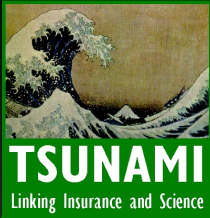


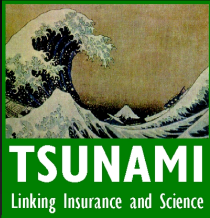
A personal history

- *entered industry in 1980 as maths graduate*
 - astounded how little statistical info available/used
 - rating by the book
- *moved in reinsurance 1985*
 - greater concentration of risk => more science?
 - wrong: risk assessment on little info
 - relationship business - trust, market knowledge, instinct, partnership



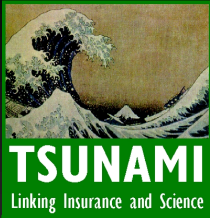
What changed?

- *large losses of 1980s/1990s*
 - clear that there was little handle on true risks
 - Storm 87J - “1 in 100” storm - but 90A bigger
- *computer revolution*
 - more data
 - better analytical tools
- *market*
 - intense competition
 - fewer, bigger players



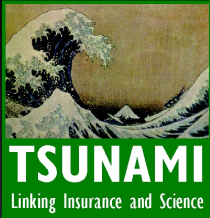
Where are we now

- *competition unabated*
 - increasing consolidation & internationalism
 - “threat” of financial markets
- *triumph of analytical approach*
 - widespread use of peril models
 - decision making based upon results of stochastic models
- *product innovation*
 - commoditised products
 - customised products



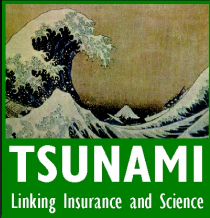
Growing competition

- *growing globalisation*
 - international business
 - international comparison
- *blurring of roles*
 - bank/insurance group mergers
 - capital market looming in background
- *opportunities for science*
 - companies focus upon maximising return on capital for a given level of risk
 - requires probabilistic assessment of risk



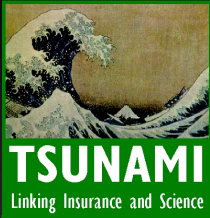
So embrace analytical approach?

- *yes, but don't throw baby out with bath water*
 - use models to inform decision not decide based on model
 - cliché: but rubbish in/rubbish out still applies
- *use best models but don't follow the herd*
 - understand how they work and data they are predicated on
 - try to know more about process than competitors
- *opportunities for science*
 - insight & interpretation
 - pushing back frontiers of knowledge



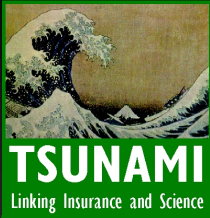
Product innovation I

- *commoditisation*
 - growth in weather derivatives
 - triggered by defined event not insurance loss
 - essentially a bet on probability of event
 - opportunity for speculation
- *opportunities for science*
 - real value in marginal increase in skill
 - advising investors on robustness of deal
 - developing potential new indices



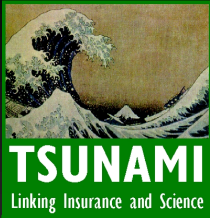
Product innovation II

- *customisation*
 - “bespoke” products for customers tailored to their needs, portfolio and data
 - stratified products aimed particular markets
 - success depends upon fully understanding customer/target and their needs
- *opportunities for science*
 - targeted research for larger customers, eg correlation issues
 - assist in product development, eg minimise matching risk



Example : Mild Winter product

- *Heating degree day (“HDD”) index product*
 - number of degree day units is $65^{\circ}\text{F} - \text{mean temperature where } (\text{high} + \text{low} / 2) = \text{mean}$
- *Policy terms*
 - largest supplier of heating oil in North East USA - revenues of USD 500m per year
 - 4 month (Dec - Mar) capture period
 - product protects against 10% warmer winter than norm
 - indemnity offered USD 10,000,000
 - Premium USD 1,200,000



Summary

- *key is intelligent use of science and technology*
 - industry understands use/limitation of science
 - science understands industry needs
- *target research*
 - short term rather than long term
 - problem specific not general
- *be flexible*
 - challenging deadlines & changing priorities
 - set up on a business footing