Discussion of "Monetary shocks at high-frequency and their changing FX transmission around the globe"

Prepared for the Bank of Canada Economic Conference:
Unconventional Monetary Policies: A Small Open Economy Perspective

Steven B. Kamin

Director, International Finance Division
Federal Reserve Board

November 4, 2016

Disclaimer: This presentation represents my own views and not necessarily those of the Federal Reserve Board of Governors or its staff.

Introduction

- Impact of monetary policy on exchange rates is a core issue in international finance at least since Mundell and Fleming.
- New interest in the topic since Global Financial Crisis.
  - EMEs raised concerns about stronger impact of unconventional monetary policy.
  - Policy divergence between advanced economies in recent years.
- Many questions raised:

Five Main Questions

I. What is the elasticity of exchange rate changes with respect to monetary policy actions?

II. What are the channels through which monetary policy affects the exchange rate?

III. Has the effect of monetary policy on the exchange rate increased over time?

IV. Do unconventional monetary policy actions have greater effects on the exchange rate than conventional actions?

V. Do monetary policy actions of some central banks have greater effects on the exchange rate than of other central banks?

Introduction

- Ferrari, Kearns and Schrimpf (FKS) address all these topics, to greater/lesser degrees, in an interesting and carefully executed paper.
  - Careful, detailed, comprehensive
  - Clear description of methodology and results
  - Sensible methodology using event-study approach
  - Doesn't nail the 5 questions, but makes a good start!

I. What is the elasticity of exchange rate changes with respect to monetary policy actions?

- Key problem in empirical monetary economics: identifying monetary policy shocks – since monetary policy causes exchange rates, but vice-versa
- The event-study approach taken in the paper is great way to address this
  - Controls for reverse feedback: assumes events in small windows around central bank announcements primarily reflect monetary policy actions
  - Controls for expectations of monetary policy: assumes changes in asset values reflect surprises

I. What is the elasticity of exchange rate changes with respect to monetary policy actions?

- FKS estimate two basic equations:
  - Exchange rates changes on surprises in 1-month OIS rates & 2-year yield spreads:

$$\Delta s_t = \alpha + \beta_{target} \cdot \underbrace{MPS_t^{OIS}}_{\text{target shock}} + \beta_{path} \cdot \underbrace{MPS_t^{Bond-OIS}}_{\text{path shock}} + \epsilon_t,$$

  - Exchange rates on surprises in 2-year yields & orthogonalized 10-year yields:

$$\Delta s_t = \alpha + \beta_{exp} \cdot \underbrace{MPS_t^{2y}}_{\text{expectations shock}} + \beta_{tp} \cdot \underbrace{MPS_t^{10y\perp}}_{\text{term premium shock}} + \epsilon_t.$$

  - FKS: target shocks explain less. Focus on second equation (monetary policy affects entire path of future expected policy).

I. What is the elasticity of exchange rate changes with respect to monetary policy actions?

- Sensible results, broadly consistent with two recent papers
  - Curcuru (2016) uses only 2-year forward OIS rates.
  - Glick and Leduc (2015) use 3 components:
    - Target surprise (fed funds rate)
    - Short-term path surprise (1-year Eurodollar futures rate)
    - Long-term path surprise (principal component of longer dated Treasury futures)

I. What is the elasticity of exchange rate changes with respect to monetary policy actions?

Effect of 100 bp “path surprise” (1–2 year rate expectation)

Comparison Table:
Fed monetary policy shocks and the US Dollar

	EUR	JPY	GDP	CAD
FKS	3.07	2.96	2.37	1.76
Curcuru	3.5	2.9	2.9	1.7
Glick and Leduc	5.88	3.22	4.99	5.26

II. What are the channels through which monetary policy affects the exchange rate?

- Old days: Only expectations of short rates.
- Since QE: Also direct effect on term-premiums.
- Exchange rate effect of term-premiums potentially very different from expected-rate effect.
- Angels dancing on the head of a pin, or practical policy issue?
  - Term premium snapback problem

II. What are the channels through which monetary policy affects the exchange rate?

- FKS: Use 2-year yield as proxy for expected rate change, orthogonalized 10-year yield as proxy for term premium
  - But even orthogonalized 10-year yields may be affected by expectations of short rates (Bauer and Neely 2013)
  - And 2-year yields likely include term premiums (Kim and Wright model)

II. What are the channels through which monetary policy affects the exchange rate?

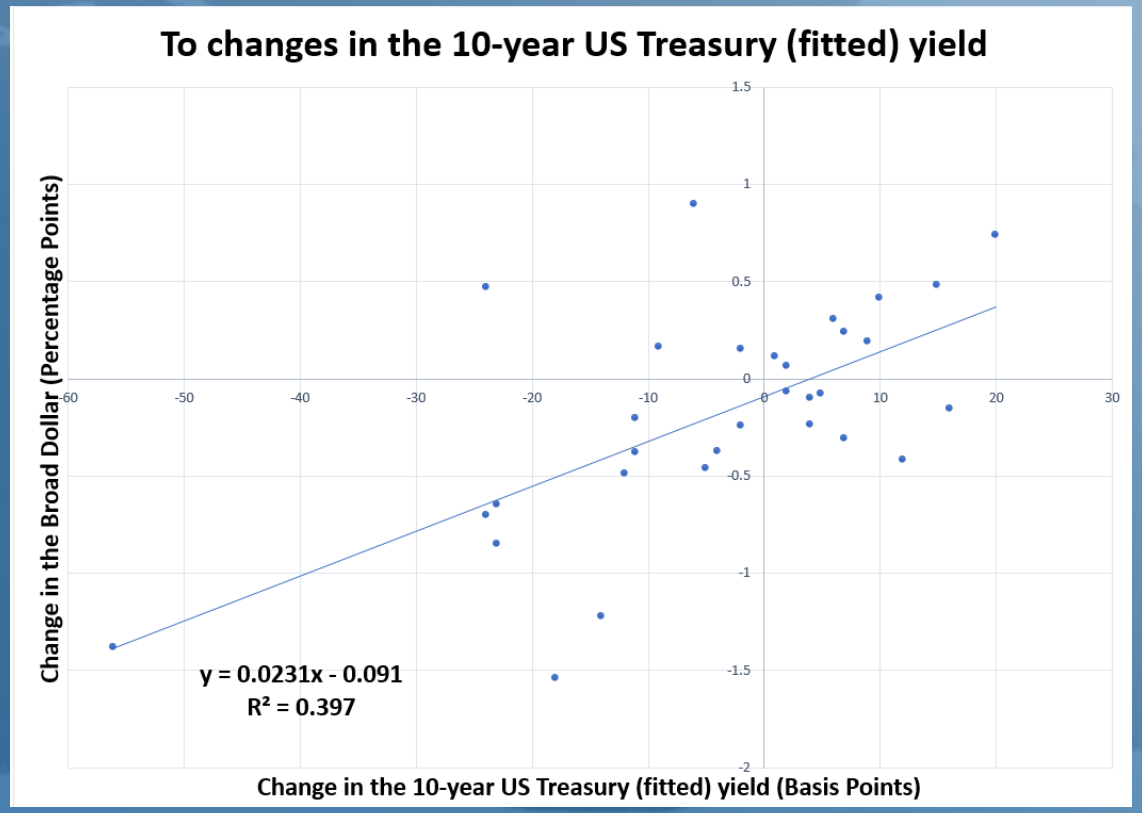
Table 4: Response to expectations and term premium shocks

$$\Delta s_t = \alpha + \beta_{exp} MPS_t^{2y} + \beta_{tp} MPS_t^{10y\perp} + \epsilon_t$$

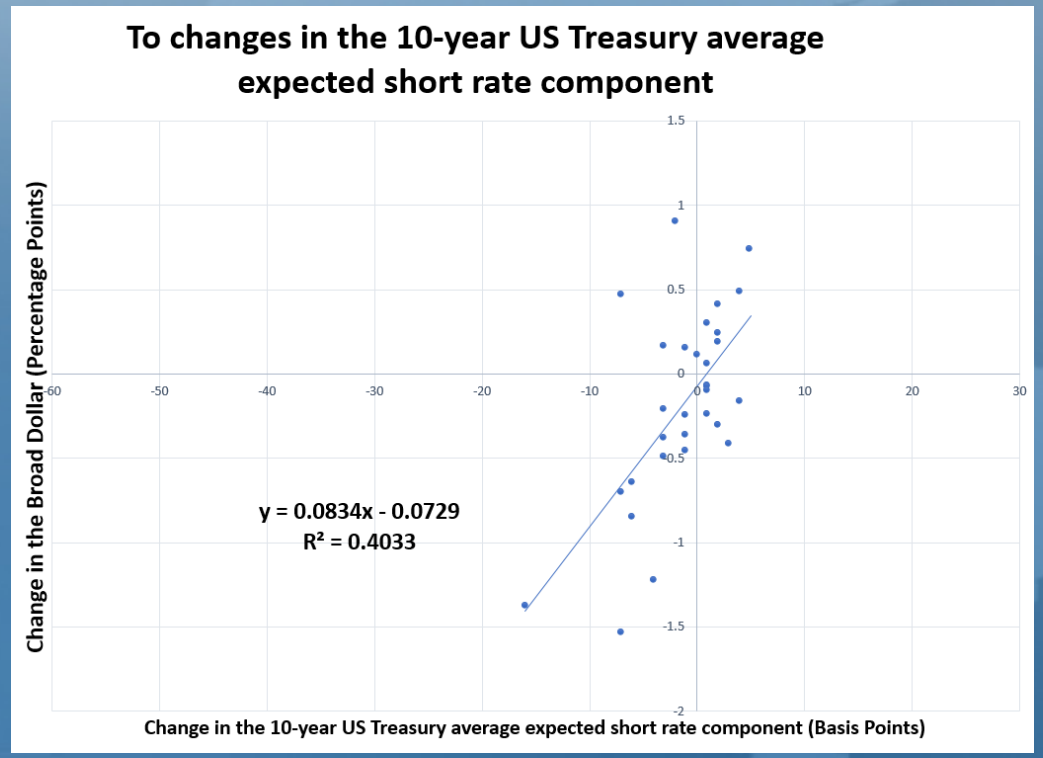
	U.S.	Euro area	Japan	U.K.	Australia	Switzerland	Canada
Expected rates							
β_{exp}	3.07	4.66	1.21	3.94	5.41	11.31	7.09
Term Premia							
β_{tp}	2.65	8.23	-0.10	4.12	4.56	24.33	-0.89

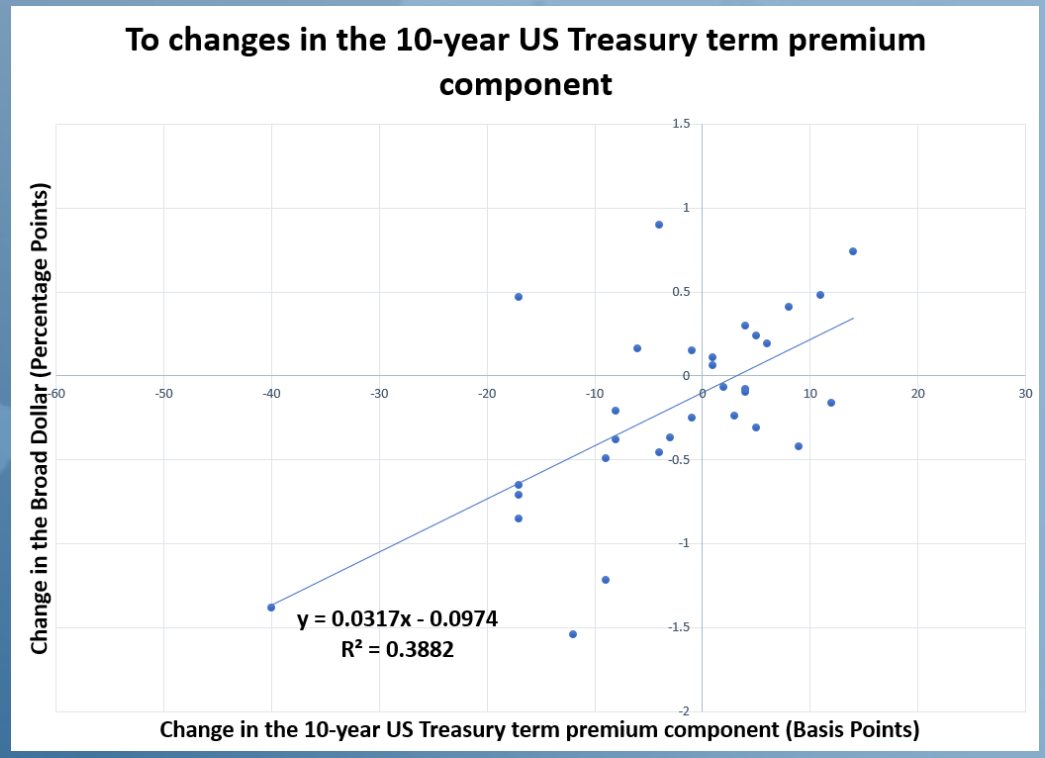
II. What are the channels through which monetary policy affects the exchange rate?

- Alternative approach: model-based decomposition of yields into expected rates and term premium components

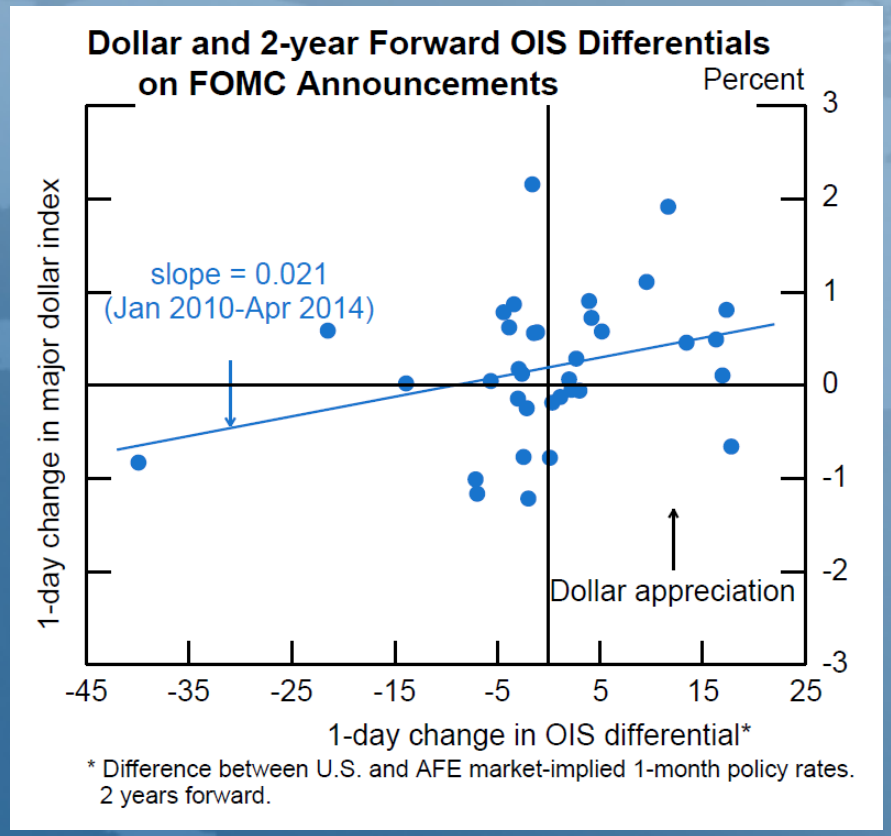


II. What are the channels through which monetary policy affects the exchange rate?

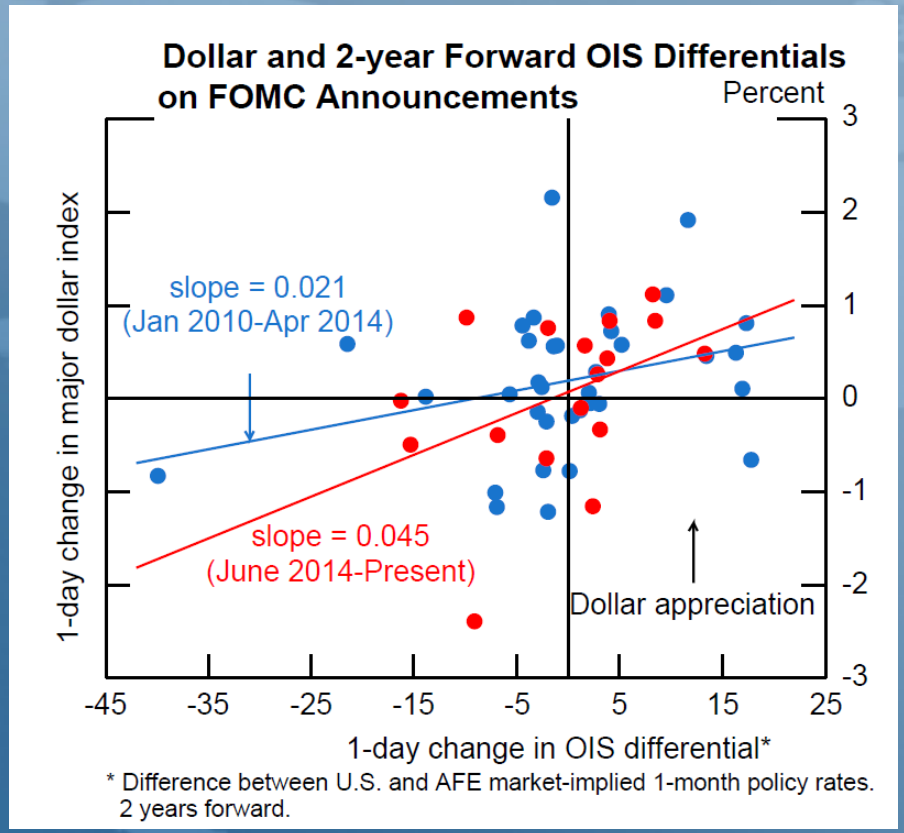




III. Has the effect of monetary policy on the exchange rate increased over time?

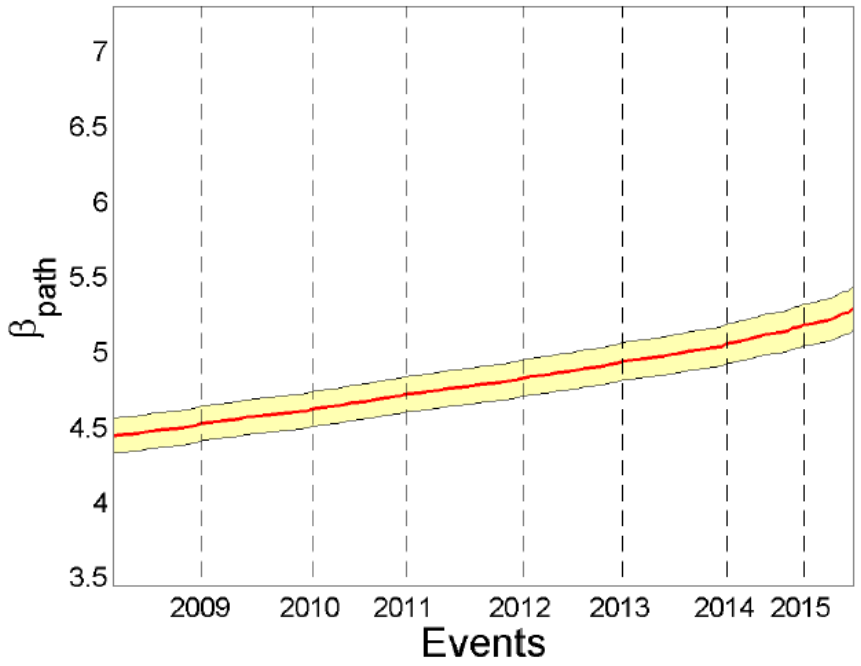


III. Has the effect of monetary policy on the exchange rate increased over time?



III. Has the effect of monetary policy on the exchange rate increased over time?

Figure 4: Time-varying impact of monetary policy shocks on exchange rates



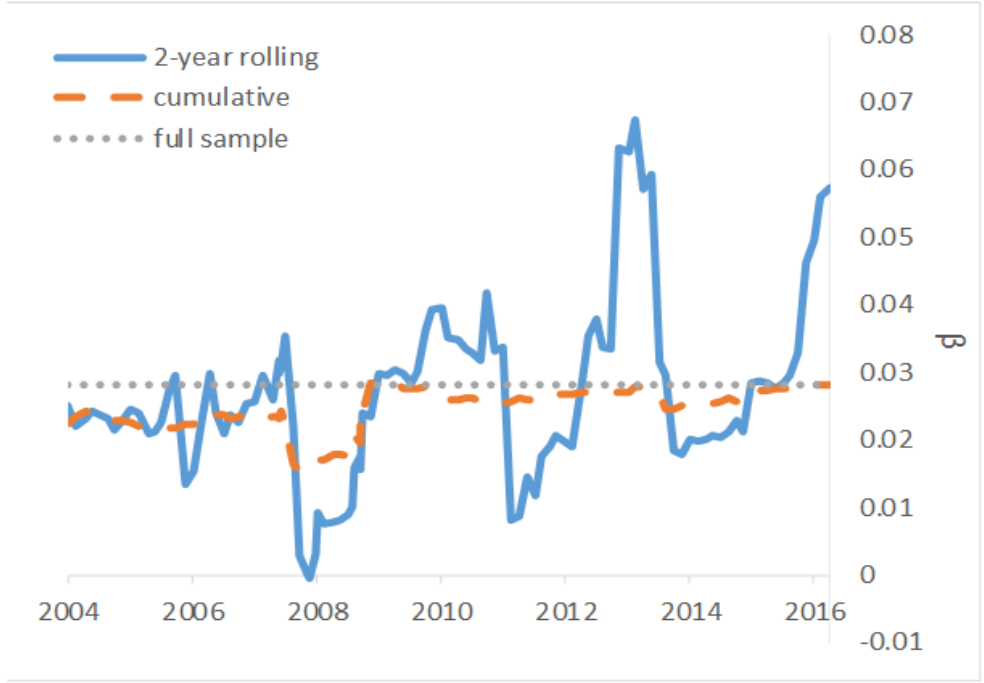
(h) AUD estimation of β_{path} by time

- Very narrow confidence bands – why?
- Would be good if FKS did a parameter stability test.

III. Has the effect of monetary policy on the exchange rate increased over time?

Figure 3: Time-Varying Reaction to Policy Surprises

FOMC Announcements, Major Currencies Index



- Rolling regressions in Curcuru (2016):
  - Swings in sensitivity over time
  - Not clear there is concerted uptrend
- What causes these swings in sensitivity?
  - FKS consider some structural reasons for persistent uptrends in sensitivity,
  - but more conjunctural explanations might be worth exploring.

IV. Do unconventional monetary policy actions have greater effects on the exchange rate than conventional actions?

1. How do you compare effect of apples (conventional policy) and oranges (unconventional policy):

- Different units
  - Basis points (conventional) vs. $billions (QE) vs. words (guidance).
  - Solution: Measure all by their effect on yields.
  - Caveat: If we need huge QE program to get the same effect on 10-year yield as a 25bp rate-cut, are the two really equivalent?

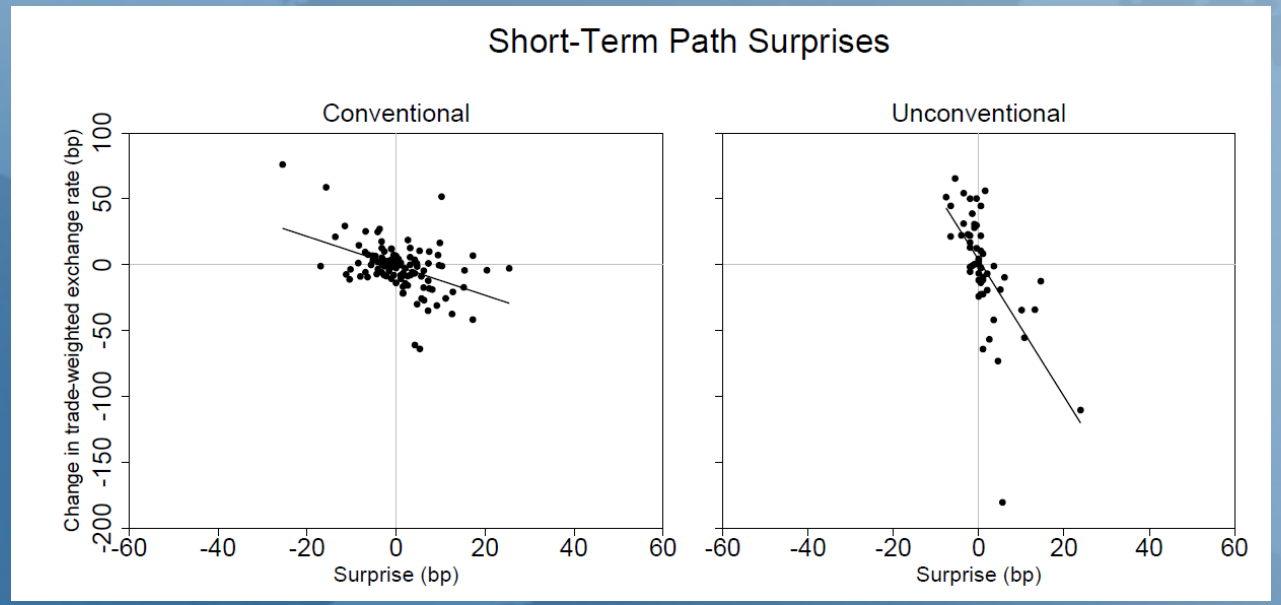
IV. Do unconventional monetary policy actions have greater effects on the exchange rate than conventional actions?

2. How do you distinguish conventional policy actions from unconventional policy actions?

- One approach: comparing the effect of monetary policies in the pre-GFC period of conventional policies with the effect in the post-period of unconventional policies.
- Glick and Leduc (2015) find that these policies had a greater effect in the post-GFC period than the pre-GFC period, implying a larger effect of UMP.

IV. Do unconventional monetary policy actions have greater effects on the exchange rate than conventional actions?

- Glick and Leduc (2015) results:



- Problem: how do we know that greater effects in the unconventional period not due to changes in exchange rate sensitivity over time?

IV. Do unconventional monetary policy actions have greater effects on the exchange rate than conventional actions?

- Rather than comparing policy in different periods, FKS compare conventional effects with effects of explicitly identified UMP actions.

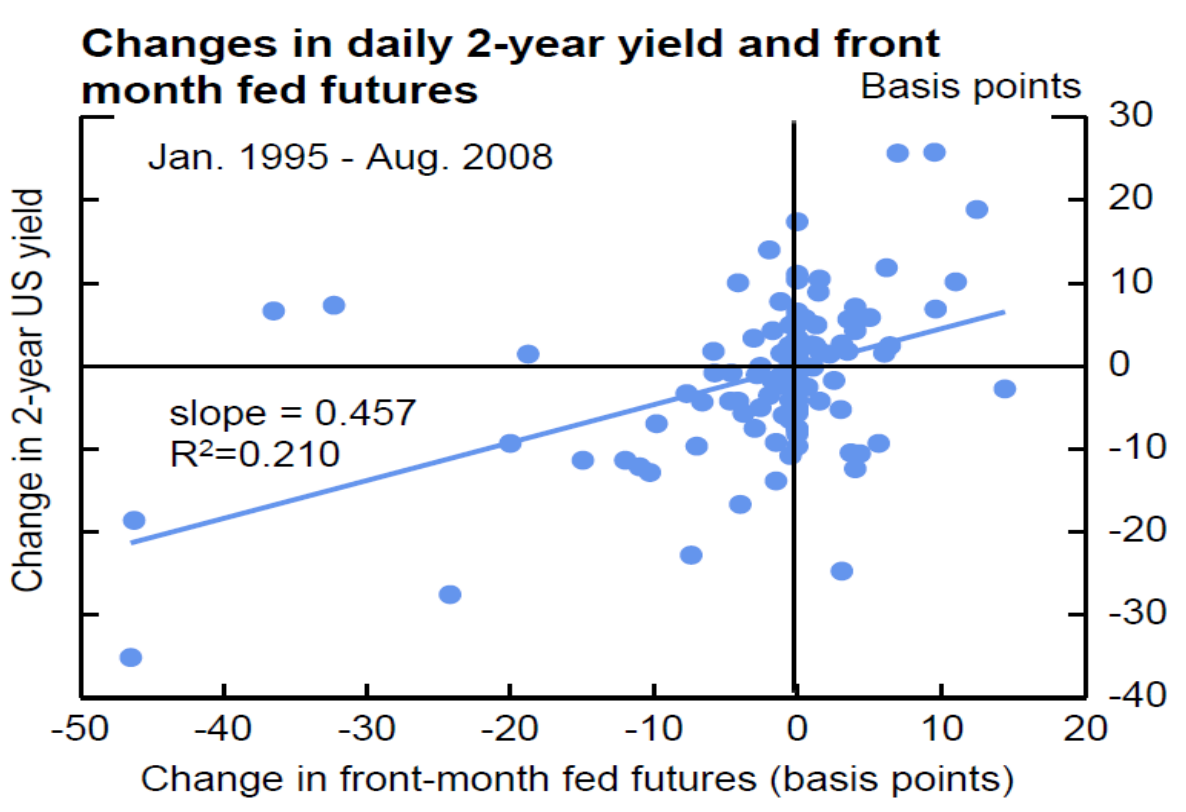
- Does their strategy fully addresses this issue?
  - Post-GFC periods, relatively few conventional policy actions, and most actions were mainly QE and forward guidance -- so doesn't fully control for time-varying-sensitivity problem.

  - Not surprising that authors find very mixed results:

    - For UMP in general, find significantly greater effects on exchange rates than conventional for US, not euro area or UK.

    - For FG, marginally significantly greater effects in all 3 countries for the 2-yr yield, not the orthogonalized 10-yr yield.

IV. Do unconventional monetary policy actions have greater effects on the exchange rate than conventional actions?



- Is the comparison of conventional and unconventional policies all that useful?
  - UMP includes many different actions (negative rates, QE, guidance, etc.)
  - Conventional policies have varying impact on long-run interest rates.

V. Do monetary policy actions of some central banks have greater effects on the exchange rate than of other central banks?

Table 4: Response to expectations

$$\Delta s_t = \alpha + \beta_{exp} MPS_t^{2y} + \beta_{tp} MPS_t^{10y\perp} + \epsilon_t$$

	U.S.	Euro area	Japan	U.K.	Australia	Switzerland	Canada
β_{exp}	3.07	4.66	1.21	3.94	5.41	11.31	7.09
p-val.	(0.00)	(0.00)	(0.38)	(0.00)	(0.00)	(0.00)	(0.00)

- Authors find smaller effect for Fed decisions on exchange rates than decisions of other central banks.
- They argue this may be due to larger spill-overs of Fed decisions to foreign interest rates.
- However, in Table 9 they find little spill-over of Fed decisions to foreign interest rates.

V. Do monetary policy actions of some central banks have greater effects on the exchange rate than of other central banks?

Pass Through of Forward OIS Rate Changes on Central Bank Meeting Dates

$$\Delta(Foreign\ OIS) = \alpha + \beta\Delta(Home\ OIS)$$

	U.S⇒ E.A.	U.S. ⇒ U.K.	U.S. ⇒ J.A.
β	0.37***	0.46***	0.02
	E.A⇒ U.S.	**E.A. ⇒ U.K.**	**E.A. ⇒ J.A.**
β	0.37***	0.40***	0.04**

- Our results indicate significant interest rates spillovers from US actions to other countries.
- Issue of the mix of exchange rate responses and interest-rate spillovers from monetary policy actions a very live issue.

Conclusion

- Extremely important topic.
- Careful, detailed, and comprehensive analysis.
- Clear descriptions of methodology and results.
- Addresses key issues in areas.

- Lots more interesting research on this to be done!