

# IUMI 2010 ZURICH

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12 – 15 September

**Matthew O'Sullivan**

Head of Marine & Energy, Asia Pacific  
Aon Benfield Global Re Specialty

# Agenda

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- Introduction
- (Re) Setting the Scene
- Current Trade Environment
- Ultra Large Container Ships
- Is Cargo Accumulation still a major issue?
- .... a reinsurance brokers opinion....

## Matthew O'Sullivan

Aon Benfield Global Re Specialty

Head of Marine & Energy, Asia Pacific



- Located in Aon Benfield Singapore, Matthew is part of the Global Re Specialty team which is responsible for the treaty business for the Asia Pacific markets. As one of the senior representatives for the team in the region, Matt works together with the colleagues in London to provide the full capabilities of Aon Benfield to the APAC regional markets, including Singapore, China, Japan, Korea and South East Asia.
- Began career at Munich Reinsurance in Australia as a marine underwriter, where he worked for over 16 years, before joining Benfield in Singapore in February 2008.
- In 2003, Matt moved to head office in Munich and was responsible for the underwriting of the marine portfolios for Korea and Japan. He has provided many technical seminars and presentations, including published articles and presenting at the IUMI 2006 Tokyo Conference.
- Matt holds a Bachelors of Economics degree from Sydney University, an MBA from Macquarie University Sydney, and is a Fellow of the Australian and New Zealand Institute of Insurance and Finance.

# (Re) Setting the Scene

**U. L. C. S.**

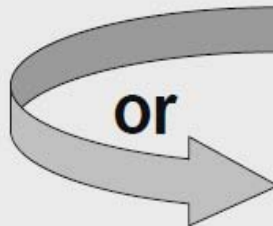


Münchener Rück  
Munich Re Group

Ultra Large Container Ship?



Ultra Large Claim Scenario?



"U. L. C. S." – Matthew O'Sullivan

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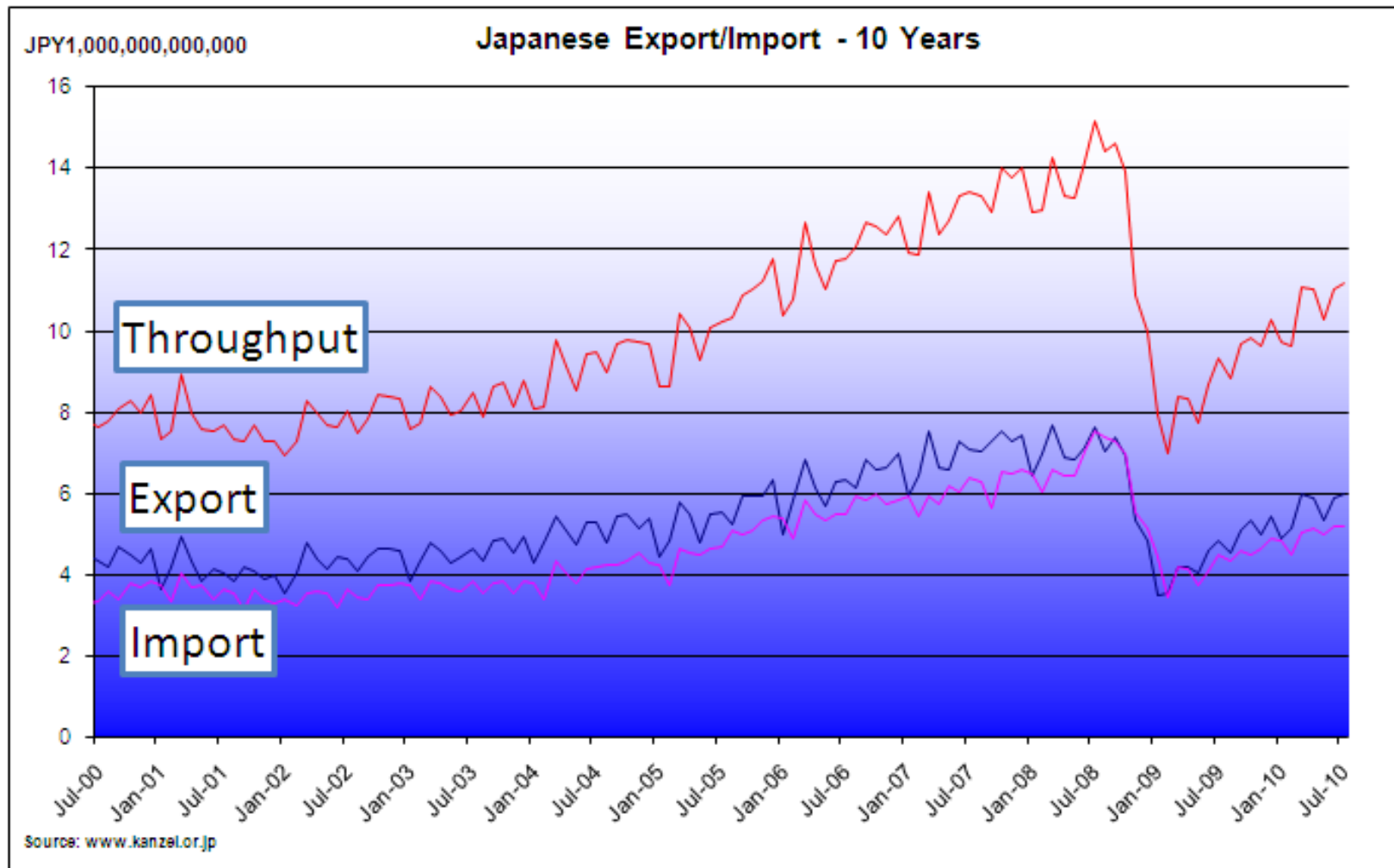
20 Sept 2006

- Current Trade Environment - different market viewpoints.
  - China
  - Japan
  - Economic Stimulus Packages - developed economies versus the emerging economies
  - UNCTAD - 2009 was an unprecedented year in terms of economic developments (GDP, Trade) however there are definite signs of the world economy improving
- Developments in Container Ships
  - Accounts for approx 50% of the Seaborne Trade
  - 2009 saw trade volumes dip dramatically, however demand estimated to outstrip supply in 2010 and beyond.
  - "In May 2010, the class set a record of 15,011 TEU in Tanger-Med, Tangiers on Ebba Maersk" - *Wikipedia*
- Global Container Volumes
  - "Global container handling volume to top 545 Mteu in 2010"  
*Alphaliner Report Volume 2010 Issue 31*

# Current Trade Environment - China



# Japanese Throughput to July 2010



# 100 Largest Container Ships in the World

Build	Name	Length o.a.	Beam	Maximum TEU	GT	Owners/Flag
2007	Ebba Maersk	397.7 m/1,305 ft	56.4 m/185 ft	14,770	151687	Maersk Line/Denmark [see notes]
2007	Edith Maersk	397.7 m/1,305 ft	56.4 m/185 ft	14,770	151687	Maersk Line/Denmark [see notes]
2007	Eleonora Maersk	397.7 m/1,305 ft	56.4 m/185 ft	14,770	151687	Maersk Line/Denmark [see notes]
2007	Elly Maersk	397.7 m/1,305 ft	56.4 m/185 ft	14,770	151687	Maersk Line/Denmark [see notes]
2006	Emma Maersk	397.7 m/1,305 ft	56.4 m/185 ft	14,770	151687	Maersk Line/Denmark [see notes]
2006	Estelle Maersk	397.7 m/1,305 ft	56.4 m/185 ft	14,770	151687	Maersk Line/Denmark [see notes]
2008	Eugen Maersk	397.7 m/1,305 ft	56.4 m/185 ft	14,770	151687	Maersk Line/Denmark [see notes]
2007	Evelyn Maersk	397.7 m/1,305 ft	56.4 m/185 ft	14,770	151687	Maersk Line/Denmark [see notes]
2009	MSC Beatrice	366.0 m/1,200.8 ft	51.0 m/167.3 ft	13296	135000	MSC/Panama
2009	MSC Bettina	366.0 m/1,200.8 ft	51.0 m/167.3 ft	13296	135000	MSC/Panama
2009	MSC Camille	366.0 m/1,200.8 ft	51.0 m/167.3 ft	13296	135000	MSC/Panama
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2009	MSC Emanuela	366.0 m/1,200.8 ft	51.0 m/167.3 ft	13296	135000	MSC/Panama
2009	MSC Eva	366.0 m/1,200.8 ft	51.0 m/167.3 ft	13296	135000	MSC/Panama
2009	MSC Gaia	366.0 m/1,200.8 ft	51.0 m/167.3 ft	13296	135000	MSC/Panama
2009	MSC Irene	366.0 m/1,200.8 ft	51.0 m/167.3 ft	13296	135000	MSC/Panama
2009	MSC Kalina	366.0 m/1,200.8 ft	51.0 m/167.3 ft	13296	135000	MSC/Panama
2009	MSC Danit					
2009	MSC Luciana					
2010	MSC Melatilde					
2010	MSC Paloma					
2010	Maersk Edinburg					
2010	Maersk Eindhoven					
2010	Maersk Emden					
2010	Maersk Essen					
2009	CMA CGM Andromeda					
2009	MSC Francesca	366.0 m/1,200.8 ft	45.6 m/150 ft	11312	120000	MSC/Panama
2008	MSC Sola	366.0 m/1,200.8 ft	45.6 m/150 ft	11312	120000	MSC/Panama
2008	CMA CGM Vela	347.5 m/1,140 ft	45.2 m/148 ft	11040	128600	NSB Niederelbe/Germany
2009	CMA CGM Hydra	346.5 m/1,137 ft	45.2 m/148 ft	10980	109000	NSB Niederelbe/Germany
2009	CMA CGM Musca	346.5 m/1,137 ft	45.2 m/148 ft	10980	109000	NSB Niederelbe/Germany
2008	CMA CGM Thalassa	346.5 m/1,137 ft	45.2 m/148 ft	10980	109000	NSB Niederelbe/France
2006	Georg Maersk	367.3 m/1,205 ft	42.8 m/140 ft	10150	97933	Maersk Line/Denmark
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2009	Mathilde Maersk	372.3 m/1,221 ft	42.8 m/140 ft	10150	97933	Maersk Line/Denmark
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2008	Cosco Africa	349.2 m/1,146 ft	45.6 m/150 ft	10046	108000	COSCO Container Lines/China
2008	Cosco America	349.2 m/1,146 ft	45.6 m/150 ft	10046	108000	COSCO Container Lines/China
2007	Cosco Asia	349.2 m/1,146 ft	45.6 m/150 ft	10046	108000	COSCO Container Lines/China
2008	Cosco Europe	349.2 m/1,146 ft	45.6 m/150 ft	10046	108000	COSCO Container Lines/China
2009	Cosco Atlantic	348.5 m/1,143 ft	45.6 m/150 ft	10000	101000	COSCO Container Lines/China
2008	Cosco Indian Ocean	348.5 m/1,143 ft	45.6 m/150 ft	10000	101000	COSCO Container Lines/China
2008	Cosco Oceania	348.5 m/1,143 ft	45.6 m/150 ft	10000	101000	COSCO Container Lines/China
2008	Cosco Pacific	348.5 m/1,143 ft	45.6 m/150 ft	10000	101000	COSCO Container Lines/China
2008	CMA CGM Butterfly	350.0 m/1,148.3 ft	42.8 m/140 ft	9661	109000	Offen-Claus Peter/Liberia
2008	CMA CGM Ivanhoe	350.0 m/1,148.3 ft	42.8 m/140 ft	9661	109000	Offen-Claus Peter/Liberia
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2007	CSC Long Beach	336.7 m/1,105 ft	45.6 m/150 ft	9580	108069	Seaspan Container Line/Hong Kong
2006	CSC Pusan	336.7 m/1,105 ft	45.6 m/150 ft	9580	107200	Danaos Shipping/Cyprus
2007	CSC Zeebrugge	335.0 m/1,099.1 ft	45.6 m/150 ft	9580	107200	Seaspan Container Line/Hong Kong
2008	Maersk Alfrik	335.0 m/1,099.1 ft	45.6 m/150 ft	9580	106700	Maersk Line/Singapore
2008	Maersk Algot	335.0 m/1,099.1 ft	45.6 m/150 ft	9580	106700	Maersk Line/Singapore
2007	Maersk Altair	335.0 m/1,099.1 ft	45.6 m/150 ft	9580	106700	Maersk Line/Singapore
2007	Maersk Antares	335.0 m/1,099.1 ft	45.6 m/150 ft	9580	106700	Maersk Line/Singapore
2007	MSC Asya	335.0 m/1,099.1 ft	45.6 m/150 ft	9580	107849	MSC/Panama
2007	MSC Candice	335.0 m/1,099.1 ft	45.6 m/150 ft	9580	107849	MSC/Panama
2007	MSC Pina	335.0 m/1,099.1 ft	45.6 m/150 ft	9580	107849	MSC/Panama
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2007	Xin Beijing	335.0 m/1,099.1 ft	45.6 m/150 ft	9580	107200	CSC/Hong Kong
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2006	Xin Los Angeles	336.7 m/1,105 ft	45.6 m/150 ft	9580	107200	CSC/Hong Kong
2006	Xin Shanghai	336.7 m/1,105 ft	45.6 m/150 ft	9580	107200	CSC/Hong Kong
2004	Albert Maersk	352.6 m/1,157 ft	42.8 m/140 ft	9310	93496	Maersk Line/Denmark
2003	Anna Maersk	352.6 m/1,157 ft	42.8 m/140 ft	9310	93496	Maersk Line/Denmark
2003	Arnold Maersk	352.6 m/1,157 ft	42.8 m/140 ft	9310	93496	Maersk Line/Denmark
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2006	MSC Madeleine	348.5 m/1,143 ft	42.8 m/140 ft	9204	107551	MSC/Liberia
2006	NYK Vega	338.2 m/1,110 ft	45.6 m/150 ft	9200	97825	Nippon Yusen Kaisha/Panama
2007	NYK Venus	338.2 m/1,110 ft	45.6 m/150 ft	9200	97825	Nippon Yusen Kaisha/Panama
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2005	MSC Chicago	336.7 m/1,105 ft	45.6 m/150 ft	9178	90449	Offen Claus-Peter/Liberia
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2006	MSC Maria Elena	336.7 m/1,105 ft	45.6 m/150 ft	9178	107849	MSC/Panama
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**100 Container Ships with 1,073,639 TEU  
(23% increase since 2006)**

## Notes

The size of a container ship is defined throughout the world in terms of TEU capacity. The exception is the Maersk Line. It rarely quotes the TEU capacity, but instead the maximum load capacity in terms of *filled* TEUs with an average 14 tonne total weight. This value is always less than the raw TEU capacity. The values noted in the table above are standard TEU, not Maersk TEU.

Information on true container ship capacities is commercially sensitive and may be several thousand TEUs higher.

Source: [http://en.wikipedia.org/wiki/List\\_of\\_largest\\_container\\_ships](http://en.wikipedia.org/wiki/List_of_largest_container_ships)



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Source: <a href="http://en.wikipedia.org/wiki/List_of_largest_container_ships">http://en.wikipedia.org/wiki/List_of_largest_container_ships</a>						

**Over 50 ships now trading with carrying capacity greater than 10,000 TEU**  
**- in 2006 there were only 7!**

# Cargo Accumulation - still a major issue?

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- We are now in an rapidly changing world
- Risks associated with seaborne trade have definitely reduced through containerisation and modernisation
- New Risks, New issues to discuss...
  - Global Financial Crisis / Recovery in Trade
  - New Loss Potential - Deepwater Horizon
  - Piracy
  - Trade Sanctions
  - Solvency II
- Do we still need to be discussing how to develop a better understanding of cargo accumulation, both on board and on land?

- Simple answer to the question is yes...
- As we move deeper into the world of Risk Based Capital, more strict regulatory regimes, and Solvency II becomes a reality in many parts of the world, a more refined process of measuring risk is required, and the marine portfolios are not immune to these developments.
- To enable a better understanding of the aggregate cargo exposures within portfolios, and to ensure that portfolios are protected by the optimal reinsurance structure, analytical tools have now been developed for cargo modeling.
  - Effective catastrophe management is an essential part of an insurer's business model.
  - Catastrophe models are in place now to analyse portfolios and provide the required outcomes for assessing the catastrophe PML
  - Data capture for Vessel cargo accumulation remains an issue, however can now appreciate the loss potential.

## ....a reinsurance brokers opinion...

- Large loss scenarios from container vessel casualties are a real exposure

MSC Napoli  
2007



## ....a reinsurance brokers opinion...

- Large loss scenarios from container vessel casualties are a real exposure

Hyundai Fortune  
2006



## ....a reinsurance brokers opinion...

- Large loss scenarios from container vessel casualties are a real exposure

MSC Chitra  
2010

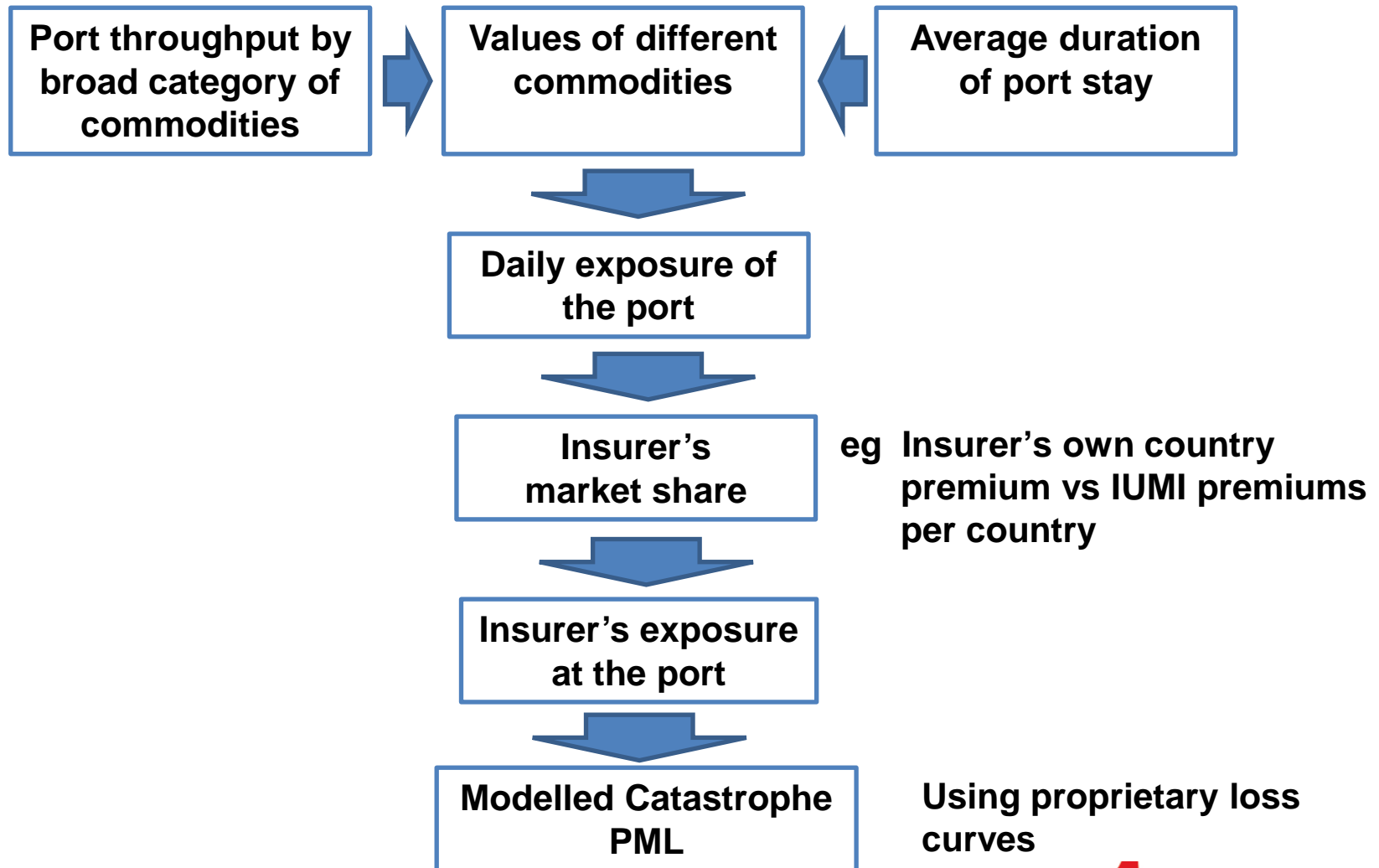


# What about the loss potential?

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- Total Loss of a 10,000 TEU vessel
  - Cargo loss potential between USD 500 million to USD 1 billion
  - The estimated PML has not changed, but what of the probability - Now have 50+ vessels with this carrying capacity
- Have the risks associated with potential sources of a loss of this nature been reduced?
  - Fire, Collision, Weather.
  - Mis-declaration of cargo
- As trade rapidly recovers, do the following factors play a part?
  - Age and maintenance of these mega vessels
  - Crew qualification for the largest vessels
  - Port facilities catering for the larger vessels
- Should we be more concerned with partial loss, instead of focusing on the PML?

# Port Accumulation Methodology

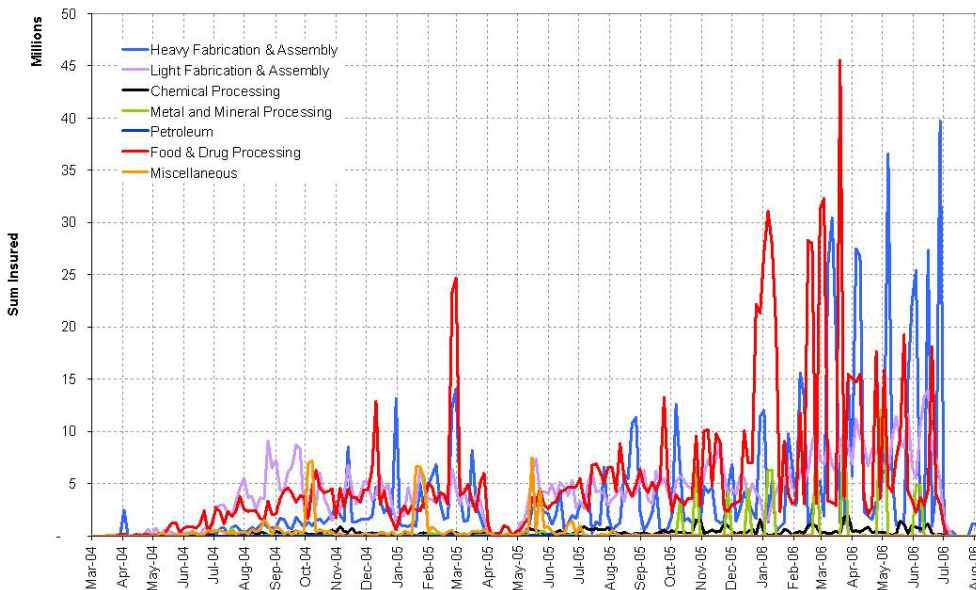
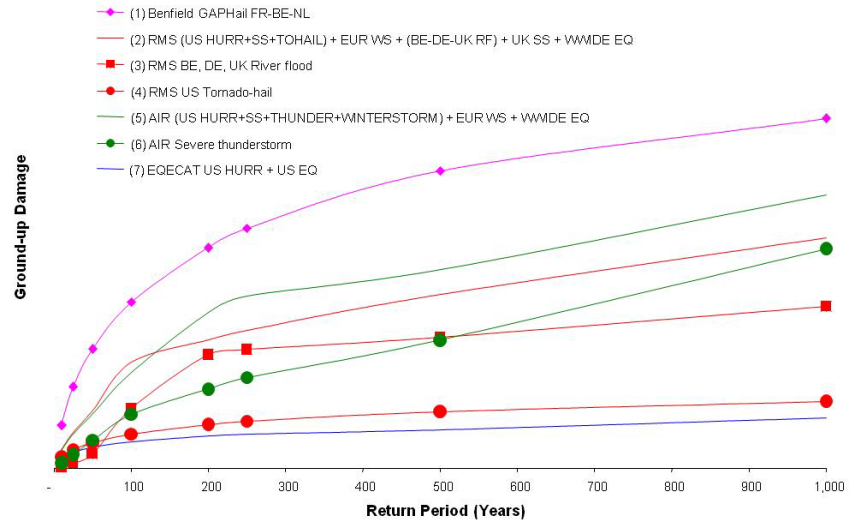
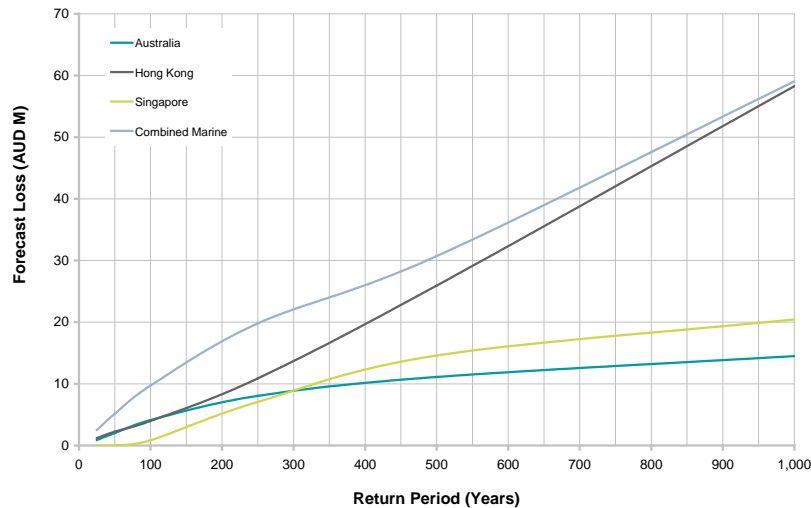




- There is much conjecture surrounding the estimated value of an average container. In 2006 we discussed a range between USD80,000 and USD100,000.
- Whilst not precise numbers, for the purpose of analysing catastrophe exposure in a cargo portfolio, the values and average days in port could be as follows.

Region	Avg Container Value (in USD)	Avg # Days in Port
Japan	150,000	5-7
East Asia (excl. China)	150,000	5-7
North America West Coast	100,000	5-7
Western Europe	80,000	3-5
North America East Coast	80,000	5-7
Top international ports*	80,000	3-5
South America	60,000	5-7
China	50,000	5-7
South East Asia	50,000	5-7
Middle East and Africa	40,000	5-7
* Ports like Shanghai, Singapore, Rotterdam, Hongkong and Dubai		

# Sample Port Exposure and PML outputs



12 TO 13 SEPTEMBER

The answers are now more readily available through developments in the cargo modeling capabilities .

- Ultra Large Container Vessels are here to stay
- The loss potential is real, either total loss or partial
- Trade will recover and we will be faced in the near future with unprecedented trade volumes, spurred by China and the emerging economies
- This rapid recovery in trade, and the replenishing of capital in the insurance and reinsurance markets, is a positive sign
- We need to continue to develop more sophistication in monitoring our exposure ...

Thank you for your attention

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