Strategic Modelling and Scenario Planning

PBSS WEBINAR

Carlos Fuentes, FSA, FCA, MAAA, MBA, MS, President
Axiom Actuarial Consulting

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Agenda

Presentation:
1. Statistical and Probabilistic Models
2. Strategic Models
3. Scenario Analysis
4. Questions, Answers, Comments

Purpose: Pick your strategic curiosity
Regression and Probabilistic Models

• Regression and probabilistic models (also known as tactical models) are useful

• Regression (also known as Predictive Models)
  – Many variations
  – Useful when historical conditions are a valid proxy of future behavior
  – Causation, Correlation, Common Cause

• Probabilistic models
  – Useful when the probabilities can be estimated
  – There are probabilities that cannot be estimated
Causation, Correlation, Common Cause

• For the curious mind:
  – http://tylervigen.com/spurious-correlations
  – https://hbr.org/2015/06/beware-spurious-correlations

• The point of view of economists
Strategic Modelling Techniques

• Scenario Analysis

• Game theory
  – “Winning or Losing the Game?”, Contingencies, Jul/Aug 2016

• System Dynamics
  – “Making Sense of the Unexpected” The Actuary, Dec 2017
General Principles of Strategic Modelling

- Leave out irrelevant details
- Understand interactions
- Combine modelling techniques
- Check results against reality
- Update the models
The Basics of Scenario Analysis

• The purpose is to describe how potential futures may unfold, not to forecast

• Considerations
  – Relevant
  – Plausible
  – Internally consistent

• Elements of Scenarios
  – Universal elements (e.g., economic crisis)
  – “Forces” or external influences (e.g., political direction, technology, global warming, economic and military conflict)
Building Scenarios—Best Practices

- Secure input from experts in different fields
- The plots should focus on the question under consideration
- Each scenario must represent a distinctive future
- The plots should be simple and informative. Details can be presented elsewhere
- Scenarios must be written in clear prose. See https://www.youtube.com/watch?v=Dnkow4y1cyw for biz-speak
- Choose memorable names for each scenario
Insurance Company—20-Year Planning

• Universal Elements
  – Economic depression
  – Growing debt, unbalanced budgets
  – Population ageing
  – Globalization

• Forces
  – Environment global warming, epidemics, draughts, armed conflict
  – Political direction (left or right)
  – Technology
  – Speed of population growth
  – Migration
Scenarios

Stable Environment (No Catastrophes)

Scenario 2: Illusion
Scenario 1: Slippery Slope

Left Right

Scenario 3: Swim or Sink
Scenario 4: Strike Two

Natural and Man-Made Catastrophes
Scenario 3: Swim or Sink

- Economy in complete disarray
- New diseases. Pandemics. Global warming
- People oppose universal health care despite crippling costs—the unchecked psychology of the masses
- Insurance companies and health providers oppose universal health care
- Employers favor universal health care provided by the government
- Republicans support the initiative, democrats are lukewarm
- Medicare is expanded. It coexists for a while with private insurance
- Private insurers lose substantial market share but a few of them finds a new niche
Why Strategic Modeling is Absent

- Management unawareness
- Short-term view
- Attraction towards (imaginary) certainty
- Job security via Panglossian forecasts
- Belief that strategic modelling is useless
- Strategic modelling requires time and effort
[W]hen he was in the country with his friends, he would sometimes stop and ask them: ‘suppose there were enemies up in those hills and we were here with our army, who would have the advantage? How could we get at them without breaking ranks? If we wanted to get away, how would we do it? If they tried to get away, how could we cut them off?’ … As a result of this constant practice, no unexpected difficulty could ever arise when he was at the head of his army, for which he did not have a ready remedy

“The Prince”, Niccolò Machiavelli
Thank you