Discussion of:

# *A Model of the Federal Funds Market: Yesterday, Today, and Tomorrow*

by G. Afonso, R. Armenter and B. Lester

Todd Keister
Rutgers University

*RED Conference on Fragmented Financial Markets*

*April 26, 2018*

# Background

▸ Pre-2008, the Fed's procedures for implementing monetary policy required excess reserves to be very small

  ▸ ~1-2 billion dollars

▸ Scarcity of reserves ⇒

  fed funds rate ≫ IOR
  (zero)

▸ LSAPs increased excess reserves dramatically

▸ ... which forced the Fed to change procedures
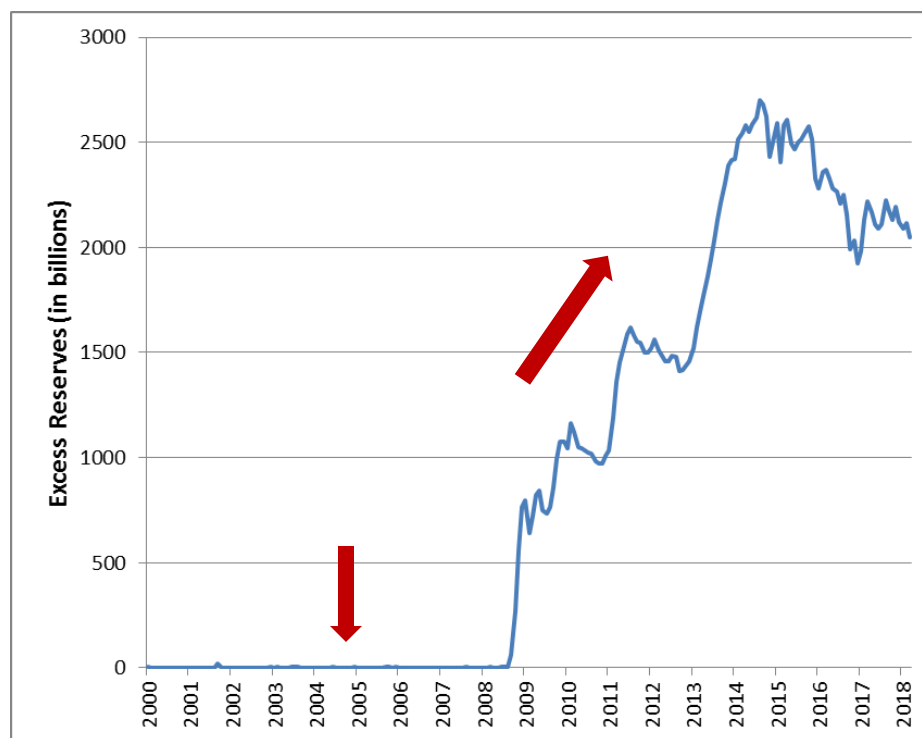
▸ Currently, fed funds rate lies between:

**Fed Funds Rate Relative to the FOMC's Target Range**
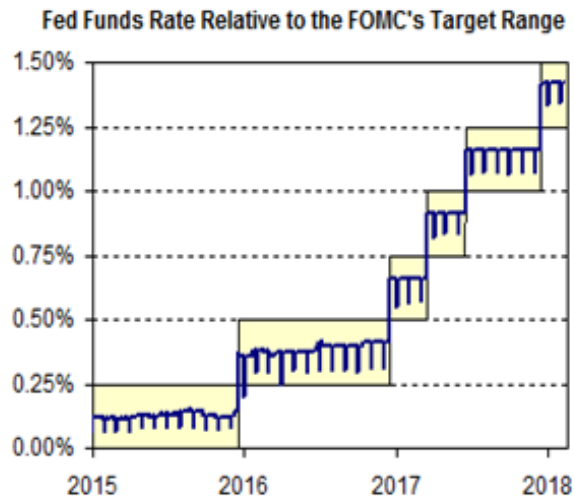
the "floor" created by the interest rate on reserves

the "foundation" created by the ONRRP facility

in the "basement"

▸ If Fed's balance sheet continues to decrease in size …

    ▸ reserves will again become scarce

    ▸ the federal funds rate will climb out of the basement

    ▸ forcing the Fed to change procedures again

# The question: When?

Two key mileposts:

(1) fed funds rate ≥ interest on reserves

▶ out of the basement, onto the floor

▶ Fed will need to change how it communicates policy decisions
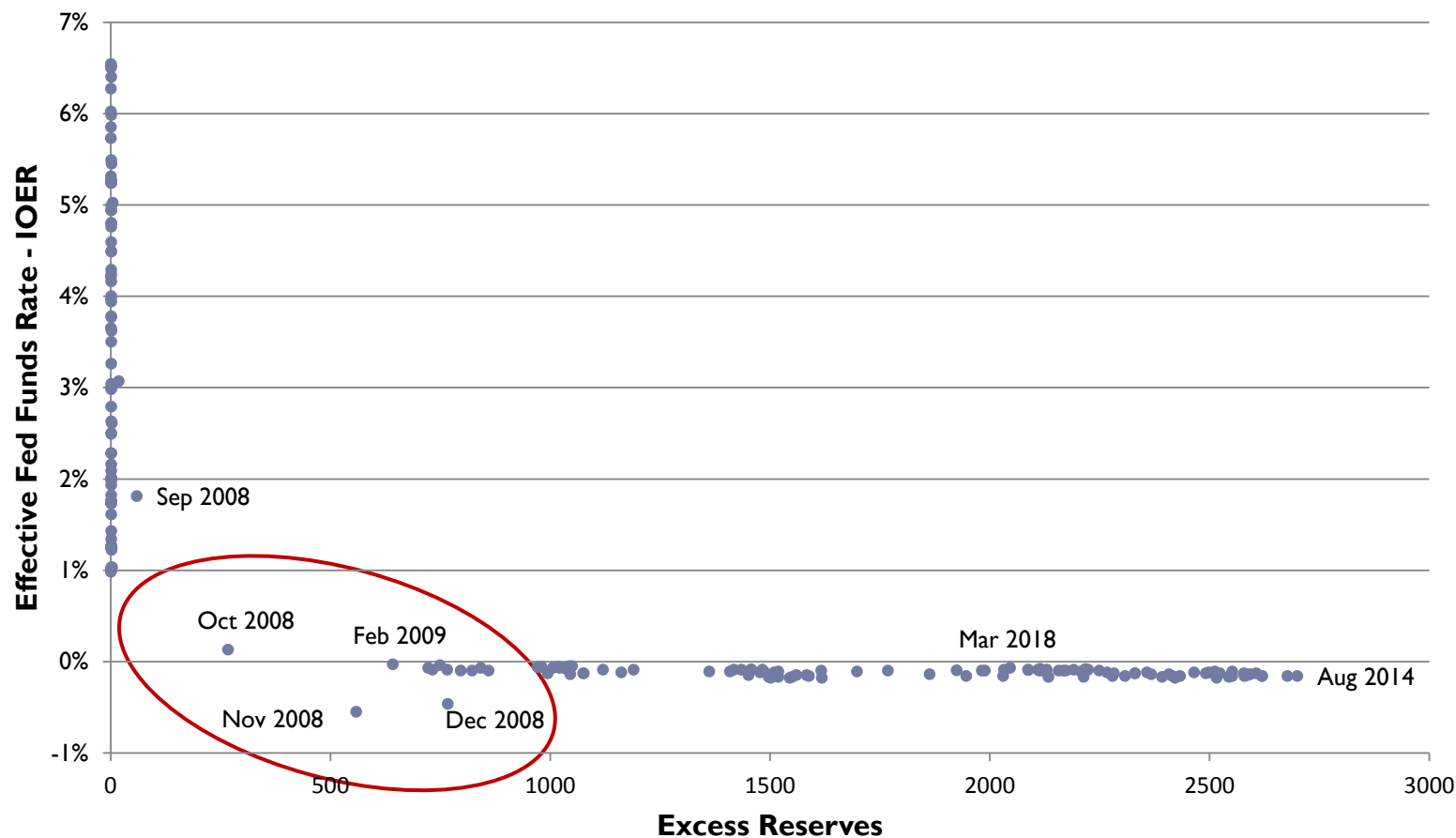
  ▸ that is, change the way target rate/range is stated

(2) fed funds rate ≫ interest on reserves

▶ lift off from the floor, into a corridor system

▶ additional changes in communication; plus in many procedures

Q: At what level of excess reserves will each milepost be hit?

▶ note: these are *quantitative* questions

# The data



A scatter plot with "Effective Fed Funds Rate - IOER" on the vertical axis (ranging from -1% to 7%) and "Excess Reserves" on the horizontal axis (ranging from 0 to 3000). Data points labeled include Sep 2008, Oct 2008, Nov 2008, Feb 2009, Dec 2008, Mar 2018, and Aug 2014. A red ellipse circles the cluster of points from Oct 2008 through Dec 2008 and Feb 2009.

▸ Few data points between \$2b and \$1t in excess reserves

  ▸ and these are from a **very** unusual period ⇒ need theory to guide us

# The theory

‣ The paper presents a model of the fed funds market that:

  ‣ allows for heterogeneity and captures key institutional features

    ‣ GSEs, balance sheet costs, etc.

  ‣ but remains very tractable

‣ Input: joint distribution of excess reserves, balance sheet costs

  ‣ this is (roughly) observable

‣ Output: trade volume, distribution of trade sizes, rates

  ‣ also (somewhat) observable

‣ Model is calibrated and used to answer the two questions

# The results

▸ **Calibrated model fits data from current regime well**

  ▸ also fits the pre-crisis period to some degree

▸ **Key issue for addressing the two questions:**

  ▸ how will the distribution of excess reserves across banks change as total excess reserves decrease?

▸ **Paper constructs a baseline scenario and two extremes**

▸ **Answers:**

(1) out of the basement: $550 billion - $1.1 trillion

(2) lift off from floor: $400 billion - $900 billion

  ▸ these are *quantitative* answers, but with wide "confidence" bands

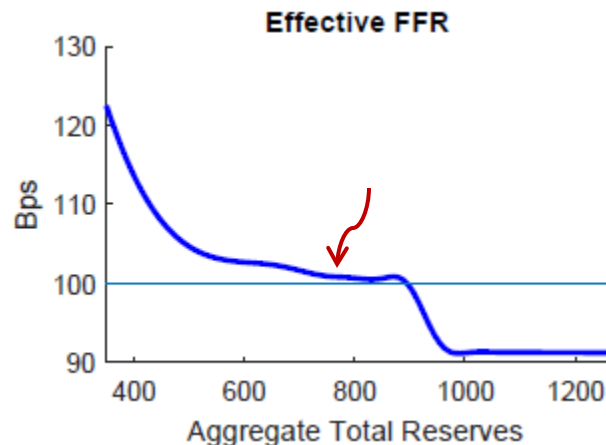# Comments

# 1) The challenge

- Emphasize challenge the authors take on here
  - attempt to forecast outcomes of a somewhat peculiar market ...
  - ... in a radically changed environment

- Others have given answers to the two questions based on ...
  - ... gut feelings?

- Paper shows how a serious economic model can be developed
  - that provides quantitatively meaningful answers

- Nice illustration of the power of models with "fragmented financial markets"

# 2) What I learned

▸ My prior belief: ~$200 billion (or perhaps less)

  ▸ based on ... gut feeling?

▸ Test: Did the paper change my mind? <u>Yes</u>, in two respects:

▸ First: the fed funds rate is sensitive to composition effects

  ▸ only need a small amount of lending by banks to move the rate

  ⇒ exit from the basement is probably much closer than I thought

▸ Second: liftoff from floor may occur well after exit from basement

  ▸ even when lending by banks dominates the market rate

  ▸ excess reserves can still be abundant

**Effective FFR**

Bps axis: 90, 100, 110, 120, 130

Aggregate Total Reserves axis: 400, 600, 800, 1000, 1200

# 3) Where I am less convinced

▸ When will the fed funds rate lift off the floor created by IOR?

▸ When it does ⇒ strong incentive to adjust balance sheets

  ▸ reserves become expensive relative to alternative liquid assets

▸ Paper offers three scenarios for evolution of reserve distribution

  ▸ but approach is fairly mechanical; does not focus on *incentives*

▸ When banks respond to these incentives:

  ▸ distribution may well change more than in the "extreme" scenario

  ⇒ liftoff from floor might occur much later than paper suggests

    ▸ Kim, Martin, and Nosal (2018) argue along these lines

▸ Forecasting evolution of this distribution is very difficult

  ▸ another place where we need *theory* to guide us

# 4) A suggestion

- Paper focuses on the effective federal funds rate (EFFR)

  - which makes sense – it is the Fed's operating target

- But it also highlights the peculiarities of this rate

  - a crude measure of the stance of monetary policy

- Would like to measure: the marginal cost of funds (MCF)

  - or, banks' opportunity cost of lending

  - includes shadow value of funds for those banks <u>not in the market</u>

- Difficult to measure in practice, but ... easy in the model

- Perhaps: report both EFFR and MCF in your exercises

  - is EFFR more "reliable" as reserves decrease?  If so, when?