Life Office Valuation Evolution & the Actuary

Overview

- The aim of this presentation is to argue that the role of a life office actuary under Solvency 2 will be more than calculating SCR's (or internal models)

- Secondly that Pillars 2 and 3 are more important than Pillar 1

- Indeed that Pillar 1 left by itself would fail principle tests

Disclaimer

- This presentation represents my personal views and not those of my employer

Overview

- Part 1: A review of the Principles of Life Office Valuations

- Part 2: Welcome to the Black Parade

- Part 3: Orsa's for Courses

A Review of the Principles of Life Office Valuations

Solvency 1 may be said to have been founded on Skerman's principles

1. *That liabilities should be valued by a net-premium method or on some other basis producing stronger reserves*

2. *That appropriate zillmerized reserve would be acceptable in order to allow for initial expenses.*

3. *Adequate margins over the current rate of expenses should be kept in the valuation of the liabilities in order to provide for future renewal expenses.*

4. *Appropriate recognized tables of mortality should be employed.*

5. *That valuation of the liabilities should be at rates of interest lower than implicit in the valuation of the assets, with due regard to the incidence of taxation.*

A review of the Principles of Life Office Valuations

1. Basic (meet liabilities when fall due)
2. Timing (Not a Ponzi scheme)
3. Prudence (much more likely than not)
4. Public Perception (after the event)
5. Publicity (before the event)
6. Stability (what does it lead to?)
7. ~~Recognition~~

A review of the Principles of Life Office Valuations

- As an example take the Solvency 2 concept
  - Hold best estimate of liability
  - Plus the Market Value of the risk
  - Project forward 1 year
  - Meet 1/200 event over one year
  - If 1/200 happens sell up and close up

A review of the Principles of Life Office Valuations

- Another example the Net Premium method
- Reserves only for policy liabilities (not expenses or future bonuses)
- Highly stable basis
- Use of book value
- Margins for investment reserves, and from (Office Premium less Net Premium)
- Mortality NOT cautious

A review of the Principles of Life Office Valuations

- In practice what we do under Solvency 1 is far more complex than the pure Valuation Balance Sheet concept
  - Cash reserves = Lifetime deterministic projection
  - New Business profitability = Profit Tests
  - Mismatching = Stress Tests
  - Guarantees = Stochastic Projections
  - FCR = Scenario Projections with New Business

Welcome to the Black Parade

Welcome to the Black Parade

- Solvency 2
  - News Headline

"Society of Actuaries Welcomes Insolvency Too"

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- Solvency 2
  - 1 in 200
- There are about 350 insurance companies in Ireland

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- Solvency 2
  - Distribution of insolvency would be as follows

	Direct	Direct& Reinsurers
No Insolvencies	38%	17%
1 Insolvency	37%	30%
2 Insolvencies	18%	27%
3 Insolvencies	6%	16%
4 Insolvencies	1%	7%
5 Insolvencies	-	2%

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- Solvency 2
  - News Headline
  - Society of Actuaries Welcomes Insolvency Too
    - The SAI welcomed this Halloween 2012 the introduction of a so called Solvency 2 regime which would mean a failure of a company every 13 months
    - Unlucky for some if you have your life savings in one that fails!
    - Actuarial experts further commented that every 6 years we could expect multiple failures of 3 companies or more

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- Other issues with Solvency 2
  - Are the calibrations correct?
  - Does the correlation approach work?
    - In extremis all correlations are 1
    - Stresses are not additive
  - 1 year approach conceals problems more clearly shown by lifetime projection?
  - Can you sell risk at the same price after 1 in 200?

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- Other issues with Solvency 2
  - Can it ever be right for a company to need the future goodwill of its customers to stay solvent?
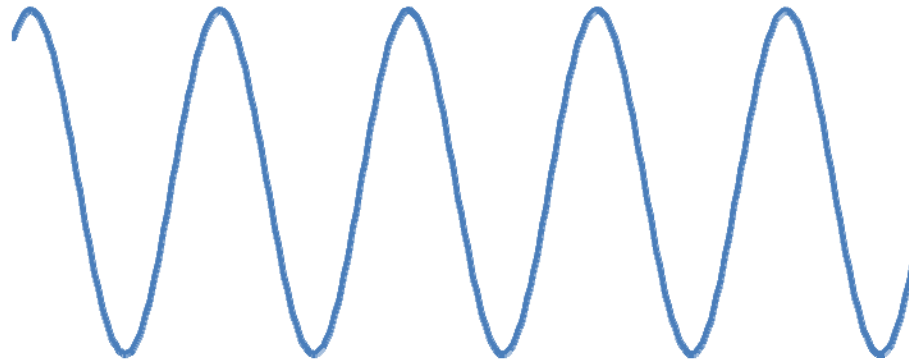
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- Rocket science
- $\dfrac{d^2x}{dt^2} = -w^2x$

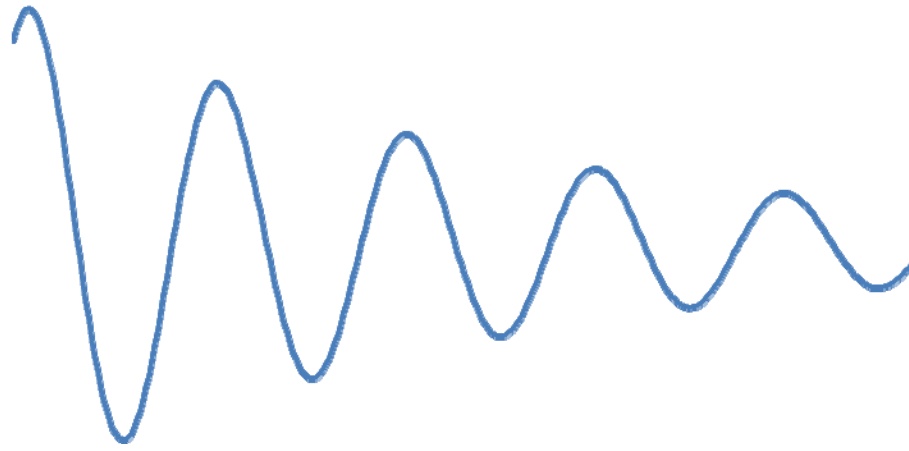# Welcome to the Black Parade

- Rocket science
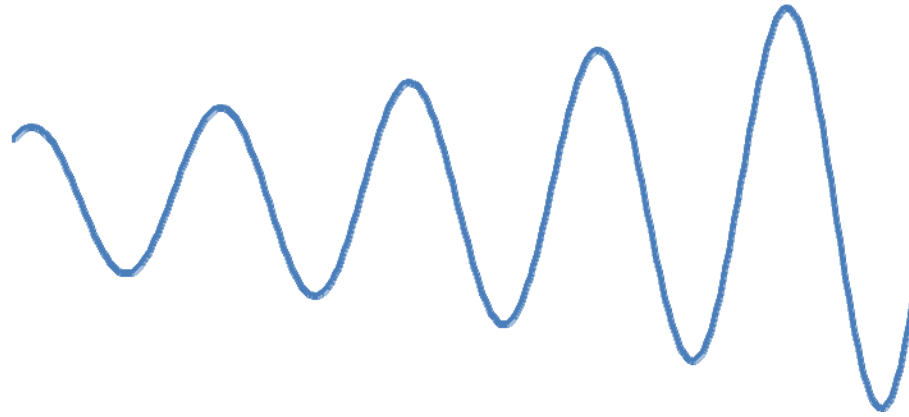- $x(t) = A\sin(wt+b)$

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- Rocket science
- $x(t) = A\sin(wt+b)*\exp(-t/T)$
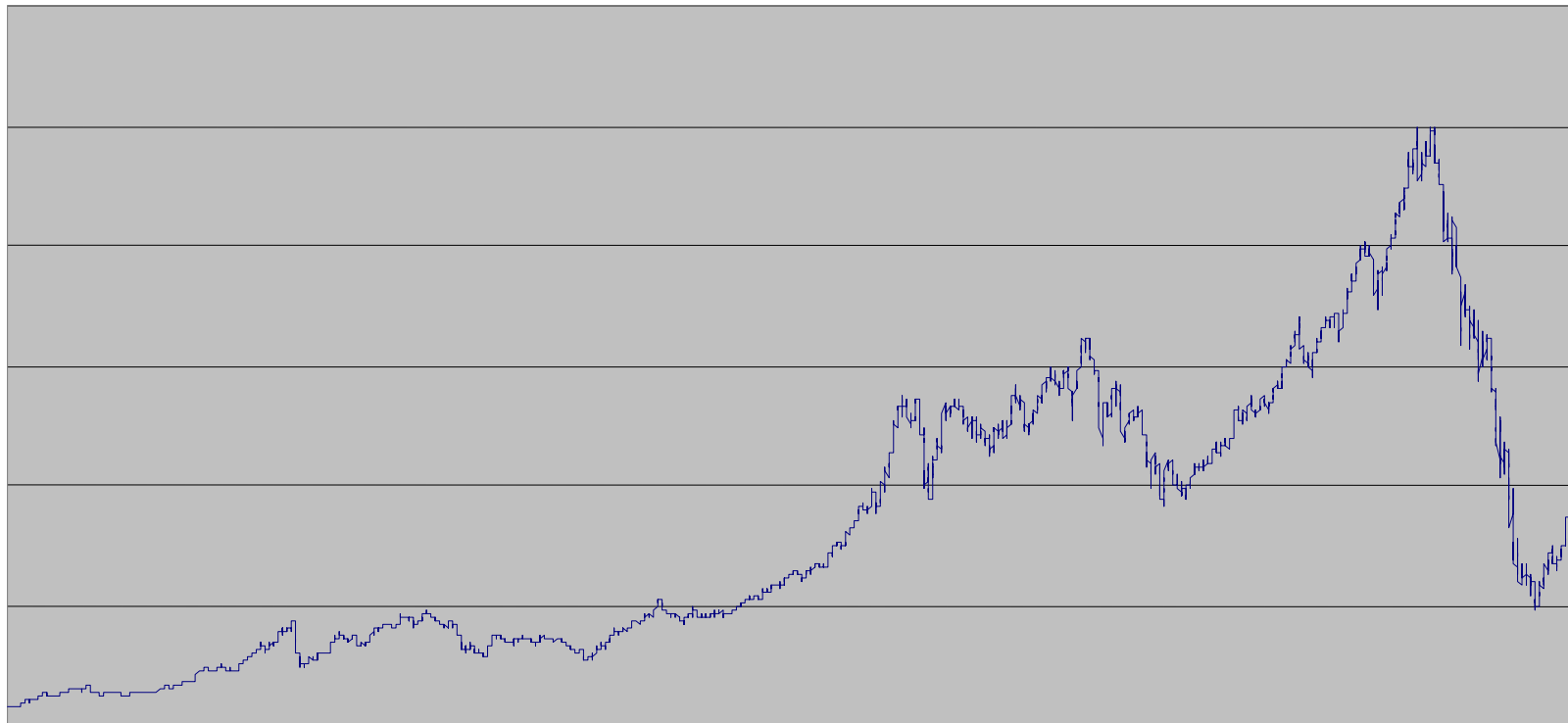
Welcome to the Black Parade

Welcome to the Black Parade

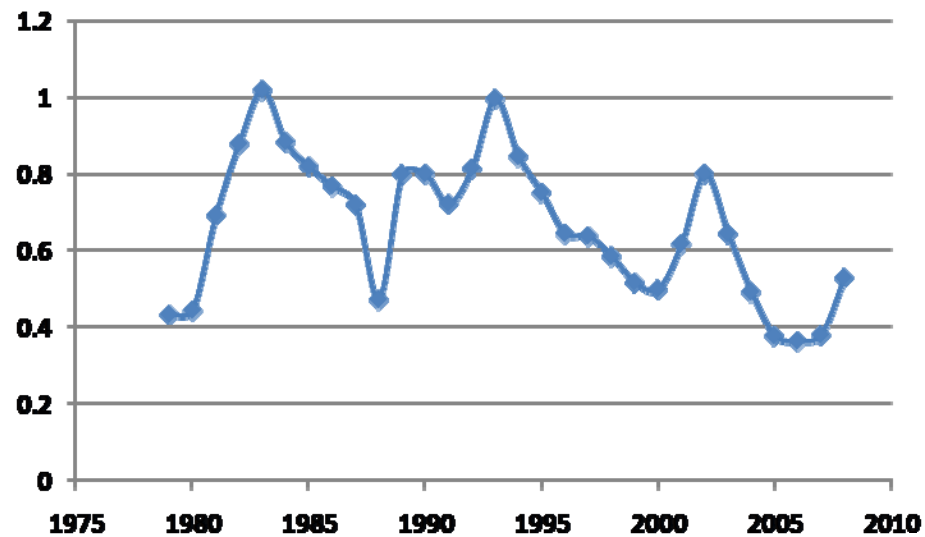# Welcome to the Black Parade

ISEQ 1983 - 2009

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- Other causes of instability
- Feedback loops
  - Examples   DB Pension funds and Equities

    Houses and building workers
- Paradigm changes

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Non performing loan provisions (source IMF)

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- The Fish and the Shoal
- Financial Institutions flock together
  - In what they do
  - And how they behave
  - But particularly in their modelling and reserving

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- Reasons for this
  - Convergence of assumptions
    - Regulators pick off under-conservative outliers
    - The companies themselves pick off over-conservative
  - Safety in numbers for the individual company
  - Hard to resist the call of other people doing something
  - Some markets are made by the most aggressive member

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- The Paradox of the Fish and the Shoal

- It is in the interest of the fish for the shoal to be close together

- It is in the interest of the shoal for the shoal to be widely dispersed

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- Pillar 1 by itself will not protect the industry
- But Pillars 2 & 3 also exist

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Use test

- If you want to use an internal model you must pass a use test

- I suggest that Non-use tests should be employed

  - Stress tests

  - Scenario Tests

  - Use past real events (Japanese equities or Icelandic banks)

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Abuse test

- If you are open to abuse from predators, particularly from forced trades
- Then make sure you are not the first to be forced to trade

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Use it or lose it test

- If you are relying on future actions
- Then make sure that the mechanisms to do so have not been atrophied.

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Lose customer test

- The office should check that it can withstand losing all its customers

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- And that we need to build our tool box to supplement it ,just as we did to Solvency 1