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How the Events of 9/11 Affect Thinking about Risk

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The Panelists

- Henry Albulescu – S&P
- Eric Rosenfield – CSFB
- Nicolas Weill– Moody’s
- Mark Adelson – Nomura

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In nature there are unexpected storms; in life there are unpredictable vicissitudes.
-Chinese proverb

If anything can go wrong, it will.
-Murphy's Law

I. Introduction

The attack on the World Trade Center on 9/11 has influenced thinking about risk. Particularly in the structured finance arena, the tragedy has served as a reminder of both the power and limits of quantitative risk modeling.

Too often, the quantitative methods used in creating structured finance securities fail to reflect the real world when it matters most, during times of stress. Models and their underlying assumptions drawn from "normal" conditions should not be expected to perform well during unusual and extreme conditions. But, in the structured finance context, the primary purpose for elaborate and sophisticated models is often to predict the performance of securitized assets during unusual and extreme conditions. Ironically, the structured finance community expects the most from its quantitative models when they are inherently at their weakest.

Unusual and extreme conditions are a key focus in structured finance, where a frequent goal is to create securities of extremely low risk. Structured finance professionals try to predict the credit performance of securitized assets under adverse economic conditions, an exercise central to assessing the adequacy of credit enhancements. Structured finance professionals also try to predict the likelihood of extreme interest rate and currency exchange rate fluctuations. Such fluctuations can influence the available cash flow for a securitization. Particularly in the mortgage arena, prepayment risk stems primarily from interest rate movements.

No quantitative models predicted the attack on the World Trade Center or its consequences for structured financings. This is hardly a shortcoming of the models. Rather, it illustrates the need for professionals to fully acknowledge the limitations of their models and to think beyond the pat answers that models supply. Although the attack was unpredictable, it was really just an example of the class of events called "catastrophes." Specific catastrophes are always surprises when they happen. Otherwise, people would take action beforehand to prevent them or to protect against them.

Please refer to important disclosures at the end of this report.

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Expect the Unexpected (Antarctica)

65° 09' S

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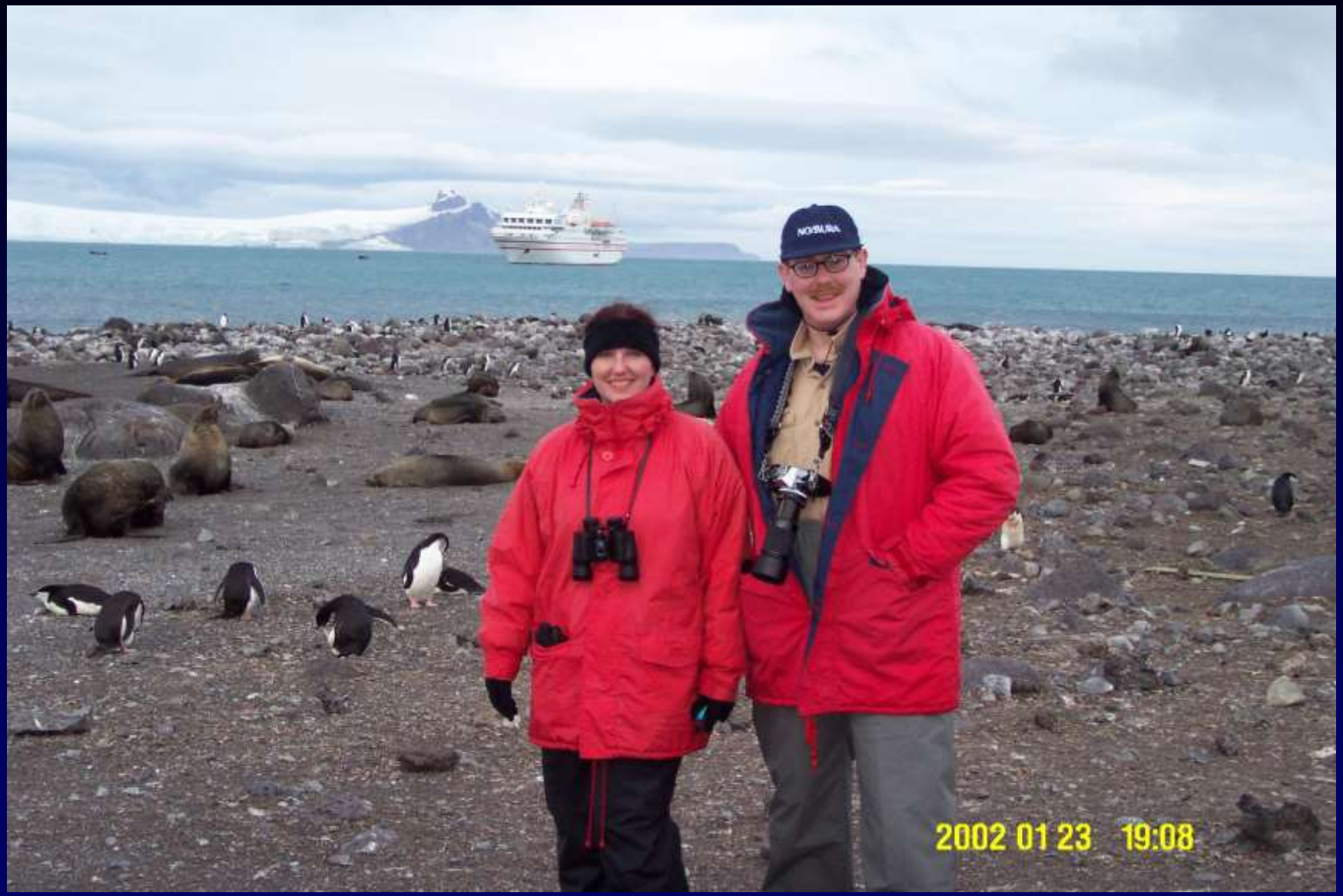
Quantitative Models

- Models are naturally appealing
- We learn to like them in school
- Great under normal conditions

Expect the Unexpected 2 (Penguin Island)



62° 05' S, 57° 54' W

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Quantitative Models 2

- But … (quotes):
  - Even though many economic and financial variables have approximately normal distributions, the picture is never perfect. Resemblance to truth is not the same thing as truth. Those outliers and imperfections are where the wildness lurks.
  - The real trouble with this world of ours is not that it is an unreasonable world, nor that it is a reasonable one. The commonest kind of trouble is that it is nearly reasonable, but not quite. Life is not an illogicality; yet it is a trap for logicians. It looks just a little more mathematical and regular than it is; its exactitude is obvious, but its inexactitude is hidden; its wildness lies in wait.

Quantitative Models 3

- Models are weak under extreme or unusual conditions
  - catastrophes are inherently unpredictable
  - catastrophes keep happening
  - rarely the same thing twice

Understanding Model Limitations

- Biased development samples
- Wrong distributions
- Non-stationary processes
  - the world is less well-behaved than we would have it
- Missing variables
  - omitting the unquantifiable

Expect the Unexpected 3 (Chinstrap Penguin)

62° 05' S, 57° 54' W

Expect the Unexpected 4 (King Penguin)

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54° 37' S, 35° 56' W

Conclusion

- Models remain essential tools for business
- Models tend to underestimate risk
- Possible solutions:
  - Try to make better models
  - Use knowledge of models' limitations in making business decisions