Session III.A
Finding the Right Balance Between Modeling and Judgment in the Projection Process

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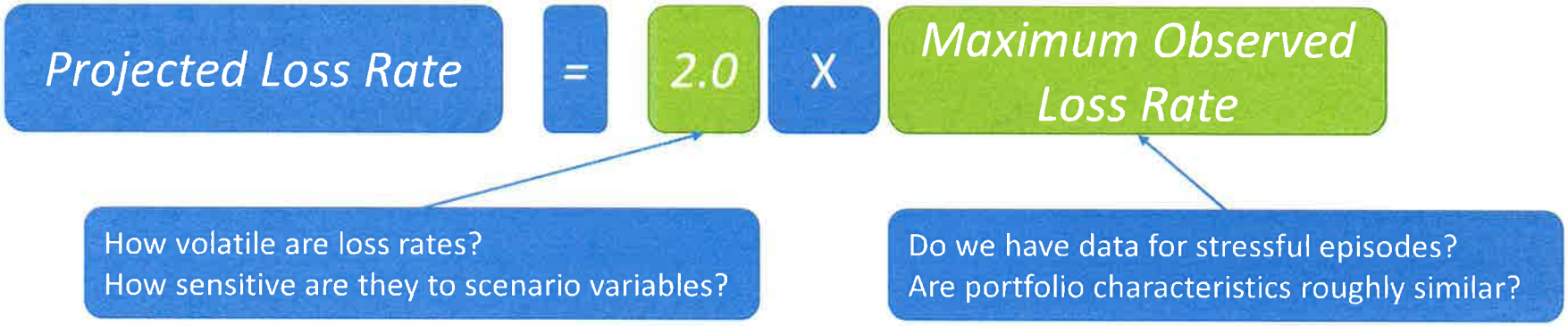
Disclaimer: The views expressed here are my own and not that of the Federal Reserve System or its staff.

- Today's session:
  - When to use judgment, overlays etc. vs formal "model"
  - Right governance and controls around judgmental adjustments
  - Expectations for larger vs. smaller BHCs

- A few introductory points
  - Judgment is everywhere, even in equations
  - Why do we like formal models in stress testing?
  - A provocative thought on complex vs. simple models

Even judgment is a "model"

Q. What stress loss rate should we write down for this portfolio?
A. I don't know – how about twice as much as we lost last time?



Models reflect deep judgment

World is mean-reverting

$$R(t) = a_0 + \rho_0 R(t-1) + b_0 X(t) + \grave{o}_t$$

$$\Delta R(t) = a_1 + \rho_1 \Delta R(t-1) + b_1 \Delta X(t) + u(t)$$

World is random walk

Benefits of using models in stress tests

- Represent *structural* forces driving objects of interest
  - Examples: borrower default decision, equilibrium asset price dynamics
  - Very powerful when thinking about big rare shocks
  - Not true if statistical model used to represent an *empirical* relationship
- Transparent and repeatable mapping from data, risk factors and scenario to losses
  - Disciplines "thumb on the scale" (but doesn't eliminate it)
- Widely used criteria for judging model fit
  - Please: Use out-of-sample criteria

Pitfalls of statistical models in stress tests

- Limited data under forces at work in stress scenario
  - Dynamics observed during normal times may not apply
  - Overall structural break in data generating process
- Results sharply contradict intuition
- In general: fragile models are dangerous—worse than useless

Models: Complex or simple?

- BIS Joint Forum, June 2015
  - "Supervisors should be cautious against over-reliance on internal models for credit risk management and regulatory capital. Where appropriate, simple measures could be evaluated in conjunction with sophisticated modelling to provide a more complete picture."

- Simpler models are harder to build:
  - "My model was complex when I started, too, but I just kept working on it till it got simple," H. Varian

- Models that work in normal times–
  - Benefit from increasing fanciness
  - Fancy features may behave strangely in stress scenarios