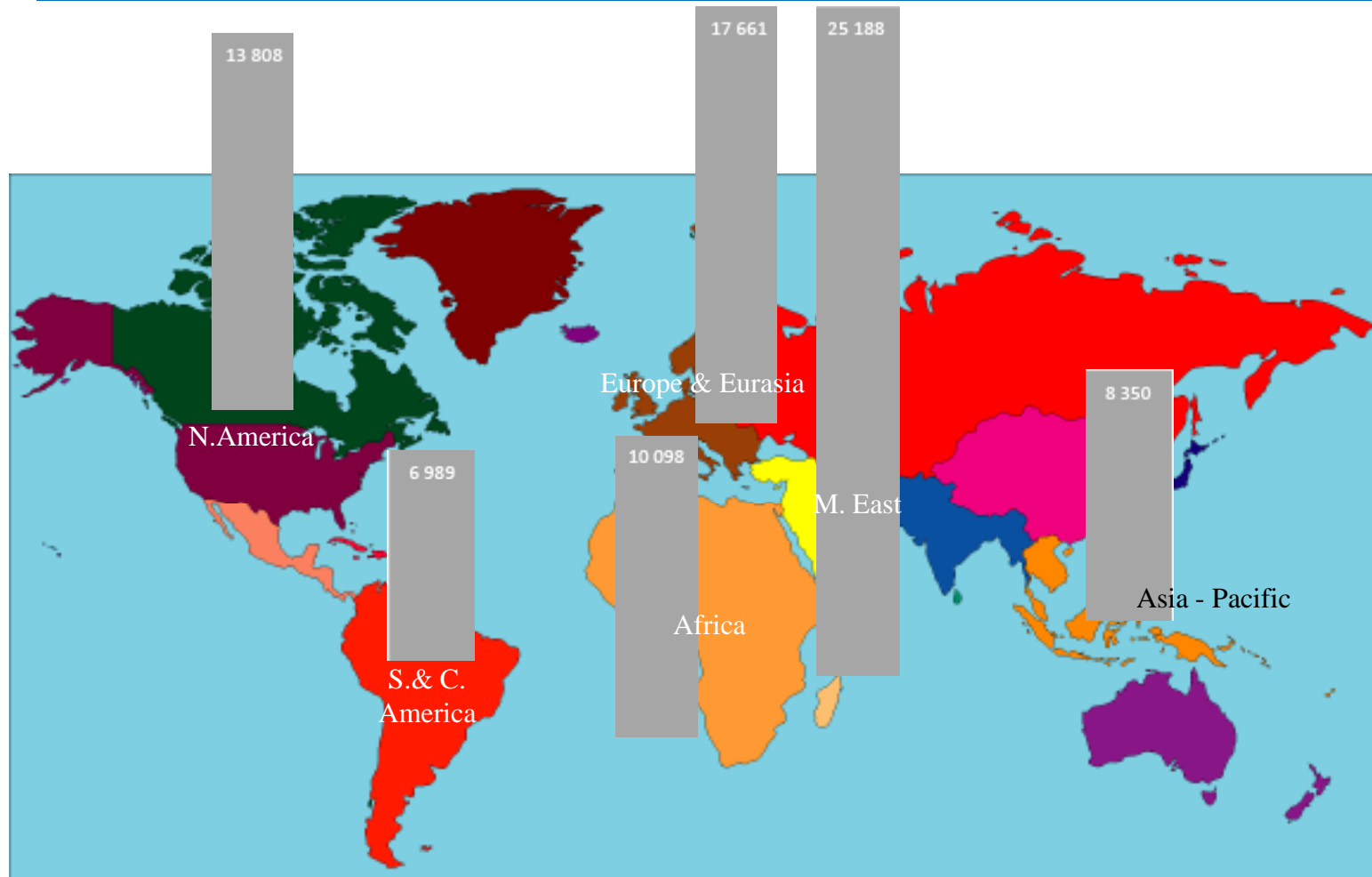


Reflections on latest and upcoming developments In the CRUDE OIL SHIPPING market





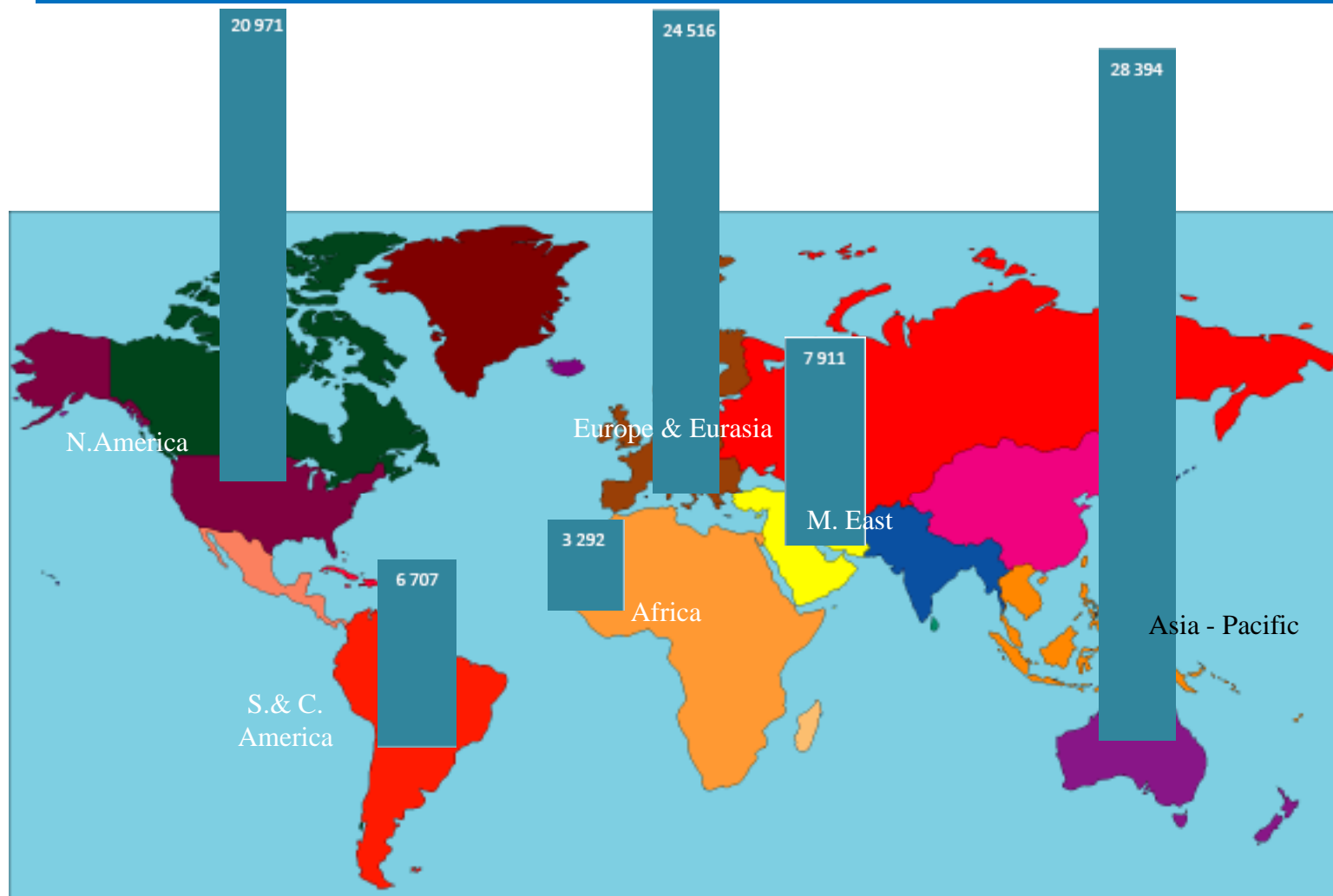
CRUDE OIL PRODUCTION* ('000 bbls / day)



* based on BP data for 2010



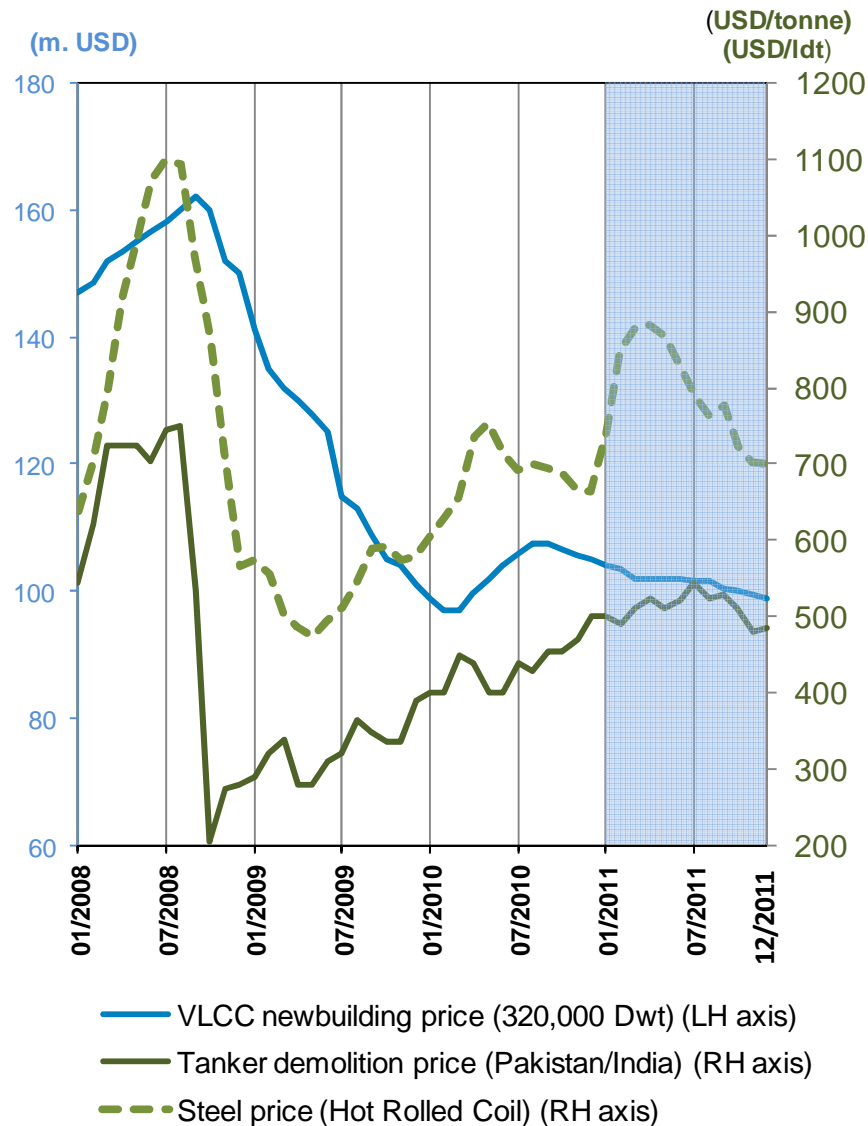
REFINERY CAPACITIES* ('000 bbls / day)



* based on BP data for 2010



Low newbuilding prices offer investment opportunities in crude oil tankers

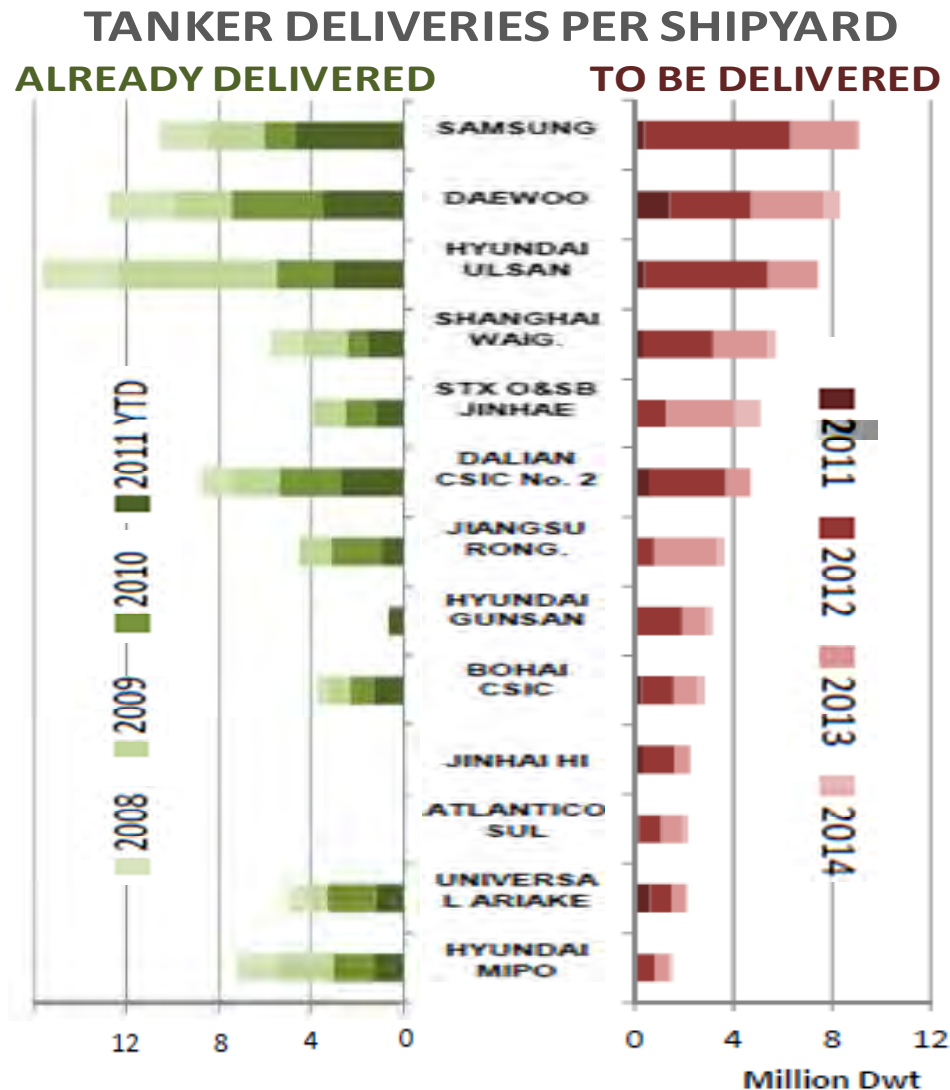


VLCC newbuilding prices failed to catch an upward trend during the last year (shaded area), and instead experienced a consistent downwards path.

This was otherwise the case for the other tanker sizes as well



...and one should also keep in mind what is happening in the shipyards

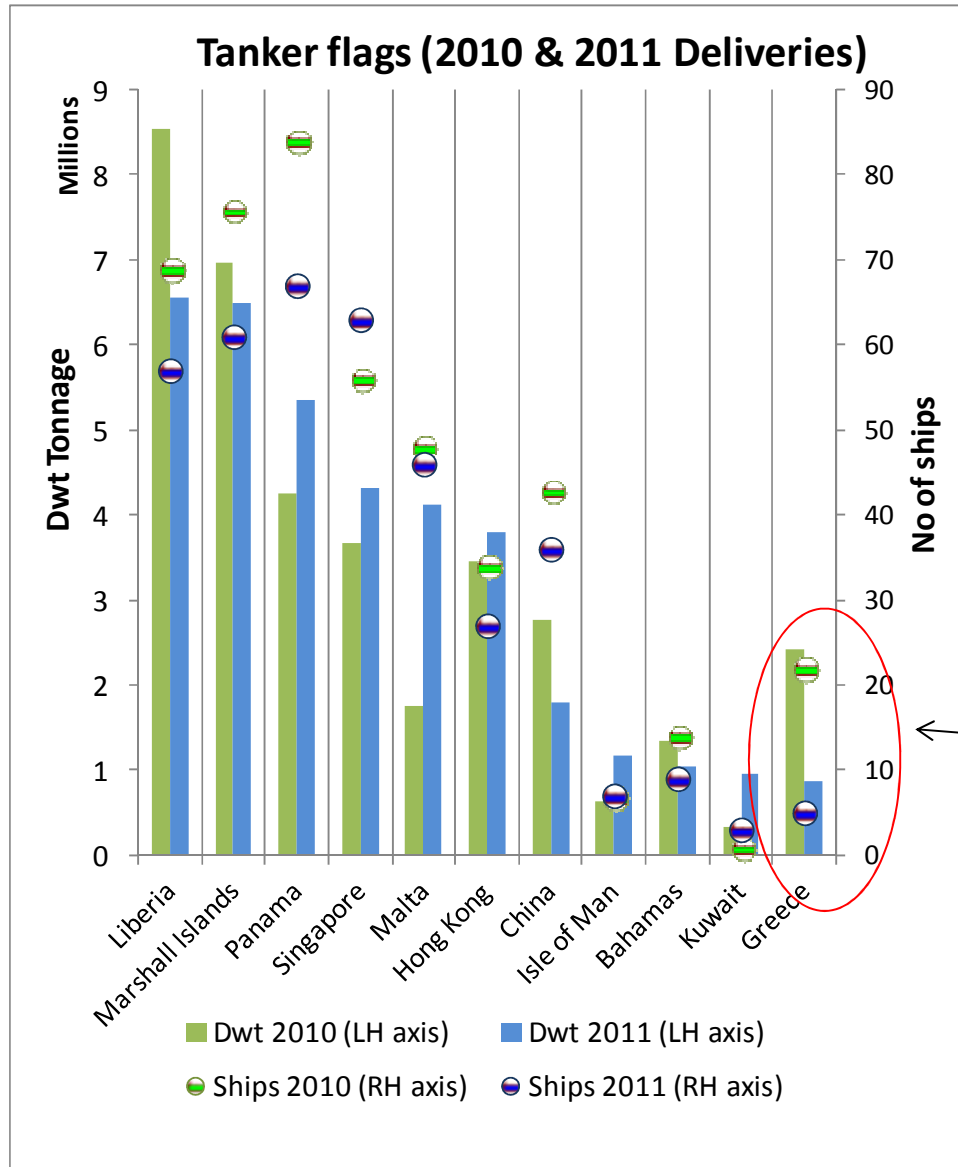


S. Korea holds 49% of all tanker orders, China 33%, Japan 8%.

Comparing deliveries since 2008 to the pending orderbook, an expansion in volume is witnessed only for a couple of shipyards.



Then decide on other issues

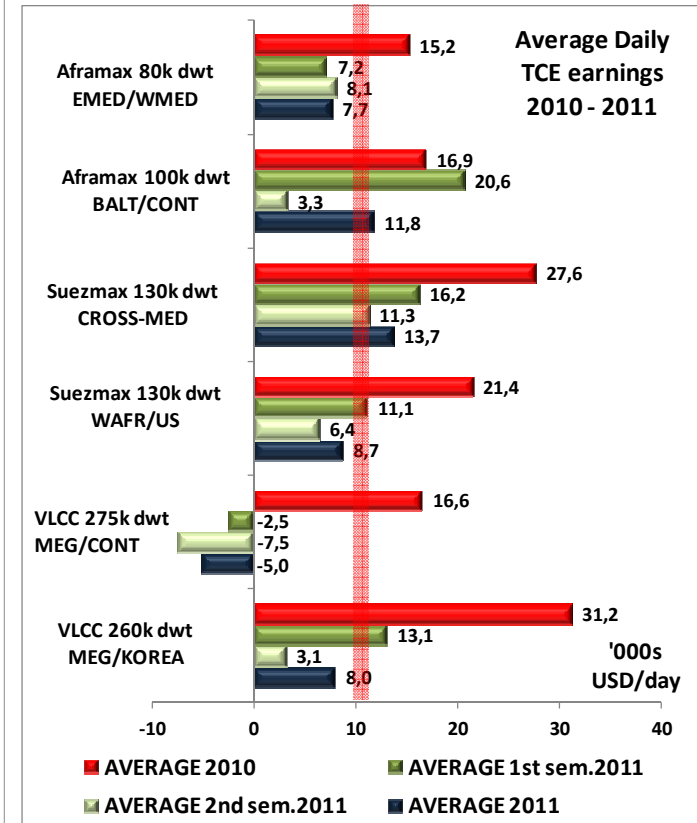
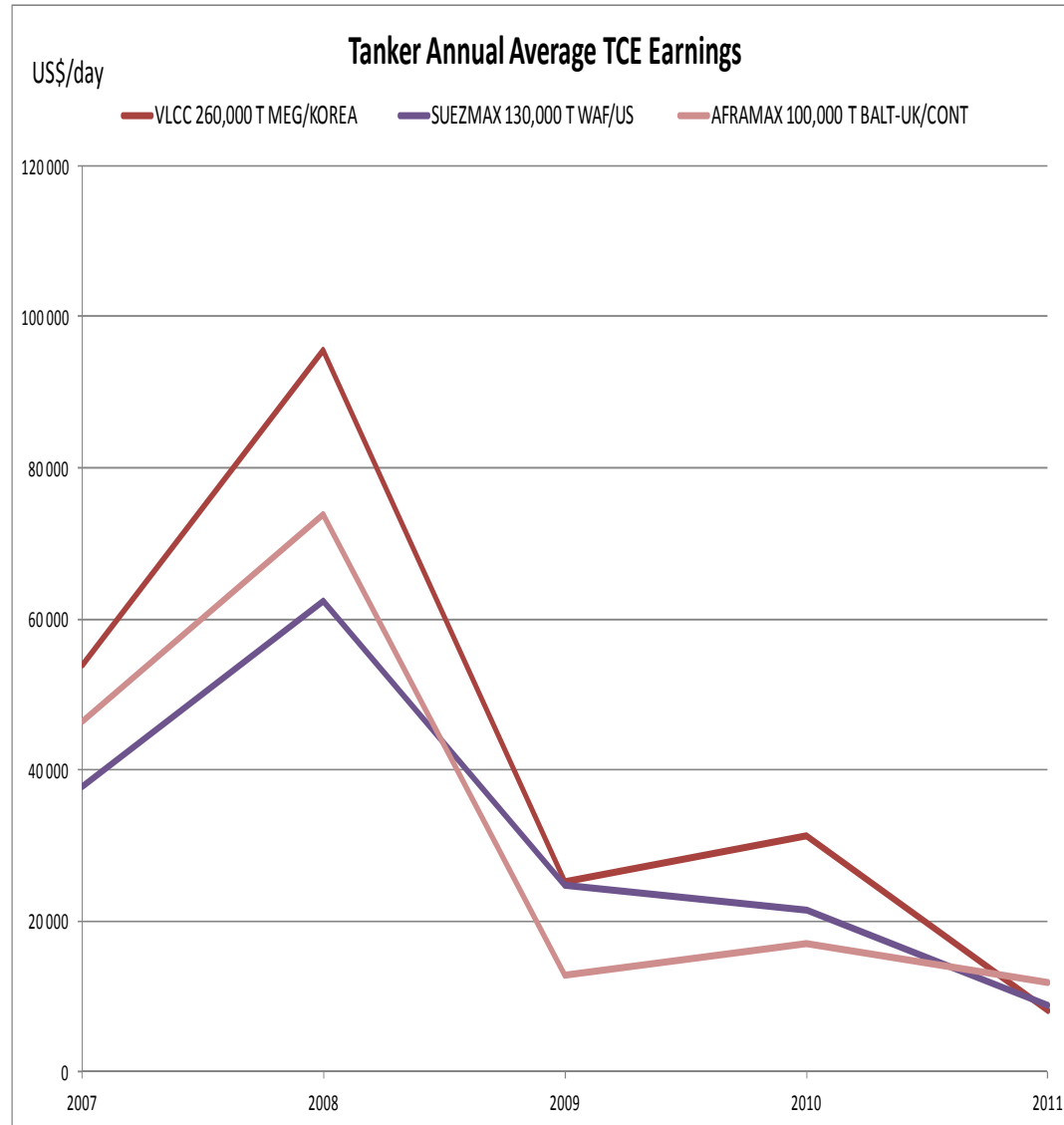


Most flags attracted less tankers in 2011, but this should be expected given the reduction by more than 20% of deliveries (all tanker categories).

Greek flag (11th from 7th place, with 65% less tonnage and 77% fewer tankers).

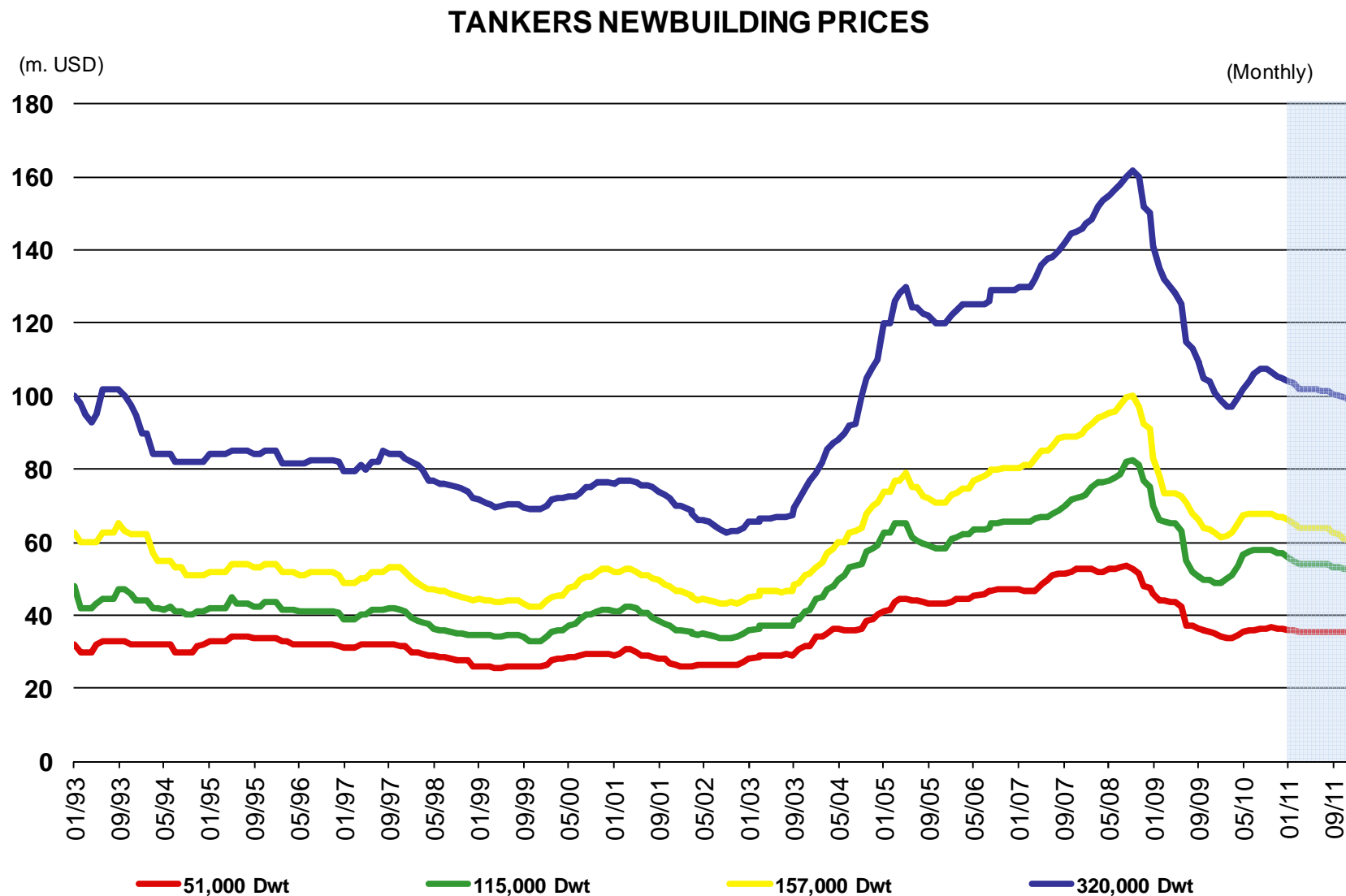


What happened in Year 2011 after all





What happened in Year 2011 after all





Reflections on latest and upcoming developments In the LNG SHIPPING market





The LNG chain

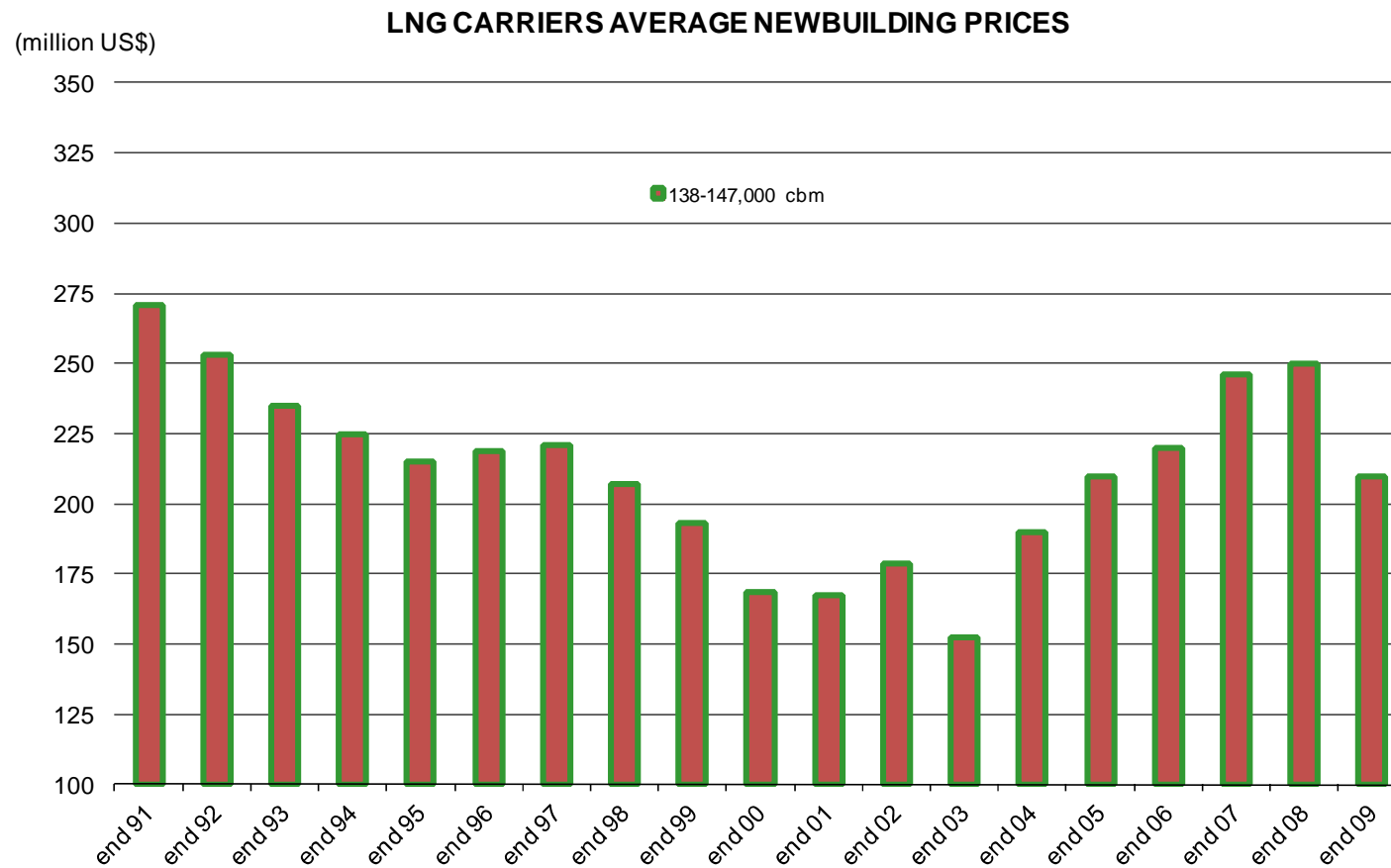


Source: Shell



LNG economic aspects

- A 150,000 cu.m. LNG carrier transports:
~ 62,000 tons LNG or ~ 0.09 bcm of natural gas





LNG PRICES

LNG prices usually expressed in US dollars per million BTU (**USD/mmBTU**).

No international price for LNG. Gas “hubs” of both LNG and pipeline gas:

- United States (**Henry Hub**)
- The United Kingdom (**NBP**)
- Europe (**Zeebrugge** in Belgium)

Long-term: gas prices driven by gas supply options, economic growth and political issues

Short term: depend on storage and flexibility

→ Opportunities for **price arbitrage** and eventual **convergence of price between various markets**

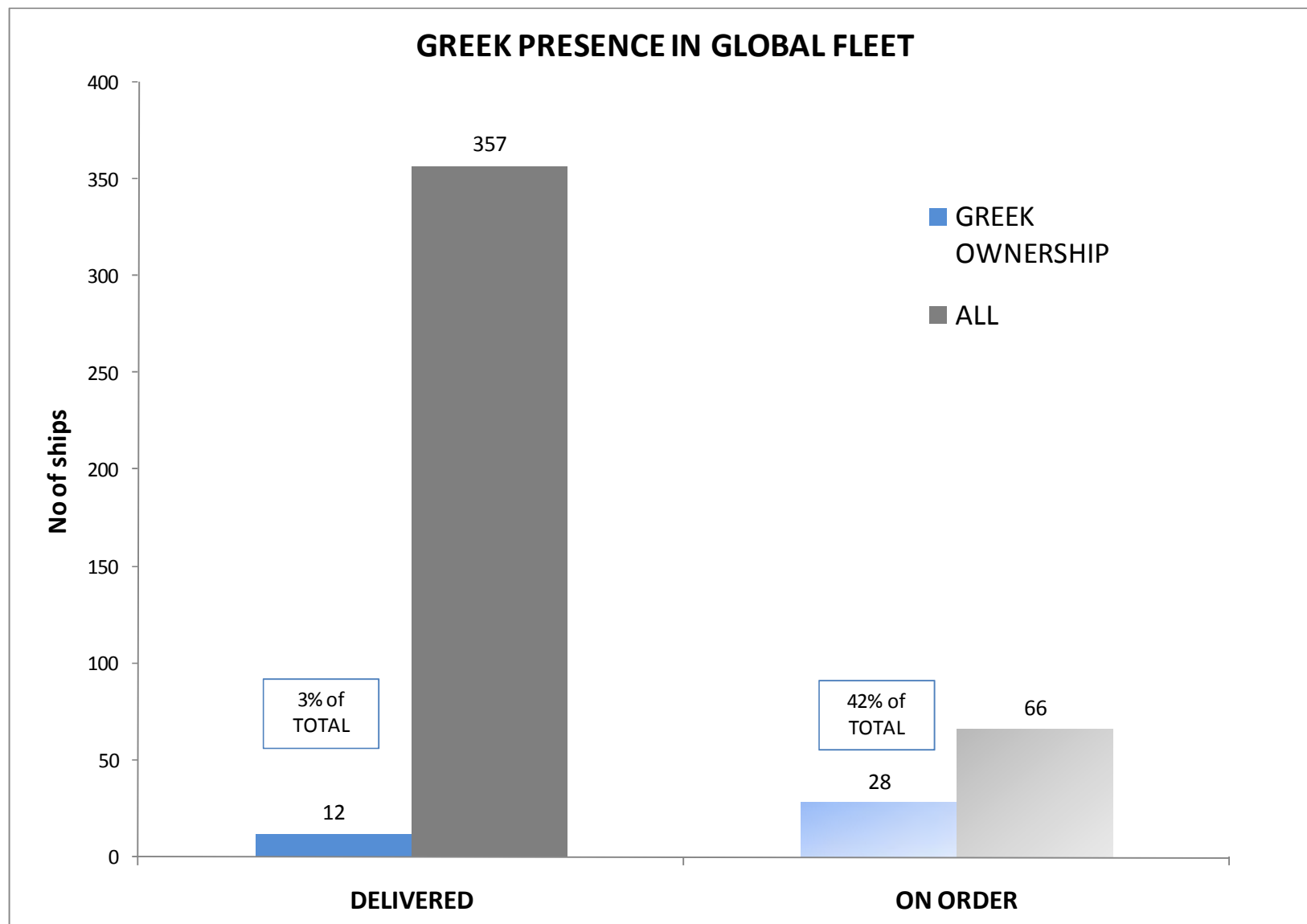
Recent developments

- ❖ Japan earthquake – tsunami catastrophe: nuclear off, LNG annual imports increased by 12.2% (to 78.5 m.tons in 2011)
- ❖ US shale gas discoveries
- ❖ West –East gas price differentials: below 4 USD/mmBTU to above 14 USD/mmBTU





The Greek element





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