

DISCUSSION OF

*How Should Central Banks Steer Money Market  
Interest Rates?*

by Francesco Papadia

Todd Keister  
Rutgers University

SIPA/FRBNY Workshop on Implementing Monetary Policy

May 4, 2016

# Steering interest rates

---

- ▶ Francesco's presentation nicely lays out:
  - ▶ the standard pre-crisis framework
  - ▶ the present (non-standard) situation
  - ▶ an interesting proposal for using derivative contracts to improve interest rate control
- ▶ I want to bring in another element into the discussion: liquidity regulation
  - ▶ creates some complications any operational framework will have to deal with
  - ▶ reminds us of the interaction between the operational framework and other objectives, including financial stability
  - ▶ may point to another advantage of the derivatives approach

---

## Emphasize:

- ▶ The question of how to best steer interest rates is not merely a technical matter
- ▶ The implementation framework is inherently connected to:
  - ▶ fiscal policy, through the central bank's balance sheet
  - ▶ financial stability policy
- ▶ Determining how to balance these concerns is difficult
  - ▶ but seeing the potential conflicts and tradeoffs in a specific context is (hopefully) useful

# Interest rates pre-LCR

---

- ▶ Start with Francesco’s “fundamental equation” for the equilibrium interest rate on interbank loans

$$r^* = \text{prob}[\text{reserve surplus}]r_{IOER} + \text{prob}[\text{reserve deficit}]r_{DW}$$

where:

- ▶  $r_{IOER}$  = interest rate paid on excess reserves
  - ▶  $r_{DW}$  = interest rate at the CB’s discount window
- ▶ Rewriting:

$$r^* = r_{IOER} + \underbrace{\text{prob}[\text{reserve deficiency}]}_{\text{depends on the supply of reserves}}(r_{DW} - r_{IOER})$$

or

$$r^* = r_{IOER} + \underbrace{p(R)}_{\text{“scarcity value” of reserves}}$$

## Repeating: $r^* = r_{IOER} + p(R)$

---

- ▶ Implementation: use  $R$  (and other tools) to change  $p(R)$ 
  - ▶ corridor system: aim for a particular  $p(R) > 0$
  - ▶ floor system: aim for  $p(R) \approx 0$

## Other interest rates

- ▶ For loans with longer maturity, more risk, etc.:

$$r_j^* = r^* + s_j$$

- ▶ think of spread  $s_j$  as (roughly) independent of  $r_{IOER}$  and  $R$
  - ▶ includes expectations of future interest rates, etc.
- ▶ Key point:

$$r_j^* = r_{IOER} + p(R) + s_j$$

- ▶ by changing  $r_{IOER}$  and/or  $p(R)$ , CB moves all interest rates up/down
-

# Liquidity regulation

---

- ▶ What changes with the Basel III liquidity requirements?
- ▶ Focus on the Liquidity Coverage Ratio (LCR) ...
  - ▶ banks must satisfy:

$$LCR = \frac{\text{High Quality Liquid Assets}}{\text{Net Cash Outflows over 30 days}} \geq 1$$

- ▶ ... and on two categories of interbank loans
  - ▶ overnight and term (> 30 days)
- ▶ Looking at excess LCR liquidity (that is, HQLA – NCOF):
  - ▶ overnight borrowing/lending has no effect
  - ▶ term borrowing raises it (and term lending lowers it)

# Interest rates with an LCR

---

- ▶ Overnight interest rate is unchanged as a function of  $R$

$$r^* = r_{IOER} + \underbrace{p(R)}$$

scarcity value of reserves

- ▶ But term interest rates have a new component

$$r_T^* = r^* + s_T + \underbrace{\hat{p}(LCR)}$$

scarcity value of “LCR liquidity”

- ▶ where  $\hat{p}$  = value of term borrowing for LCR purposes
- ▶ New premium depends on amount of excess LCR liquidity in the banking system
  - ▶ affected by fiscal policy, demand for bonds by non-banks, etc.

- 
- ▶ Central bank can still move all interest rates up/down
  - ▶ But ... LCR introduces a new “wedge” in the monetary transmission mechanism
    - ▶ this wedge could potentially be large and variable over time

Q: What should a central bank do about the LCR premium?

(1) Simply adjust  $r^*$  to offset changes in  $\hat{p}$  if desired

- ▶ similar to current approach when  $s_T$  changes

“passive”

(2) Manipulate  $\hat{p}$  for monetary policy purposes

“active”



## Potential problems with the passive approach:

---

- (A) Variability in  $\hat{p}$  may present communication problems
  - ▶ could require frequent changes in announced target rate
- (B) Steering rates may become more difficult
  - ▶ the (near)-zero lower bound on  $r^*$  becomes more binding
- (C) Large  $\hat{p}$  represents an arbitrage opportunity
  - ▶ shadow banks (or banks not subject to the LCR) could profit by doing very short-term maturity transformation
  - ▶ note: this activity helps the transmission of monetary policy
    - ▶ from that perspective: might want to allow/encourage it
  - ▶ but raises clear financial stability concerns
  - ▶ an example of the tension between monetary policy and financial stability

# Examples of active approaches

---

## (A) OMOs against non-HQLA assets

- ▶ increase supply of reserves without removing govt. bonds

## (B) Term lending to banks (against non-HQLA collateral)

- ▶ like the Term Auction Facility or a term discount window
- ▶ provides reserves to banks without increasing NCOF

## ▶ Both approaches will affect excess LCR liquidity

- ▶ adding reserves this way should decrease  $\hat{p}$
- ▶ similarly, draining reserves should increase  $\hat{p}$

## ▶ However ...

- 
- ▶ Note: these operations create *reserves*
    - ▶ and thus have spillover effects on  $p(R)$
  - ▶ Depending on timing and other factors, the CB may or may not be able to sterilize these effects
  - ▶ If effects are not fully sterilized...
    - ▶ efforts to affect LCR premium  $\hat{p}$  will alter the o/n rate  $r^*$
    - ▶ this interaction can be intricate
    - ▶ controlling either rate can become much more difficult

Reference: M. Bech and T. Keister “Liquidity Regulation and the Implementation of Monetary Policy,” Dec. 2015.

---

## (C) Introduce a term bond-lending facility

- ▶ rather than increasing  $R$  when banks face an LCR shortfall ...
- ▶ offer to lend bonds (against non-HQLA collateral)
  - ▶ like the TSLF or the Bank of England's Discount Window
- ▶ allows the central bank to change excess LCR liquidity in the banking system without affecting reserves ( $R$ )
- ▶ Notice the symmetry here:
  - ▶ central banks traditionally change  $R$  to affect  $p(R)$ 
    - ▶ “to provide an elastic currency”
  - ▶ these facilities change LCR liquidity to affect  $\hat{p}(LCR)$
  - ▶ in this sense  $\Rightarrow$  a natural extension of monetary policy

# A proposal

---

- ▶ Discussion suggests some features that might be desirable for the CB's operational framework
  1. Floor system: (interest on reserves policy)
    - ▶ set  $r_{IOER}$  = target rate, set  $R$  to aim for  $p(R) \approx 0$
  2. Set  $R$  (in part) based on payments needs (monetary policy)
    - ▶ assuming a range of values of  $R$  would deliver  $p(R) \approx 0$
  3. And a bond-lending facility (credit policy?)
    - ▶ shift composition of CB's assets to aim for a low, stable  $\hat{p}$
- ▶ This framework neatly separates policy objectives
  - ▶ and provides distinct tools to address distinct objectives

# Some (difficult) questions

---

(1) Should a central bank aim to influence  $\hat{p}$ ?

- ▶ strengthens the transmission of monetary policy
- ▶ but raises a number of important issues (as we have heard)

(2) If so, how?

- ▶ aim to actively manage  $\hat{p}$ ? Or only provide a cap?

(3) Does having the central bank “produce” LCR liquidity undermine the goals of liquidity regulation?

- ▶ what should a CB do if financial stability policy is weakening the transmission channel(s) of monetary policy?

(4) Can using derivatives help manage this tradeoff?