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Disclaimer

- The views expressed in this talk are my own.

- They may not be shared by others in the Federal Reserve System ...

- Especially my colleagues on the Federal Open Market Committee (FOMC).

Acknowledgements

Long-Run Monetary Policy Stance in the US

- FOMC prediction range for long-run fed funds rate: between 3.25% and 4.25%

  – My prediction is the lowest: 3.25%.

  – Note: 10 year-10 year forward Treasury yield is around 3.25%.

- Also: FOMC expects US to reach maximum employment and target inflation BEFORE fed funds rate rises back to long run level.

I expect low interest rate policy for several (maybe many) years.

Monetary Policy and Financial Stability

- Given expected future monetary policy stance, policymakers will need to be aware that:

  Low interest rate policy could create risk of financial instability.

- My view: It is preferable to mitigate such risks using supervisory tools.

- But in reality: Supervision may leave residual systemic risk.

  How should this residual risk affect monetary policy?

This Talk

- A **framework** to incorporate systemic risk mitigation into monetary policymaking.

- Main theme: Systemic risk creates a **mean-variance trade-off** for policy.

A MEAN-VARIANCE FRAMEWORK

Simple Model

- Monetary policymaker (MP)'s goal is to set a gap X equal to zero.

    – For example: X could equal inflation minus target

- Note well: X is determined by MP's **macroeconomic** goals.

- MP can increase X by raising accommodation A.

- After MP chooses A, X is also affected by a number of shocks, including shocks to the financial system.

The Central Banker's Problem

- MP's loss is given by the square of the gap (that is, X^2).

- Recall: X depends on shocks realized after A is chosen.

- MP chooses A so as to minimize the mean loss associated with A:

$$Mean(X^2|A)$$

Usual Approach

- Mean loss equals squared mean gap + variance of gap:
$$[Mean(X|A)]^2 + Var(X|A)$$

- Typical assumption: MP can't influence variance of shocks.

- Then, minimizing expected loss is same as minimizing squared mean gap:
$$[Mean(X|A)]^2$$

- Solution is to choose accommodation A^* that eliminates mean gap:
$$Mean(X|A^*) = 0$$

Incorporating Financial Stability Risks

- Suppose higher A **increases** the risk of financial instability that lowers X.

  - Note: This supposition will be true only in some circumstances.

- Then, higher A increases $Var(X|A)$.

- MP's problem is to choose A so as to minimize:

$$[Mean(X|A)]^2 + Var(X|A)$$

- Now: MP's choice of A trades off mean versus variance.

Mean-Variance Trade-Off

- Trade-off means that MP's appropriate choice A^{**} will result in:

$$Mean(X|A^{**}) < 0$$

- That is, on average, the gap is negative under appropriate policy.

- MP gives up some mean X in order to get less risk in X.

- But exactly *how much* mean X should MP give up?

Comparing Two Monetary Policy Alternatives

- It is appropriate for MP to choose A over A^* if A reduces risk sufficiently relative to A^*:

$$Var(X|A^*) - Var(X|A) > Mean(X|A)^2$$

- Central banks know a lot about assessing the RHS – that is, the mean of X given choice A.

- Key question is about the LHS:

How do we assess the difference in the risk implied by policy choices?

A Possibly Helpful Simplification

- Suppose that a crisis causes the gap X to fall by Δ.

- Suppose that monetary accommodation A implies that the probability of a crisis is $p(A)$.

- Then (assuming statistical independence of the crisis from other shocks):

$$Var(X|A^*) - Var(X|A) \approx [p(A^*) - p(A)]\Delta^2$$

- Then: Given any policy choice A or A^*, we need to assess:

    The **implied probability** of a crisis and **its impact** Δ on X

CONCLUSIONS

Financial Stability Framework: What We Need To Know

- Mean-variance framework implies that policymakers need to assess:

$$Var(X|A) - Var(X|A')$$

- Possibly could simplify this problem to gauging:

$$[p(A) - p(A')]\Delta^2$$

Progress Has Been Made ...

- Key measurement question: what is the **probability** of a crisis, given current policy?

- Federal Reserve System has made good progress on this question.

    – Intense scrutiny of financial system risks/vulnerabilities

- My own **current** assessment is that in the US:

Crisis probability is too small to affect monetary policy choices materially.

... But More Has to Be Done

- Needed: Better models/measures of impact of monetary policy on crisis probability.

  – That is, better models/measures of $p(A)$.

- Needed: better models/measures of crisis impact on macroeconomy.

  – That is, better models/measures of Δ.