



Seventh City of London Biennial Meeting 2013

Investing in Eco Ships

Amir Alizadeh



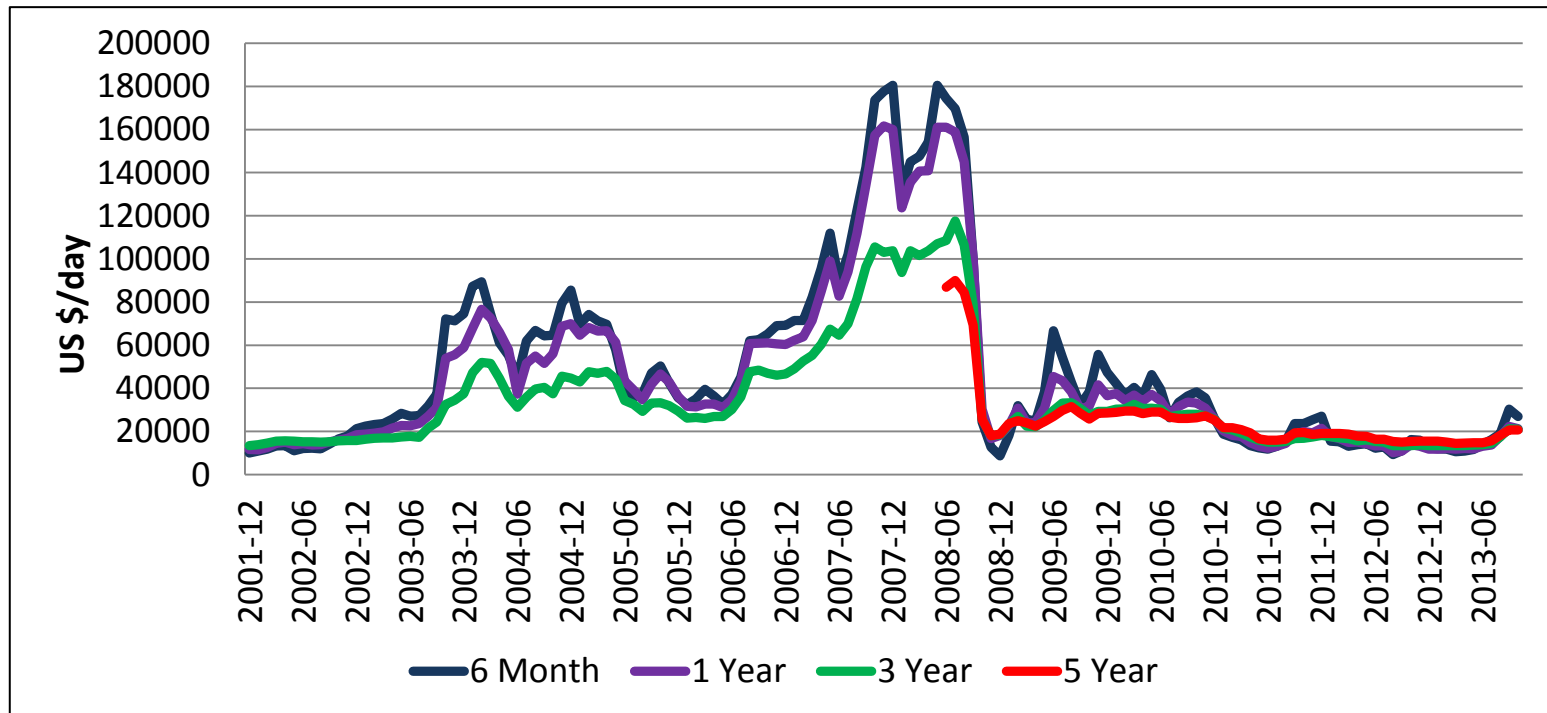
The Past 10 years for shipping

The Shipping Market : Beauty or the Beast?

- **Evolution of freight rates and earnings**
 - Start of the rise in freight rates in Oct 2003
 - reaching a pick in April/May 2008
 - collapsing in September 2008
 - Some blip and small increases since then but not sustained
- **Increase in oil and fuel prices**
 - from less than \$200/mt to over \$600/mt
 - remain high today
- **Problems in financing ships**
 - over financing before 2008
 - defaults, bad debt and distress sales since then
 - higher cost of finance today
- **New Regulations!**
 - Energy Efficiency, Emissions, Sox, Nox, BWT

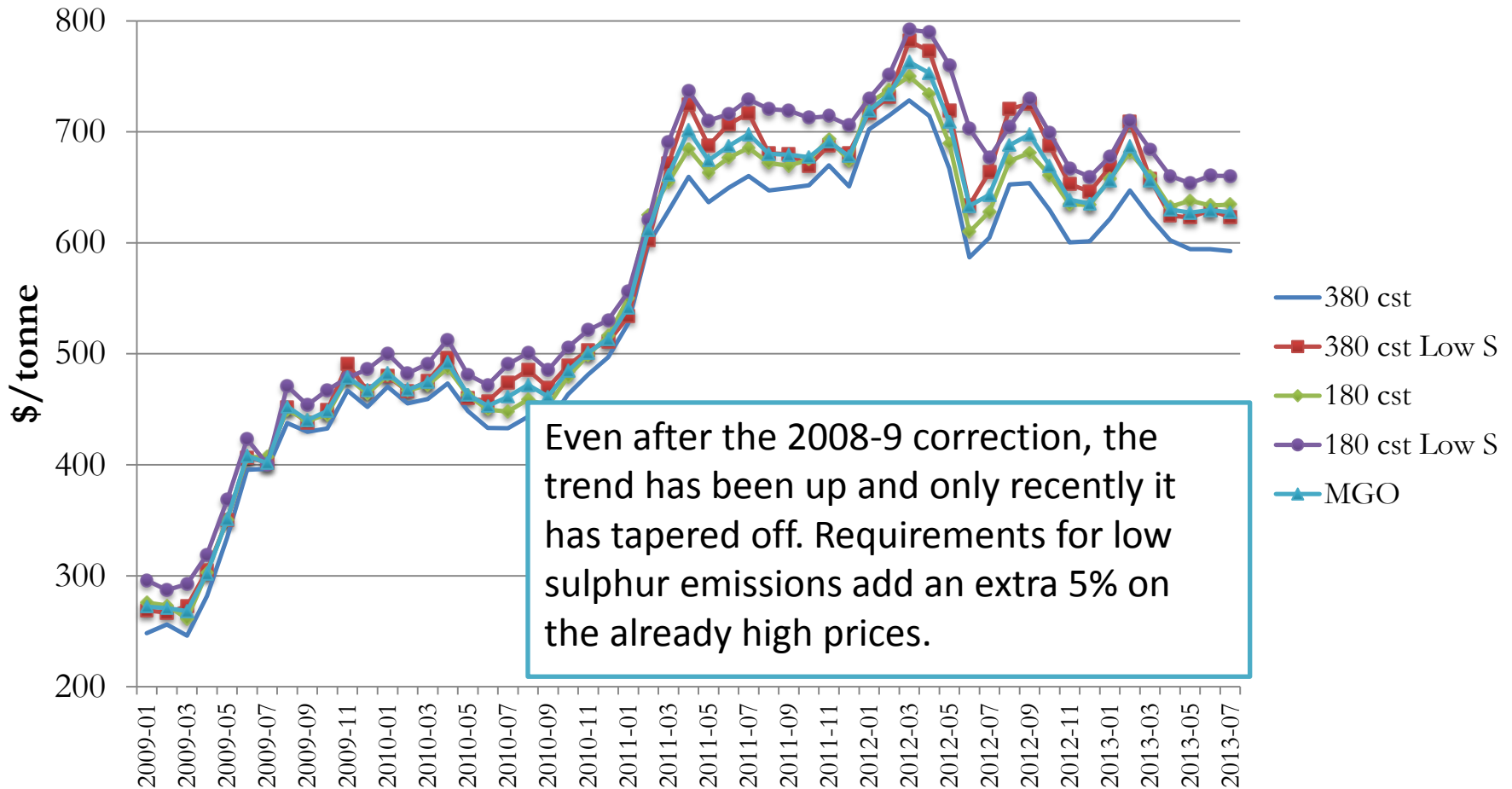
Capesize freight earnings

Period	Average 6m TC \$/day	Volatility
2003 to 2008 Good days	74,227	87%
2009 to 2013 Last 5 years	25143	88%
2011 to 2013 Last 2 years	15980	73%



Bunker costs

Monthly average prices based on Rotterdam-Houston-Fujairah-Singapore
(Rotterdam-Hamburg-Denmark-Houston for Low S)



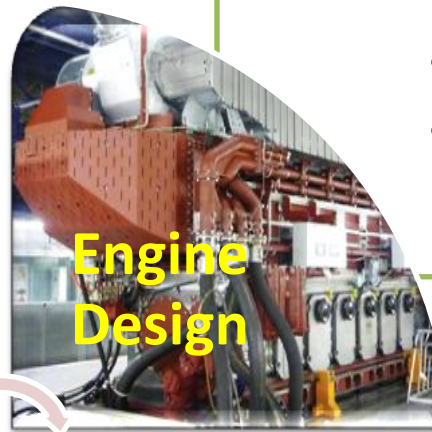
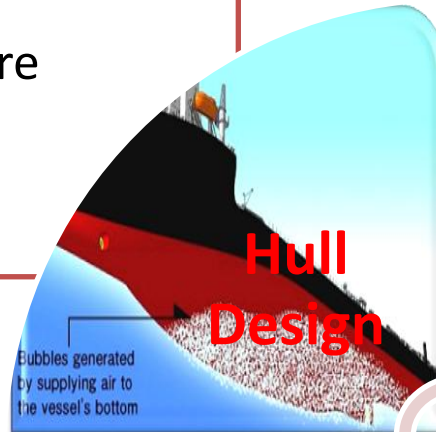
Current Challenges in Shipping

Between a Rock and a Hard Place!

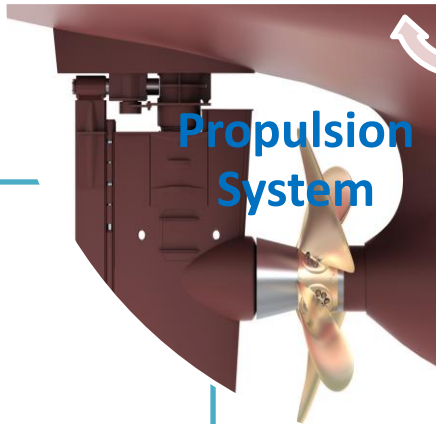
- **Regulations**
 - **Clean Air**
 - Energy Efficiency, Emissions Control, SOx and NOx (Tier I, II, III)
 - **Clean Seas**
 - Ballast Water Treatment (BWT)
- **Market variables**
 - **Fuel Cost**
 - Increase in fuel prices and volatility
 - **Low Freight Earnings**
 - Oversupply and slow growth in demand
 - **Financial Costs**
 - Finance (high risk & high margins)

Eco Ships Design and Systems

- Hull Shape
- Light structure



- LNG Fuel
- Dual Fuel
- Slow RPM



- Propeller
- ducts, fins, bulbs



- Chemical treatment
- Physical Filters

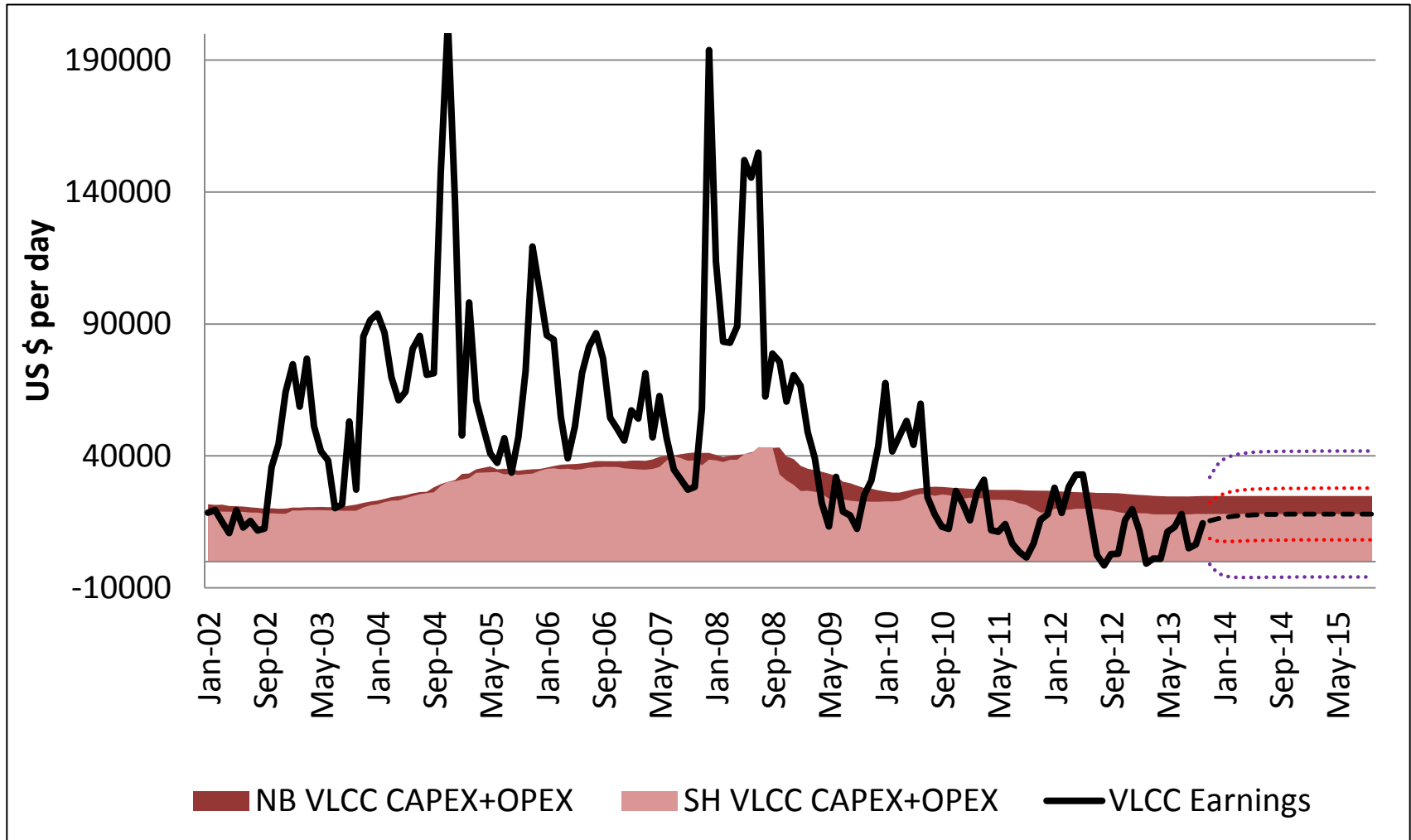
Retrofit

- **Fuel Efficiency**
 - Propeller system
 - Engine Fuel system (LNG or Duel Fuel)
- **Emission compliance**
 - Fitting Scrubbers and EGR
 - Use of LSFO, MGO or LNG
 - Exhaust Gas recirculation
- **Ballast Water Treatment**
 - Fitting filters and treatment systems
- Costs seem to be a hindrance (\$2m to more than \$8m)
- Vessel could be out of service
- Space on board for LNG tanks, BWT system, etc.
- Additional training required
- Possible changes in capacity and stability of the vessel

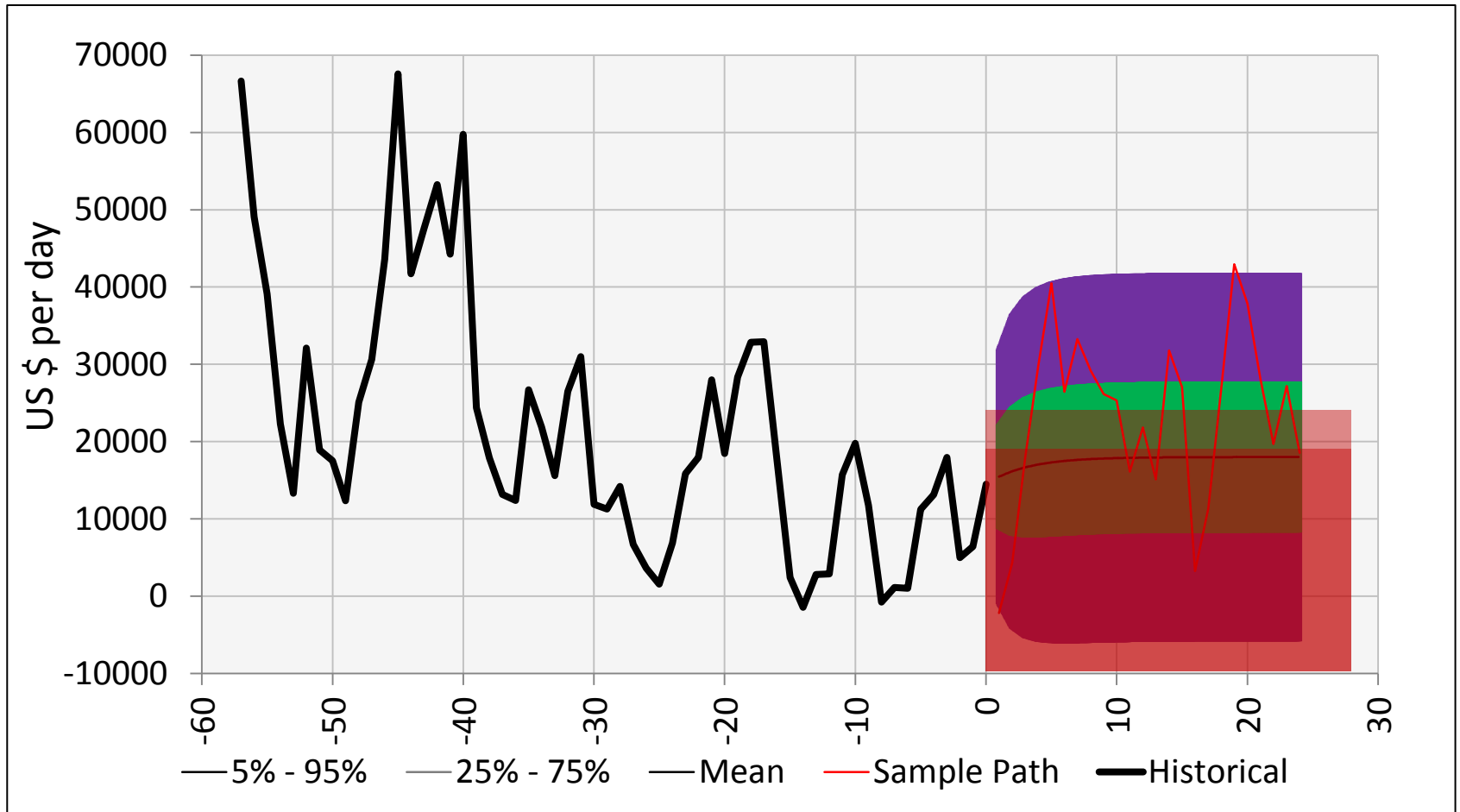
A Simulation Exercise

	320k dwt VLCC	180k dwt Capesize
OPEX	\$7000/day	\$7000/day
CAPEX		
Interest rate	LIBOR+3%	LIBOR+3%
Loan term	8 Years	8 Years
Loan amount	70% of value	70% of value
Balloon	30% of loan	30% of loan
Simulation		
NB Value Oct 2013	\$91m	\$52.5m
SH Value Oct 2013	\$56m	\$40m
Fixed LIBOR Oct 2013	0.362%	0.362%

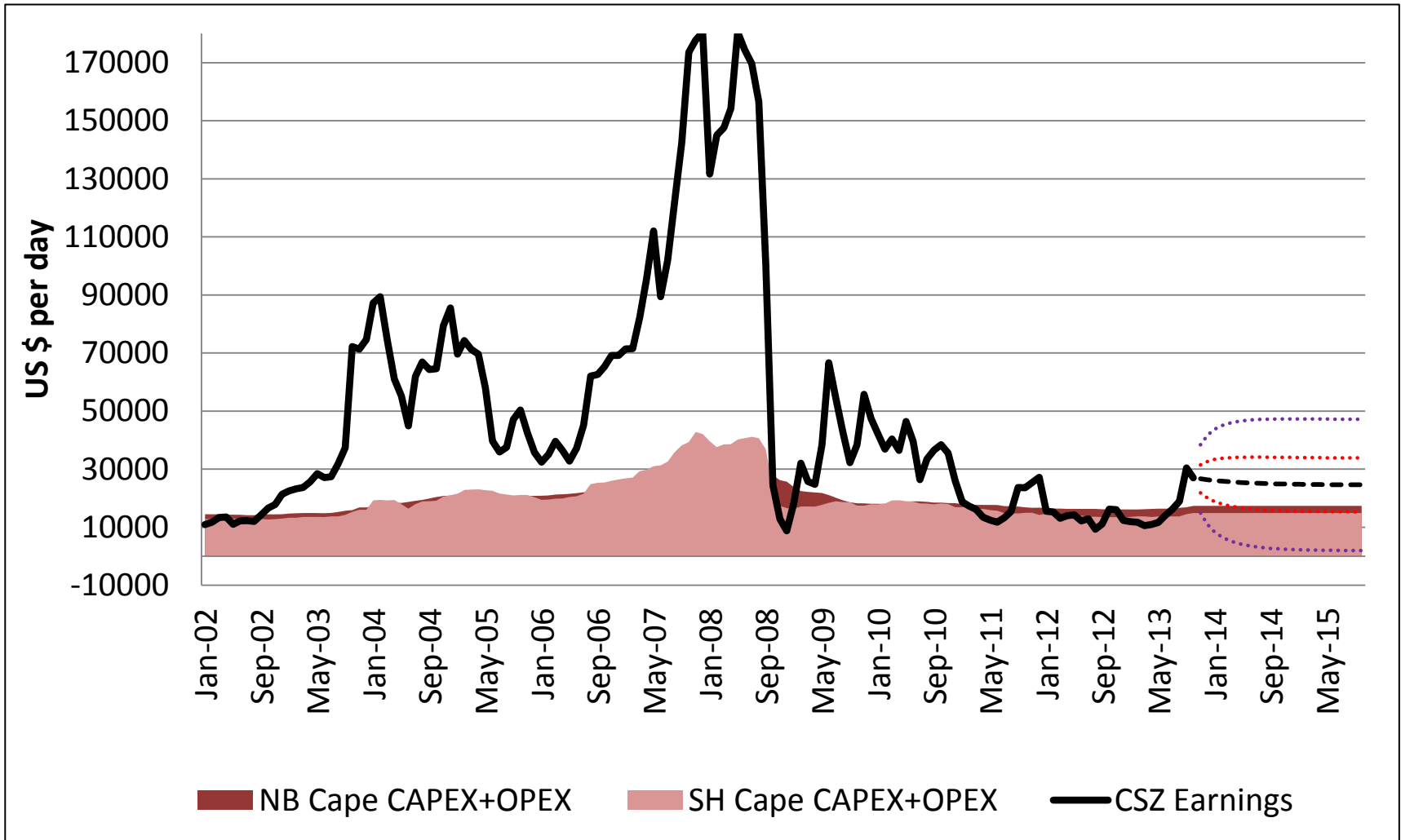
VLCC Earnings against CAPEX+OPEX



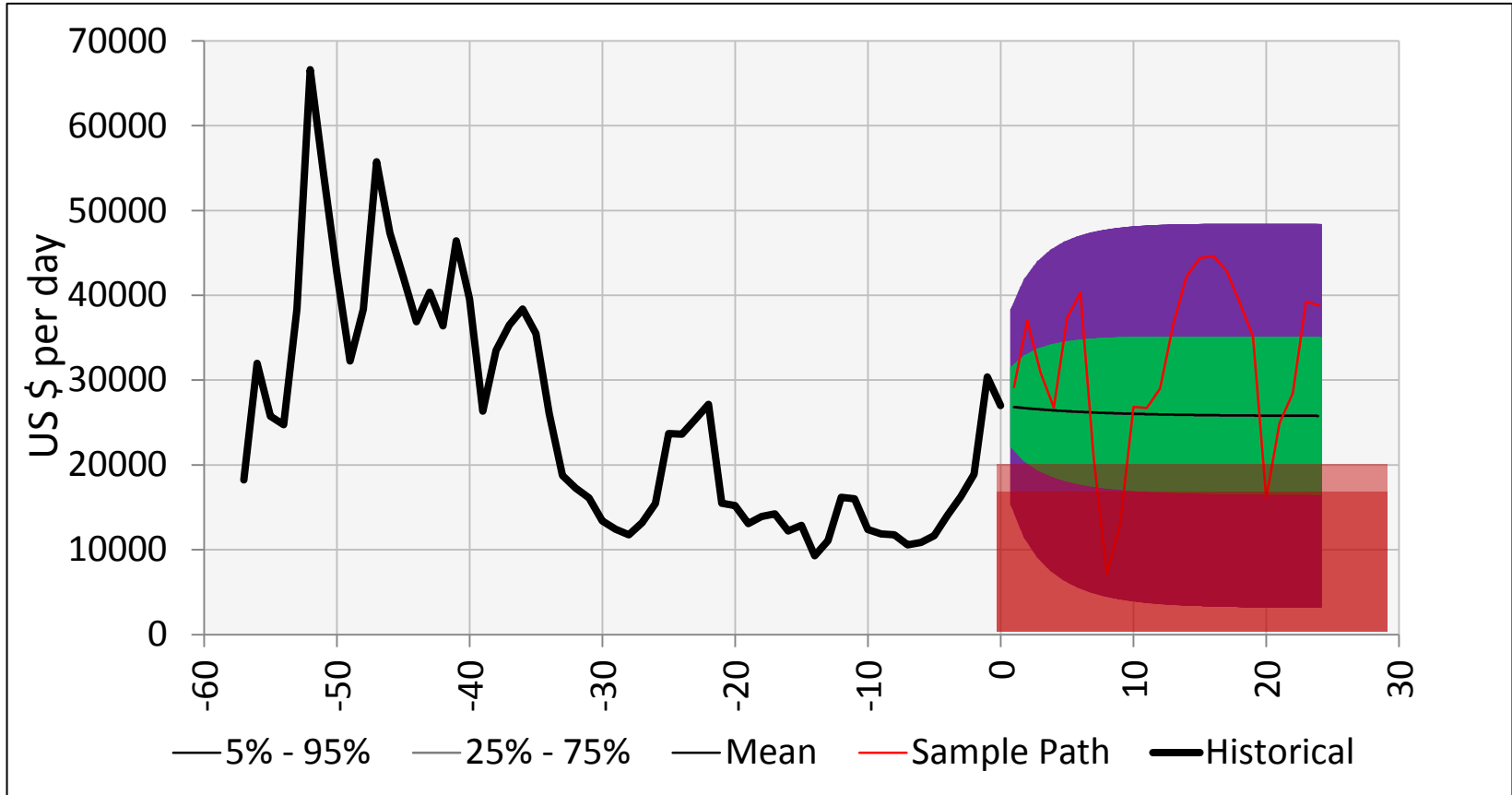
VLCC Earnings against CAPEX+OPEX



Capesize Earnings against CAPEX+OPEX



Capesize Earnings against CAPEX+OPEX



Full Simulation Exercise

- All ships sizes and sectors
- Other variables in full simulation model
 - Growth in International Trade
 - Supply condition (orders and deliveries)
 - Freight market balance and rates
 - Fuel prices (HFO, LSFO, LNG)
 - Interest rate and finance conditions
- Results
 - Break Even freight rate (earnings) higher than current earnings
 - Probability of earnings being above BE remains low
 - Probability of earnings being below BE remains relatively high

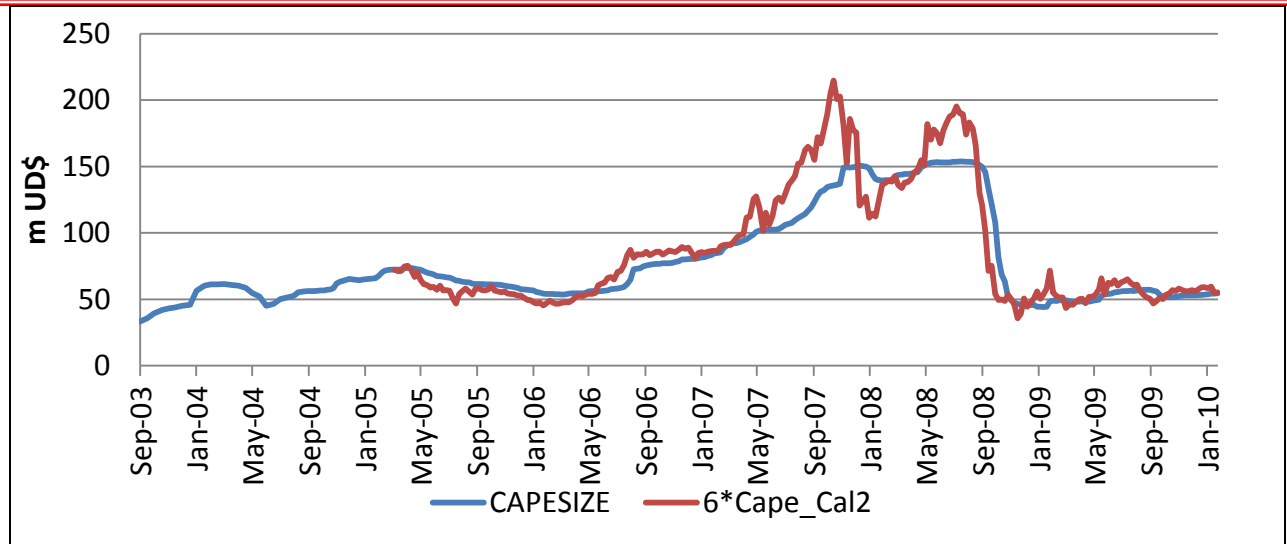
Investing in Eco Ships and Risks

- Investing in Eco ships?
 - Uncertainty around the performance of Eco ships
 - Can lead to even more oversupply
 - Expensive compared to exiting second-hand ships
 - Might be more attractive for large companies

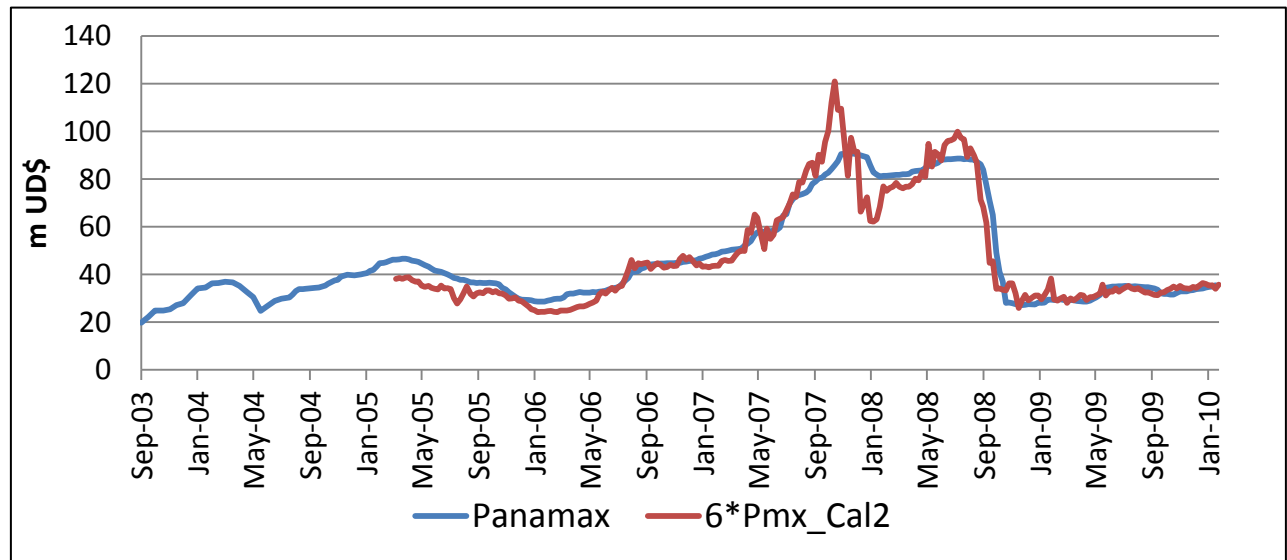
 - Upside potential
 - Meeting tight environmental regulations
 - Premium on fuel efficiency if fuel prices remain high or increase
 - Downside risk
 - Rise in interest rates and capital costs
 - Higher maintenance costs
 - Fall in fuel prices

Ship Values as Multiples of Earnings

Baltic Ship Value Assessments and 2nd Calendar 4TC FFA Rates for Capesize Dry Bulk carriers

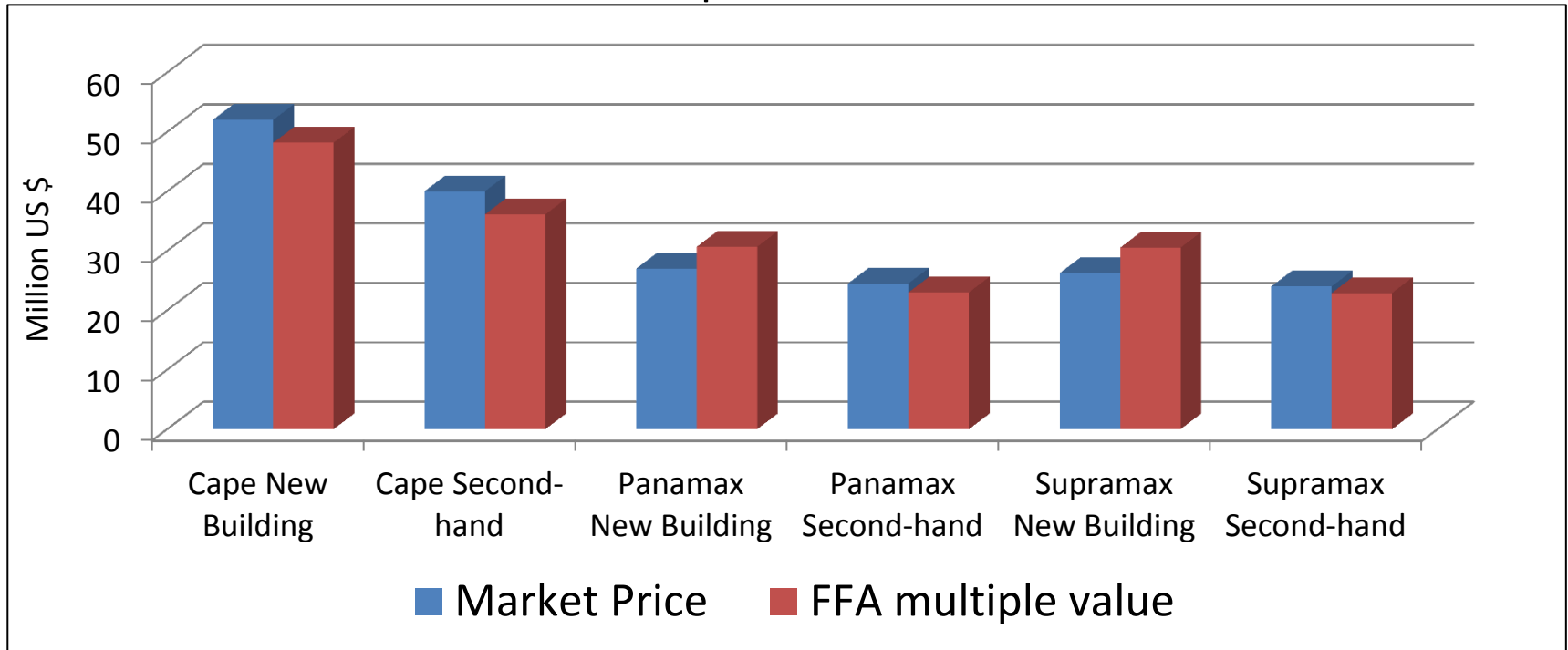


Baltic Ship Value Assessments and 2nd Calendar 4TC FFA Rates for Panamax Dry Bulk carriers



Ship Values as Multiples of Earnings

Market price and second-hand values of dry bulk carriers against their multiple FFA values



	Cape New Building	Cape Second-hand	Panamax New Building	Panamax Second-hand	Supramax New Building	Supramax Second-hand
Market Price	52	40	27	24.5	26.25	24
FFA multiple value	48.2	36.1	30.7	23.0	30.5	22.9

Conclusions

- Shipowners are still to be convinced on how efficient eco ships can be
- Oversupply is a big problem for recovery
- The uncertainty on future freight, bunker prices, economic growth and trade
- Financial costs in this depressed market condition is another hindrance
- Risk of rise in interest rates



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