



Regulatory change and monetary policy

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Policy Responses*

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*These are my views and not necessarily those of anyone in the Federal Reserve System.



Outline

- Description of the procedure followed by the CGFS/MC working group
- Brief description of monetary policy in the U.S.
- Discuss implications of the leverage ratio
- Discuss implications of the liquidity coverage ratio
- Conclude



Working group background

- Established by the BIS Committee on the Global Financial System and the Markets Committee in February 2014.
- Mandate: Assess the implications of new bank regulations for monetary policy operations and transmission.
- Group co-chaired by Ulrich Bindseil (ECB) and myself.
- Representatives from over 20 central banks.
- Completed report published May 2015



Working group process

- First, participants submitted case studies on the new regulations they saw as most likely to affect monetary policy in their jurisdiction.
 - The regulations most frequently identified were, in descending order, the liquidity coverage ratio, the leverage ratio, the net stable funding ratio, and the large exposure limit.
 - As work progressed, we also considered the tightening of risk-weighted capital requirements.
 - I will focus on the leverage ratio and the LCR in my remarks today.
- Second, three workstreams considered implications for 1) money markets, 2) incentives to participate in monetary policy operations, and 3) monetary policy transmission.
- Third, findings synthesized into final report.



Monetary policy in the United States

- I will discuss the impact of the regulations in the context of U.S. monetary policy and financial markets.
- As background, I will briefly review the Federal Reserve's balance sheet and monetary policy implementation.



Federal Reserve Balance Sheet

Assets	Liabilities and Equity
Repo	Bank deposits (Reserves)
Treasury and Agency Securities	Currency
	Equity



Federal Reserve Balance Sheet

Assets	Liabilities and Equity
DW Loans	
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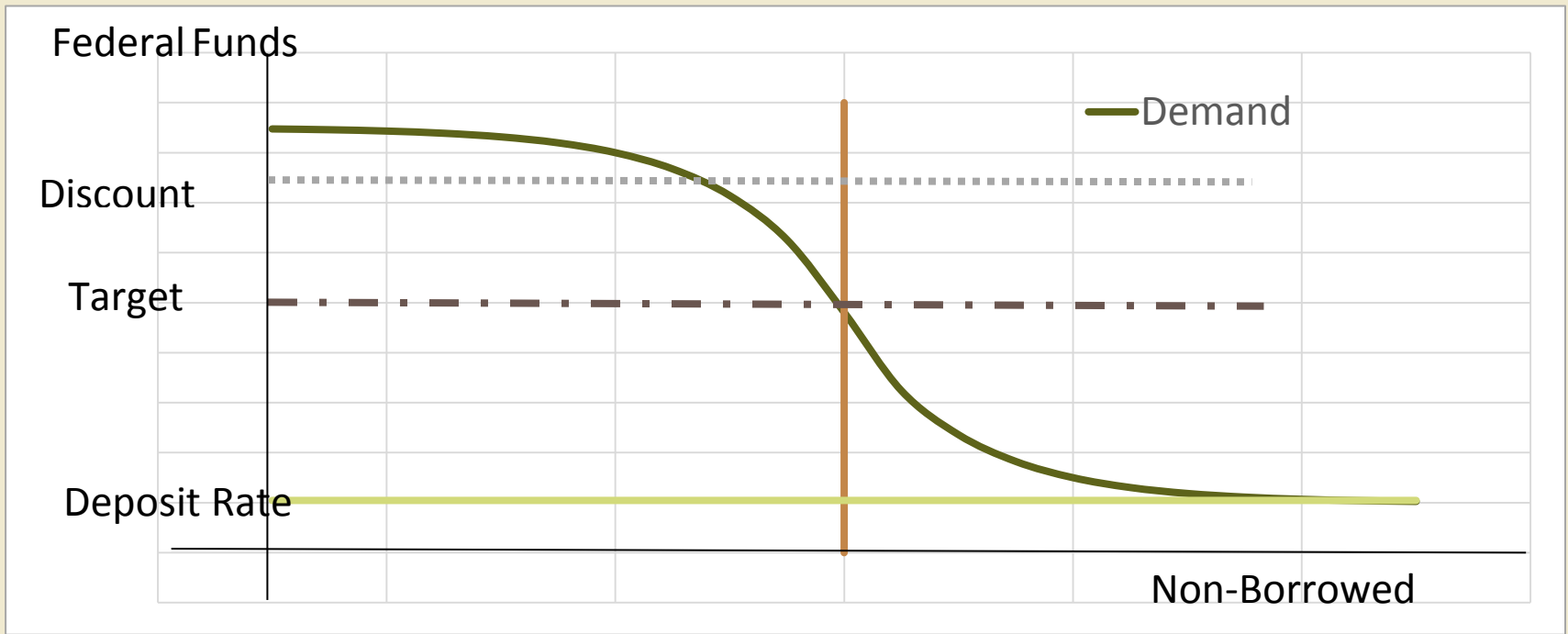


Monetary policy implementation

- Before the financial crisis, the Federal Reserve would conduct repos against Treasury securities to adjust the quantity of bank deposits with the Federal Reserve (reserve balances).
- Banks maintain deposits at the Fed to meet their reserve requirements and clearing needs.
- The Fed would provide a quantity of reserve balances so that banks would loan them to each other in the federal funds market (overnight, unsecured, interbank lending) near a target rate chosen by the Federal Reserve to accomplish macroeconomic objectives.

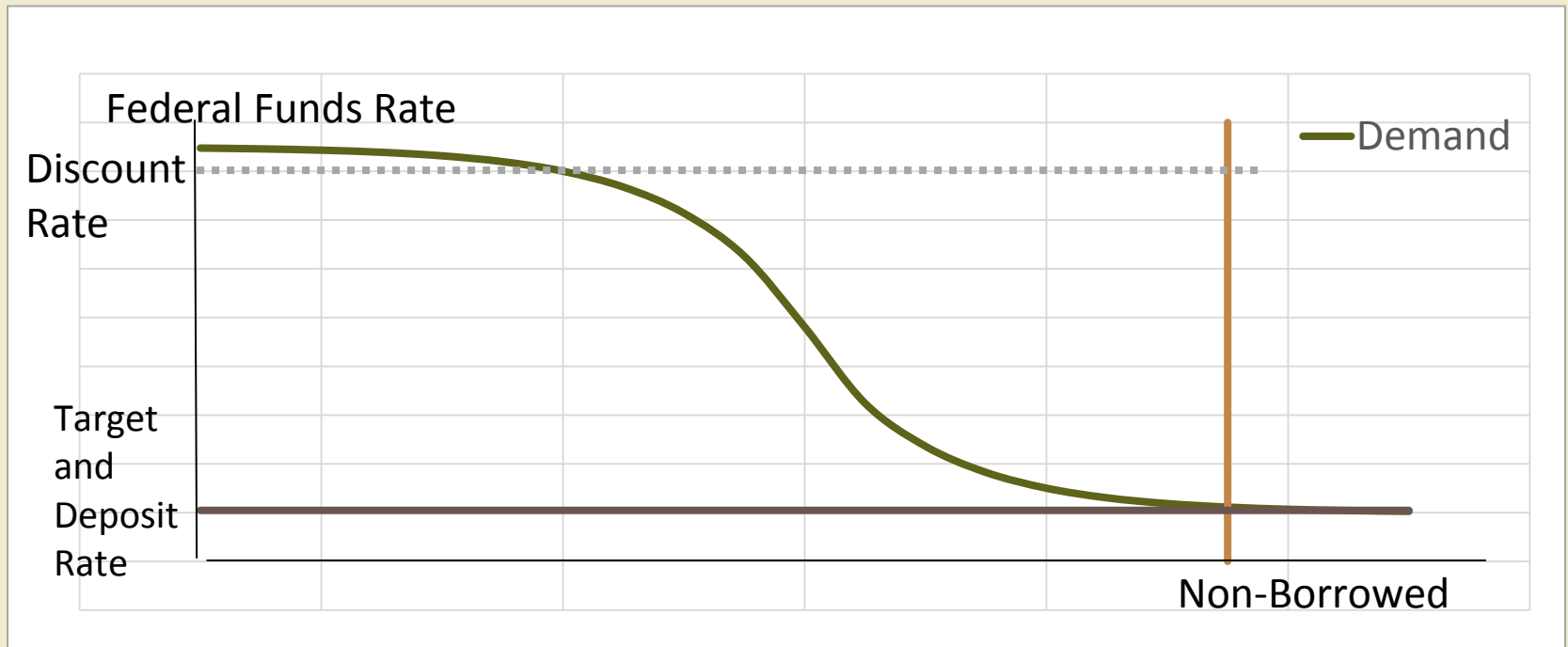


Corridor System





Floor System (current situation)





Leverage ratio

- Basel III leverage ratio is calculated as the ratio of equity to assets. Unlike risk-weighted requirements, assets components are not weighted for risk.
- Basel III requires the leverage ratio for large, internationally active banks to be at least 3 percent.
- In the U.S., prior to Basel III, banks were required to satisfy a leverage ratio requirement close to the Basel III standard, but the risk-weighted capital requirement was almost always the binding requirement.
- Now, in the U.S., the largest bank holding companies are required to have a leverage ratio of at least 5 percent, 6 percent for their bank subsidiaries, (well above the Basel III requirement) which is binding or close to binding for a material fraction of the largest banks.



Leverage ratio impact on the fed funds rate/central bank deposit rate margin

- Fed funds loans enter risk-weighted assets with a positive weight so banks must hold capital against them so to satisfy risk-weighted capital requirements.
- Deposits at the central bank are not included in risk-weighted assets, so banks do not need to hold capital against them to satisfy risk-weighted assets.
- When the risk-weighted capital requirement is binding, banks require a higher interbank rate relative to deposits at the central bank deposit rate to compensate for the added capital requirement.



Leverage ratio impact on the fed funds rate/central bank deposit rate margin (cont.)

- All assets are treated the same in the leverage ratio.
- When the leverage ratio is binding, the capital required for fed funds loans and central bank deposits is the same.
- When the binding capital ratio switches from a risk-weighted requirement to the leverage ratio, the fed funds rate will be lower relative to the central bank deposit rate than before.
- Caveat: The risk-weighted capital requirement is also higher than before and may end up as the binding requirement. Banks appear to still be adjusting their internal capital allocations to the new requirements.

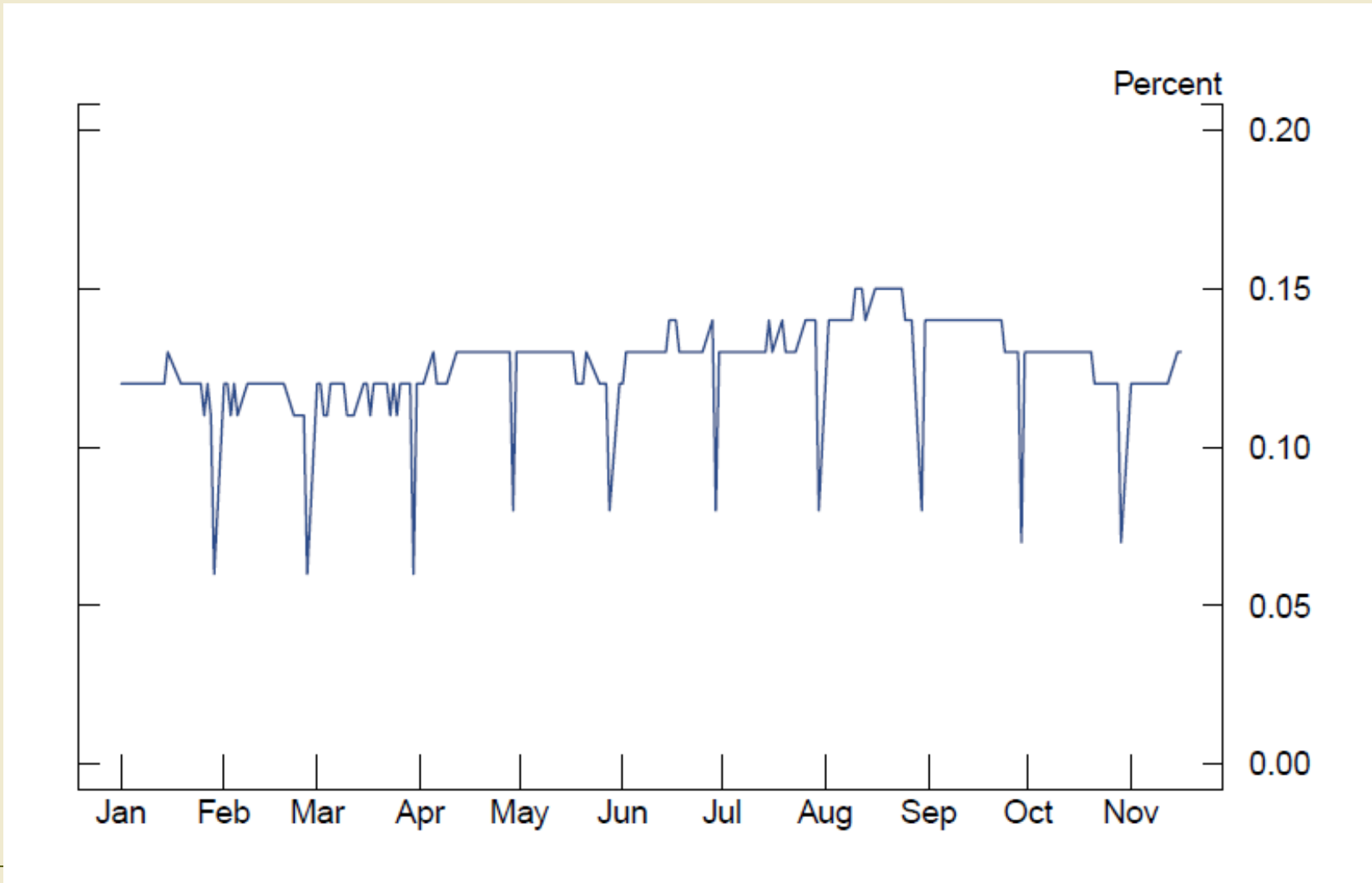


Leverage ratio and activity in the interbank market currently

- Because of large volume of reserves balances, normal activity in fed funds market has ceased.
- Currently, a large fraction the market consists of government-sponsored agencies (GSEs) and Federal Home Loan Banks (FHLBs), which do not receive interest on reserves but have accounts at the Fed, lending to U.S. branches of foreign banking organizations (FBOs), which can hold the reserves more cheaply than domestic banks because the branches do not pay deposit insurance.
- But at quarter end, when the FBO leverage ratios are calculated, the FBOs reduce their demand and the fed funds rate falls.



Federal funds rate in 2015



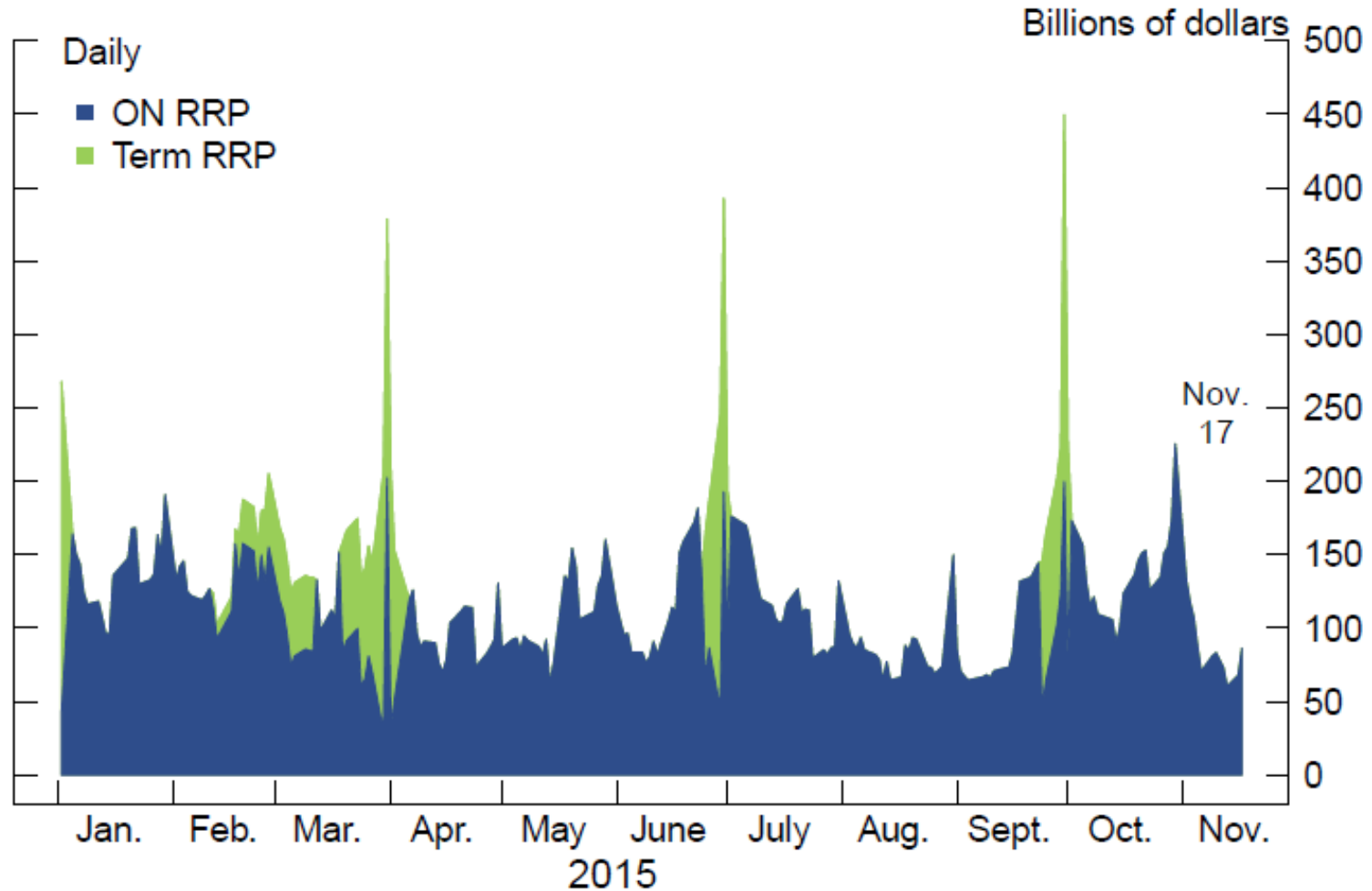


Leverage ratio and overnight reverse repurchase agreements

- As one of its policy rate liftoff tools, the Federal Reserve is currently operating a standing overnight reverse repurchase (ONRRP) facility with nonbanks, including money market mutual funds.
- FBOs also reduce their borrowings from money market mutual funds at quarter ends because of leverage ratio concerns.
- The money funds need assets in which to invest, so they increase their ONRRP investments with the Federal Reserve.



Reverse repurchase agreements with Fed



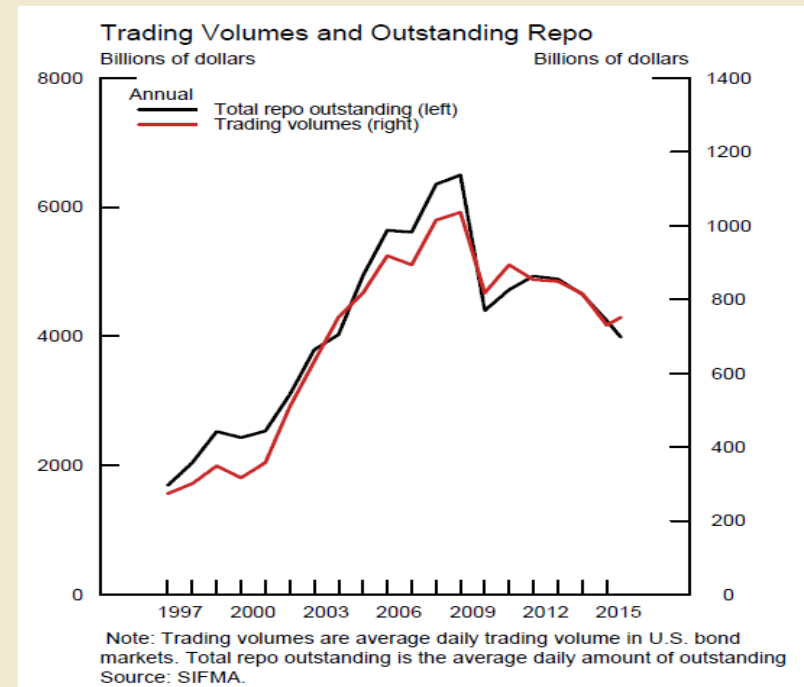


Leverage ratio and arbitrage across markets

- Monetary policy transmission requires financial institutions to arbitrage the rate targeted by central banks into other financial markets.
- Generally, such arbitrage requires the financial institution to expand its balance sheet as it borrows in one market (or from the central bank) and lends in the other (or to the central bank).
- Although presumably the arbitrage will still take place at some interest rate differential, it may be more efficient to either interact with institutions, or target a market whose participants, are not subject the regulation.

Leverage ratio and market liquidity

- Reduced arbitrage could also lead to reduced liquidity.
- Reduced liquidity was outside scope of the report but is currently being widely discussed.
- Evidence that liquidity has fallen or that the leverage ratio is to blame is mixed.





Liquidity coverage ratio (LCR)

- Basel III also established a new numerical liquidity requirement, the LCR.
- The LCR is calculated as the stock of high-quality liquid assets (HQLA) divided by the 30-day net cash outflows in a stress scenario.
- HQLA includes deposits at central banks, government securities, and—subject to haircuts and concentration limits—certain other liquid assets.
- Net cash outflows are calculated as projected outflows less projected inflows over the subsequent 30 days, assuming liabilities roll over and assets are liquidated in a manner roughly in line with the financial crisis.
- Basel III requires that banks maintain an LCR greater than 1, although banks can fall below 1 if it is under stress and needs to use its liquid assets.



LCR and money market lending

- By design, in general, reducing short-term lending (unsecured or repo) and instead holding deposits at the central bank does not improve a bank's LCR because HQLA goes up by the same amount that net cash outflows go up.
- Net cash outflows go up because cash inflows go down.
- Because of this characteristic, the LCR does not create an incentive for banks to pullback from the interbank market when under stress.
- Put another way, banks' LCRs are invariant to their short-term money market lending or borrowing, subject to some caveats.



Example: reverse repo against Treasuries

- The LCR assumes a reverse repo against Treasury securities will roll at least 30 days, so reducing reverse repos against Treasuries leaves net cash outflow unchanged.
- The Treasury collateral received counts 100 percent as HQLA (even though it is not on the commercial bank's balance sheet). Reducing reverse repos against Treasuries and increasing deposits at the central bank leaves HQLA unchanged.
- Because net cash outflows are unchanged and HQLA is unchanged, the LCR is unchanged.



Example: Reverse repo against agency securities and agency MBS

- The LCR assumes that 85 percent of reverse repos against government agency securities will roll for thirty days; that is, 15 percent of the outstanding reverse repo is received as an inflow.
- Consequently, reducing agency repo one dollar decreases cash inflow by 15 cents, and thus increases net cash outflow by 15 cents.
- The agency securities are included in HQLA with a 15 percent haircut. Replacing one dollar of the securities with central bank deposits increases HQLA by 15 cents.
- Because net cash outflow increases 15 cents and HQLA increases 15 cents, the LCR is unchanged.
- The same invariance is true for unsecured lending or reverse repo against non-HQLA, all of which are assumed to be repaid in full over the 30 days.



LCR and money market lending; caveats

- Short-term repos against HQLA or uncollateralized borrowing (as opposed to reverse repo and uncollateralized lending) also do not change the LCR.
- Details of the LCR calculation that can break the invariance in a large way:
 - Net cash inflows can not exceed 75 percent of net cash outflows.
 - There are concentration limits on collateral other than deposits at the central bank or sovereign debt.
- Details that can break the invariance in a smaller way:
 - The LCR is calculated as a ratio, not a difference between HQLA and the net cash outflow.
 - There will likely be differences between the market haircut on the collateral and the LCR haircut.



The LCR, interbank activity, and the liquidity premium

- The LCR has an indeterminate impact on the volume of short-term unsecured interbank activity.
 - Banks will prefer lending short-term to lending longer term (more than 30 days) so that they receive the cash inflow.
 - Banks will prefer borrowing longer term to borrowing shorter term to avoid the cash outflow.
- The shifts in demand and supply will cause the front end of the yield curve for unsecured transactions to be steeper.
- Similarly, the premium commanded by HQLA will go up.
- Both results are consistent with a regulation designed to encourage banks to value liquidity more highly.



Implications for monetary policy of the larger liquidity premium

- Economic activity is influenced more by term rates than overnight rates.
- To achieve the same economic outcome, central banks may need to target lower overnight rates because the term/overnight spread will be higher.
 - The shift will make it a bit harder for the Fed to raise interest rates when it decides to do so.
- For the same reason, the equilibrium real federal funds rate may be lower, increasing the frequency with which the Federal Reserve may hit the zero lower bound in the future.



LCR and increased central bank intermediation

- In general, the LCR treats transactions with the central bank more favorably than transactions with private financial institutions.
 - Deposits at the central bank count as HQLA; deposits at financial institutions do not.
 - Loans from the central bank against illiquid collateral are assumed to roll 100 percent; loans from financial institutions are assumed not to roll.
- Such treatment is usually appropriate; the central bank is a reliable counterparty.
- But the treatment of central bank loans can increase the incentive for weaker institutions to borrow from the central bank and stronger institutions to increase investments deposits in the central bank.
- That is, the central bank's role in interbank intermediation may increase.



LCR and central bank lending

- Basel III LCR is a minimum standard; central banks can impose tougher standards.
- In the U.S. implementation of the LCR, loans from the central bank (discount window loans) are not assumed to roll because discount window loans are generally expected to be repaid in a few days.
- Because of this assumption, borrowing from the Federal Reserve does not improve a bank's LCR, so the LCR does not create an incentive to borrow from the Fed.
- Also, because of the assumption, in the U.S., monetary policy is not subject to the conflict with the LCR identified by Bech and Keister (2015).



The regulations can interact in hard-to-predict ways

- Several large U.S. banks are currently pushing large deposits away.
- The particular deposits have a 100 percent run-off rate for the LCR, so the banks have to hold HQLA equal to the amount of the deposits.
- To satisfy the leverage ratio, banks have to hold capital against the HQLA.
- Without the LCR, the banks could use the deposits to fund higher-yielding assets.
- Without the leverage ratio, the banks could earn the spread between the deposits rate and the yield on HQLA.
- The interaction of the two incents the banks to shed the deposits.



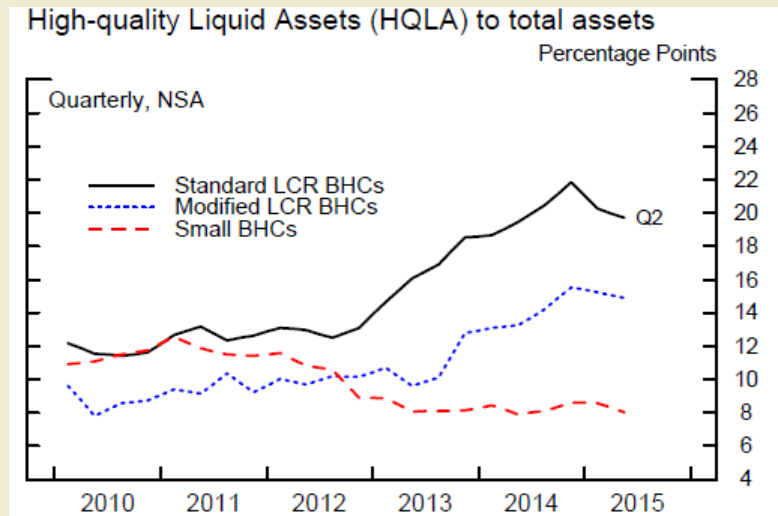
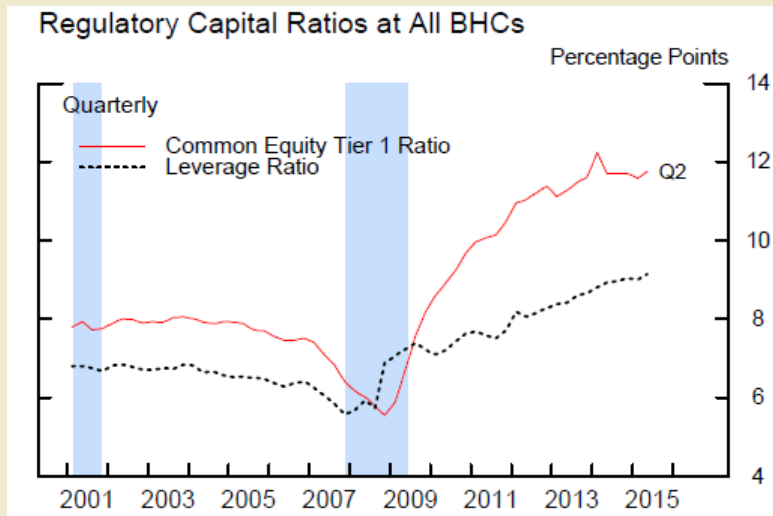
Some of the general conclusions of the report

- As banks adjust to the new regulations, the relationships between market interest rates and policy interest rates will change.
 - Those changes are hard to predict and central banks will likely have to adjust to them as they materialize.
- Although I did not discuss transmission today, the report concluded that the impact on transmission should be small.



General conclusions (cont.)

- Because banks are safer, financial booms and busts will be less frequent and less severe, reducing the likelihood central banks will need to respond.





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