Discussion of 2014 USMPF Monetary Policy Report

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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.

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Monetary Policy and Financial Stability

- Motivation for the Monetary Policy Report (MPR):

Easy monetary 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.

- This is especially true given the kinds of risks described in the MPR.

How should this residual risk affect monetary policy?

My Discussion ...

- First: A **framework** to incorporate systemic risk mitigation into monetary policymaking.
  - Theme: Systemic risk creates a **mean-variance trade-off** for policy.

- Second: Lessons from the MPR given this framework.

Outline

1. Financial Stability and Monetary Policy: A Mean-Variance Framework

2. Lessons from the 2014 Monetary Policy Report

3. Conclusion

A MEAN-VARIANCE FRAMEWORK

Simple Model

- Monetary policymaker (MP)'s goal is to set a gap X equal to zero.
  - X could equal inflation minus target
  - X could equal output minus its efficient level
  - OR X could equal some combination of the above
- 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).
  - Standard: MP wants gap to equal zero.
  - Equally bad to have positive or negative gaps.
- 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.
- 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.
  - In my view: The RHS remains large for current choice of 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

THE MONETARY POLICY REPORT

Some Important Messages

- Financial instability can arise from financial institutions that are:
  - non-banks
  - relatively nonleveraged
  - solvent
- Asset flows contain key information about financial system risks.
- Good news: These ideas do shape Fed surveillance of financial system.

Amplification of Monetary Policy Changes

- Basic mechanism in the MPR: Low R (easy money) leads to low risk premium.

- High R (tight money) leads to high risk premium.

- As a result: Seemingly small changes in monetary policy stance can have big effects on financial market conditions.

- Authors are persuasive that this was an element in "taper tantrum".

Implications of the Report for Monetary Policy Choices

- The mechanism in the MPR implies that:

- Easing monetary policy increases later risk of *rapid* tightening in fin. mkt. conditions.
  - Easing policy lowers current risk premium.
  - But – eventually – policy and risk premium have to normalize.
  - Lowering risk premium risks a rapid future increase in risk premium.

- How should monetary policymakers take this risk into account?

Using the Mean-Variance Framework

- The mean-variance framework provides a useful policy guide.
- Key question: How does the increased *financial market* risk map into *macroeconomic* risk?
- Specifically: How much does $Var(X)$ increase because of the increased risk of rapid tightening in financial market conditions?
- More simply, given accommodation A:
  - What is the probability p of a rapid tightening in fin. mkt. conditions?
  - What is the impact Δ on X of that change?

Information about Δ: The 2013 Experience

- Financial market conditions tightened rapidly from May to August.
  - Mortgage rates and 10-year yields rose by over 1 percentage point.
- Arguably: This large *increase* in yields only happened because monetary policy (QE3) had *lowered* yields so much.
- Question: **Was 2013:H2 GDP lower because financial market conditions tightened so fast?**
- **And if GDP was lower, by how much?**

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:

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

Monetary Policy Report and the Challenges Ahead

- The MPR suggests that these assessments are not easy.

- Financial instability may not be associated with usual suspects:
  - Leverage, capital, liquidity, etc., etc.

- Also: The rate of change (not just level) of financial market conditions could affect macro outcomes.

There is considerable need for new theory and empirics.