

The Interplay between Liquidity Regulation, Monetary Policy Implementation, and Financial Stability

Todd Keister
Rutgers University

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Achieving Financial Stability: Challenges to Prudential Regulation

Introduction

- ▶ The Basel III liquidity regulations (LCR, NSFR) aim to promote financial stability by encouraging banks to:
 - ▶ hold a more liquid portfolio of assets
 - ▶ and rely less on short-term, wholesale funding
 - ▶ Seem likely to affect behavior in interbank lending markets ...
 - ▶ ... where many central banks implement monetary policy
 - ▶ the precise form these effects will take is not obvious
- Q: What are the implications of liquidity regulation for:
- ▶ central banks' ability to steer market interest rates to target?
 - ▶ the optimal design of central banks' operational frameworks?

My aim

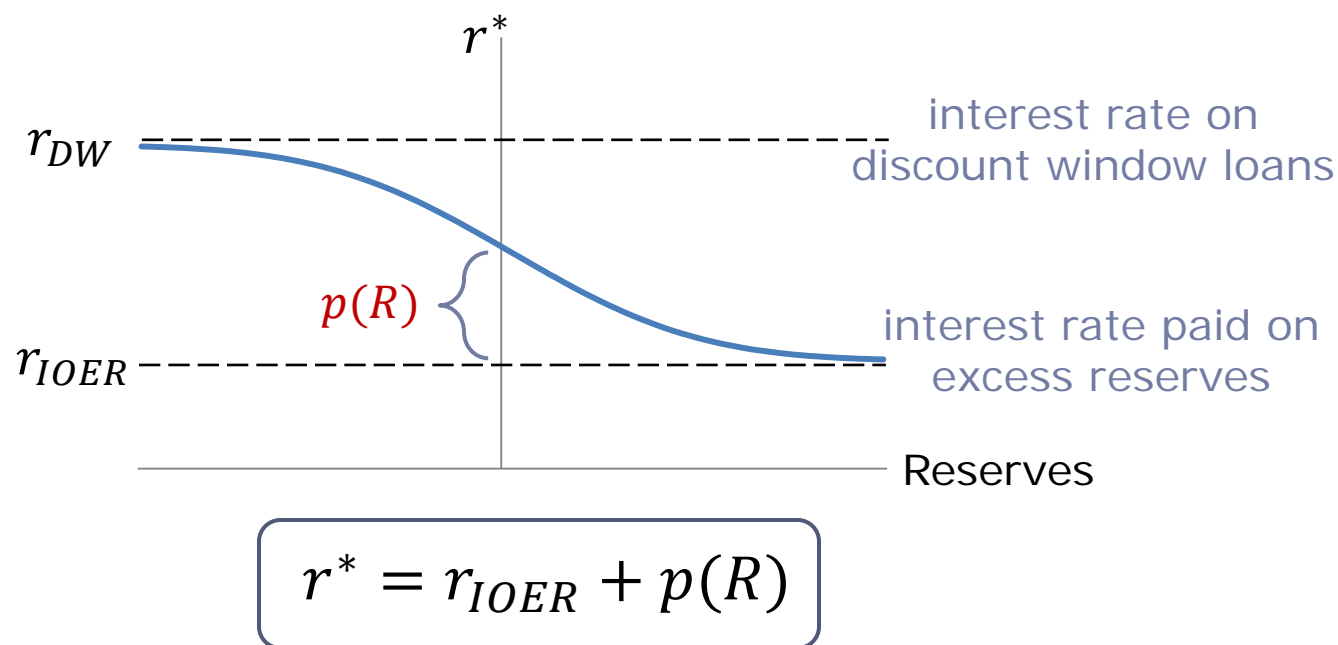
- ▶ Present a simple framework to serve as a starting point
 - ▶ answers are difficult to come by, but ...
 - ▶ providing some structure is (hopefully) a useful first step
- ▶ Focus on the Liquidity Coverage Ratio (LCR)
 - ▶ seems likely to have a stronger effect on money markets
 - ▶ already being phased in
- ▶ Highlight what appears to be a fundamental tension between:
 - ▶ implementing monetary policy effectively, and
 - ▶ using liquidity regulation to promote financial stability
- ▶ Offer some thoughts on how to manage this tension

Outline

1. Implementing monetary policy pre-LCR (and pre-crisis)
2. What changes with an LCR requirement?
 - ▶ a new premium arises in term interest rates
3. How might a central bank respond to this premium?
 - ▶ discuss different approaches
4. Implications for the design of an operational framework

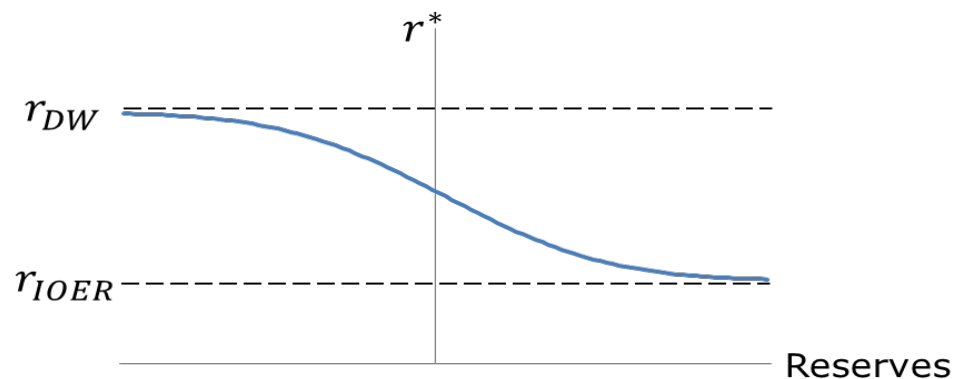
Implementing monetary policy pre-LCR

- ▶ Start with a central bank operating a corridor system
 - ▶ could be symmetric (ECB) or asymmetric (Fed)
- ▶ Equilibrium interest rate on interbank loans:



- ▶ $p(R)$ is a *premium* that reflects the *scarcity value* of reserves

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- ▶ Repeating: $r^* = r_{IOER} + p(R)$
 - ▶ Different models deliver different functions p
 - ▶ Poole (1968), Bech and Keister (2015), Afonso & Lagos (2015), many others
 - ▶ p may also depend on the distribution of reserves across banks
 - ▶ and may be negative in some situations
 - ▶ Implementing monetary policy is about using R (+ other tools) to move r^* to target



Term structure of interbank rates

- ▶ Focus on two types of interbank loans
 - ▶ overnight and term $T > 30$ days
- ▶ Assume central bank targets the overnight rate
 - ▶ and target is expected to remain constant (for simplicity)

▶ Then
$$r_T^* = r^* + s \leftarrow \text{term premium}$$

- ▶ think of spread s as (roughly) independent of r_{IOER} and R

▶ Key point:
$$r_T^* = r_{IOER} + p(R) + s$$

- ▶ by changing $p(R)$, the central bank moves all rates up/down

Liquidity regulation

- ▶ What changes when the LCR is introduced?
- ▶ Bank i must satisfy a new requirement:

$$LCR^i = \frac{\text{High Quality Liquid Assets (HQLA}^i)}{\text{Net Cash Outflows (NCOF}^i)} \geq 1$$

- ▶ Focus on *excess LCR liquidity*, that is: $HQLA^i - NCOF^i$
 - ▶ overnight borrowing/lending has no effect
 - ▶ term borrowing raises it (and term lending lowers it)
- ▶ Term borrowing now brings two benefits:
 - ▶ bank receives reserves
 - ▶ and improves its LCR position

Equilibrium with an LCR

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

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

scarcity value of reserves

- ▶ But the term interest rate has a new component

$$r_T^* = r^* + s + \underbrace{\hat{p}(R + B)}$$

scarcity value of “LCR liquidity”

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

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- ▶ 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

“passive”

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

“active”

(1) A passive approach

- ▶ Do not try to directly influence the LCR premium \hat{p}
 - ▶ let it be “purely” market determined
- ▶ Adjust r^* to offset changes in \hat{p} as desired
 - ▶ similar to current practice when other spreads change
- ▶ Under this approach, \hat{p} may be large, variable over time
- ▶ Having a large \hat{p} is not necessarily bad
 - ▶ gives banks an incentive to raise their LCR by other means
 - ▶ ex: hold more bonds; seek more stable funding sources
- ▶ However ...

Three potential problems with the passive approach:

(A) Variability in \hat{p} may present communication problems

- ▶ could require frequent changes in announced target rate

(B) Large \hat{p} makes the lower bound on r^* more binding

- ▶ more likely to end up in situations where the central bank's ability to affect interest rates is impaired

(C) Large \hat{p} represents an arbitrage opportunity

- ▶ Shadow banks (or banks not subject to the LCR) could:
 - ▶ borrow overnight from a bank subject to the LCR and lend the same funds back at term
 - ▶ raises the LCR of the subject bank; generates a profit for the shadow bank
 - ▶ arrangement could reset every night ("evergreen")
 - ▶ could "dress up" the arrangement to be less obvious

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- ▶ The LCR rules puts some limits on this activity
 - ▶ but there may still be substantial scope for it
 - ▶ plus limits may be circumvented by clever arrangements
 - ▶ Raises clear financial stability concerns
 - ▶ short-term maturity transformation is moving outside of the (LCR)-regulated banking system
 - ▶ Note the tension between monetary policy and financial stability here
 - ▶ regulatory arbitrage *helps* the transmission of monetary policy
 - ▶ some might even view it as desirable
 - ▶ but tends to undermine the goals of liquidity regulation
 - ▶ For these reasons: central bank may want to actively manage the size of the LCR premium \hat{p}
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(2) Active approaches

- ▶ Central bank could instead aim to directly influence \hat{p}
 - ▶ that is, operate on both overnight and term rates (p and \hat{p})
 - ▶ there are several ways this could be done

(A) OMOs against non-HQLA assets

- ▶ increase supply of reserves without removing govt. bonds
 - ▶ increases the total supply of HQLA in the economy
- ▶ would likely need to be term (>30-day) operations
- ▶ perhaps like the ECB's Long-Term Refinancing Operations

(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 outflows

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- ▶ Both approaches affect excess LCR liquidity in the banking system
 - ⇒ allow the central bank to steer \hat{p}
 - ▶ However: these operations create *reserves*
 - ▶ the central bank may or may not be able to sterilize these effects
 - ▶ If effects are not fully sterilized...
 - ▶ efforts to control LCR premium \hat{p} will have spillover effects
 - ⇒ change both $p(R)$ and the overnight rate r^*
 - ▶ the interaction between p and \hat{p} can be intricate
 - ▶ controlling either r^* or r_T^* can become substantially 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"
 - ▶ a bond-lending facility changes $R + B$ to affect $\hat{p}(R + B)$
 - ▶ to provide an elastic supply of LCR liquidity(?)
 - ▶ in this sense \Rightarrow a natural extension of monetary policy

Three (critical) questions

(1) What level of \hat{p} should the central bank aim for?

- ▶ presumably want the premium to be positive ...
 - ▶ to give banks an incentive to raise their LCR by other means
- ▶ ... but not so large as to:
 - ▶ limit the effectiveness of monetary policy, or
 - ▶ create incentives for (too much) regulatory arbitrage
- ▶ how does one find a “happy medium”?

(2) What assets?

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

- ▶ answers are not clear (at least to me)

A proposal

- ▶ Discussion suggests some features that might be desirable for the CB's operational framework
- ▶ Let me try to put them together into a coherent proposal
- ▶ Floor system:
 - ▶ set $r_{IOER} = \text{target rate}$ “interest rate policy”
 - ▶ set R to aim for $p(R) \approx 0$
 - ▶ advantages:
 - ▶ eliminates the distortions associated with reserve avoidance activity (Goodfriend, 2002)
 - ▶ an implementation of the Friedman rule
 - ▶ allows the central bank to have a larger balance sheet

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- ▶ Reserve supply is set in part based on payments needs
 - ▶ assuming a range of values of R would deliver $p(R) \approx 0$
 - ▶ aim for a level that minimizes daylight overdrafts, delay in the payments system
“reserves policy”
 - ▶ And a bond-lending facility
 - ▶ shift composition of central bank’s assets to aim for a low, stable \hat{p}
 - ▶ low: limit incentives for regulatory arbitrage
 - ▶ stable: improve the transmission of monetary policy
“balance sheet policy”
 - ▶ This framework neatly separates policy objectives
 - ▶ and provides distinct tools to address distinct objectives
 - ▶ How well does it fit with the objectives of the LCR?
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Conclusion

- ▶ Liquidity regulation has created a new set of challenges
- ▶ One challenge: implementing monetary policy may become more difficult
 - ▶ effects not yet apparent because of near-zero interest rates and large central bank balance sheets
 - ▶ but will likely appear when (and if) conditions normalize
- ▶ Simple models can identify some potential tradeoffs
 - ▶ implementing monetary policy is easier if the central bank is willing to actively change the composition of its assets
 - ▶ but ... is this a good idea?
- ▶ We need more thought about (and better models of) the issue of optimal policy design