

Scenario-based AMA

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Foreword

❁ *Caveat*

- *Personal opinions expressed here do not necessarily reflect the Commission Bancaire point of view*
- *Views are very much time-of-observation related; they may get obsolete rapidly in this fast moving subject.*
- *This is a range of practice description, not prescriptive guidance*



General motivation

- ❁ 3 different types of "scenario-based" approaches, plus diverse combinations of these types
- ❁ Evolution
 - From Federal Reserve Bank of New York 2003
 - Today, as an ubiquitous complement to real data
- ❁ Why are scenario approaches popular today?
 - Then : forward-looking, risk management orientation, not "geeky"
 - Now : same still holds but more attractiveness from adjustment needs

Different practices of scenarios

❁ Type 1: distributional scenario approach

- Business practitioners describing density functions
 - Directly, or
 - Inferred by statisticians
- Related to "average scenarios" of every day activities
- Mostly 2-point curves (mode and 90%)



Different practices of scenarios

❁ Type 2 : "circumstances" scenario approach

- Panels of experts for reckoning of N worst cases
- Related to "catastrophic scenarios" (earthquakes, terrorism, flooding, epidemic...)
- Yields UL in each area investigated
- Generally there is no proof of exhaustivity



Different practices of scenarios

❁ Type 3 : "mechanism" scenario approach

- Causal models for chaining together events sequentially
- Ties directly into simulation approaches
- Looks at factors, "heat maps" being only a starting point
- Leads to look deeper (into propagation, unfolding mechanism, trees ...)



Potential pitfalls

❁ Technical :

- Homogenous valuation by human expertise
- Unwanted bias and their measure

❁ Theoretical :

- Systematic sweeping of state space
- What kind of simulation ?

❁ Practical :

- Pervasiveness and remanence
- Update, storage and filtration and documentation
- Simulation !



Principles-based supervision of SBA

- ❁ Go beyond vocabulary, look at mechanics
- ❁ Apply different criteria for evaluation of different kinds of scenario-based approaches
- ❁ Demand clear documentation
 - Separating theory, methodology and practice
 - How they cascade
 - How choices were made
 - Separating what is really implemented from future developments
 - Separating "generated" data from real data, assumed parameters from regressed parameters...
- ❁ Keep in mind successive supervisorial priorities
 - Capital ?
 - Risk management ?
 - Use test ?



Potential remedies

- Real options practices
 - Leading examples in Oil / Energy / Weather
 - Ex. of calculation and how they plug into bayesian networks
- Bayesian framework
 - First time risk analysis and quantification
 - Update of early estimates by experience
- Other upgrades
 - A handle on risk management ?
 - Stochastic control simulation : "sample path" to learn from experience in uncertain environment
 - Intuitive "martingale" reasoning and risk mitigation
 - Mapping the factors
 - Heat map vs. Process map



Thank you !

- Questions may be directed at :
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