

GUY CARPENTER

Marine and Insurance Claims Association

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[MARINE INDUSTRY CLAIMS ASSOCIATION, INC.]  
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**AS EASY AS 1 2 3 5!**

December 7, 2007

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Guy Carpenter and Co., LLC



# Agenda

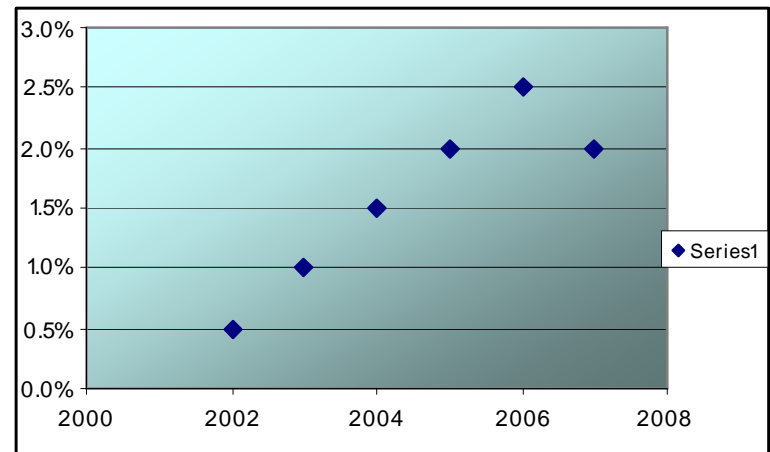
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- Numbers Don't Lie
  - But do actuaries? Make the data say what YOU want.
- Create Your Own CAT Model

# Make the data work for you

Company XYZ Experience  
Percentage of ships that sink

Year	Percent
2002	0.400%
2003	0.900%
2004	1.600%
2005	1.900%
2006	2.400%
2007	2.000% (thru Aug)
2008	?



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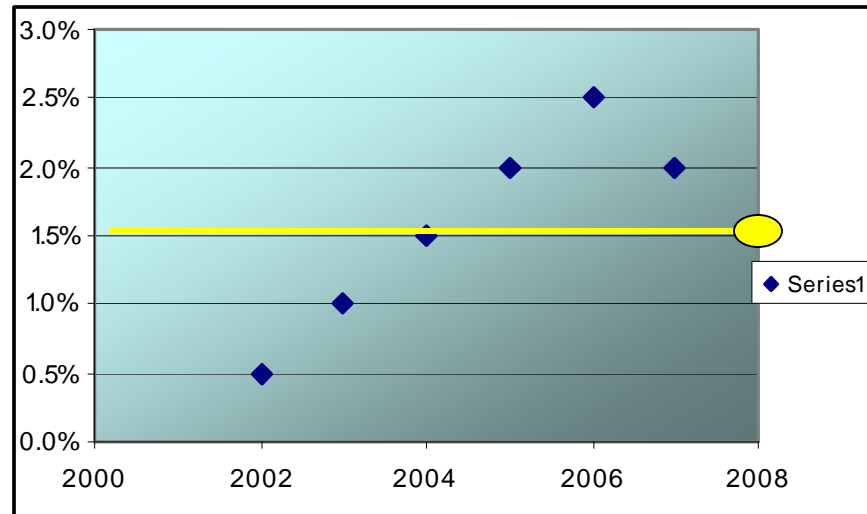
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# What is the % for 2008?

## One View

- Take the average of all years (all years treated equally)
- Any pattern is viewed as coincidental
- Projection for 2008 is 1.533%
- Probably not very credible as there *are* patterns in the data



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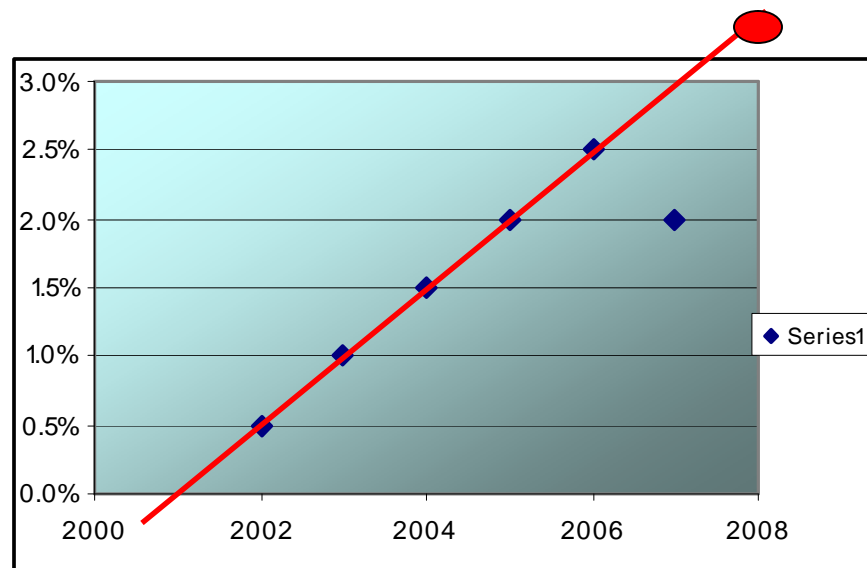
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# Another View

those company pricing actuaries are killing this deal!!!

- Look for patterns (trends)
- What years do I consider?
- In this interpretation, the 2007 year is ignored as it is still considered “too green” to be reliable.
- 2008 projection is 3.5%



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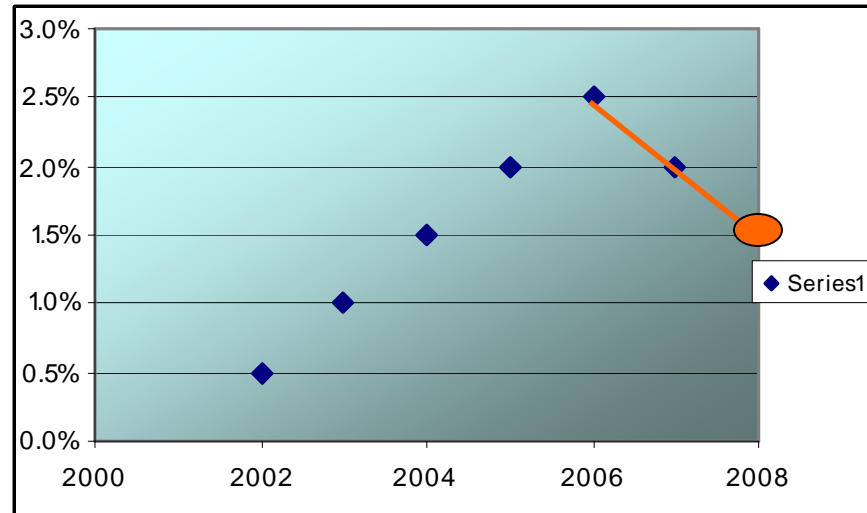
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# Another View

Must be a broker acutary!

- Drawing a trend line from 2006 through 2007 to 2008, the projection frequency is pegged at 1.5%



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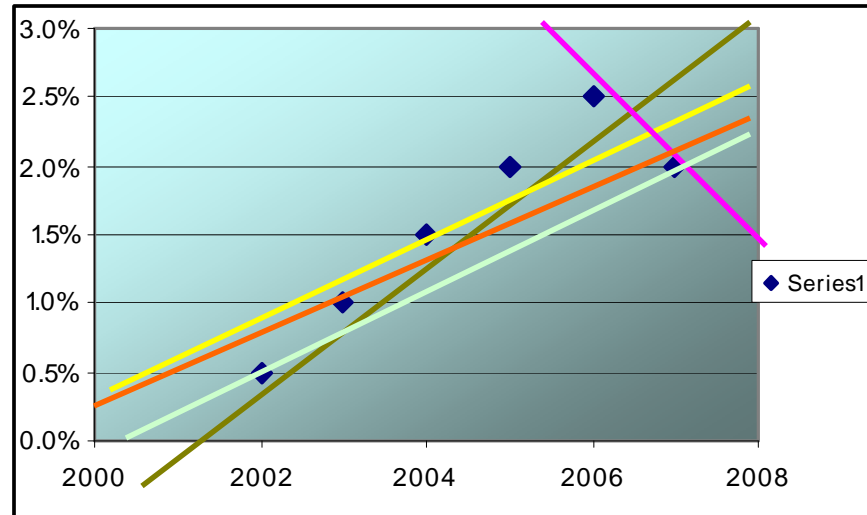
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# And others

## Which one is right?

- Put 10 actuaries in a room, get 20 different opinions!
- Need to get the story behind the numbers (e.g. was a loss control program enacted in 2006?)
- An actuary can never predict with complete accuracy (otherwise, could be better off running his own insurance company)
  - But can shed some light and thereby remove some uncertainty



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# Create your own cat model

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# Cat Modeling

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- Low frequency, very high severity events
  - There is just not enough cat experience so experience alone cannot predict the future
- Methodology used
  - Create thousands of hypothetical events; predict (or guess) how often each one would happen.
  - For each event, calculate damage (e.g. to property based on site wind speed, construction, etc)
  - Calculate financial perspectives (its all about ME, the insurer after all!!)

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# Cat Modeling Example

## Marine Cargo Industrial Accident

- A cargo insurer has accumulations of cargo policies in two ports (say Long Beach and Newport News)
  - Assume \$10M in insured values in Newport News and \$30M in Long Beach (in fact, this would vary over time).
- Expects two industrial accidents to occur in each location over the next 100 years
  - one a 50% TIV loss
  - one a full 100% TIV loss

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# Cat Modeling Example

## Marine Cargo Industrial Accident

### Industrial Accident Example Event Set

Event ID	location	frequency (probability)	Loss, given an event	Average Annual Loss
1	Long Beach	0.01	15,000,000 (50% TIV)	150,000
2	Long Beach	0.01	30,000,000 (100% TIV)	300,000
3	Newport News	0.01	5,000,000 (50% TIV)	50,000
4	Newport News	0.01	10,000,000 (100% TIV)	100,000
Total		0.04		600,000

**600,000  
annual cat load**

**1 in 100 return period = 30M  
In in 50 = 15M**

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# Cat Modeling Example

## Other Examples?

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- Meteor strike?
- Key injury ends an NFL playoff run?
- Kitchen sink explodes?

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# Questions?

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# LUNCH!

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