

Discussion of
**Liquidity, Liquidity Everywhere,
not a Drop to Use**
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Background

- To improve credit market conditions, central banks across the world have been flooding financial markets with liquidity
 - E.g., the ECB
 - The fixed-rate full allotment refinancing operations
 - Unconventional monetary policy and large asset purchases
 - Targeted long-term refinancing operations
- The monetary policy assets on the Eurosystem's consolidated balance have expanded from around €0.5 trillion on the eve of the crisis in July 2008 to nearly €3.3 trillion at the end of September 2019 and are even larger today.
- Ceteris paribus, higher supply of liquidity should decrease the price of liquidity
 - Puzzling **persistent fragmentation in the euro area money market**
 - High interest rate volatility in the US, including repo rate spikes in September 2019

How Can Economic Theory Explain Poor Functioning of Money Markets?

- Two mechanism:
 - Precautionary liquidity hoarding (e.g., Kovner and Schoar (2011))
 - Counterparty risk (Acharya and Merrouche, 2013))
- Puzzling that these continue to matter even in relatively tranquil time

This paper

- Liquidity injections increase not only the supply of liquidity, but also the demand for liquidity
- Intuition: **The capital structure of banks becomes more fragile**, as banks rely more on deposits rather than on long-term capital
- The effects of liquidity injections on the aggregate demand for liquidity:
 - The Fed purchases assets from banks that obtain reserves in exchange
 - Banks find it optimal to fund reserves (an asset) with short-term liabilities because long-term debt capital is relatively more expensive
- Short-term liabilities are flighty and this increases the demand for reserves ex post...

Alternative narrative

- Central bank purchases assets from market participants that obtain liquidity in exchange
- Liquidity is deposited at commercial banks, whose short-term liabilities increase

A simple version of the model

- I will focus on the intermediate period when the cost of liquidity spikes as a consequence of negative shocks
- Why liquidity is scarcer when reserves (S_o) are higher?
 - θ banks experience negative shocks and deposits withdrawals (we can think of θ also as a sunspot)
 - $1-\phi$ banks do not want to be tainted by lending to potentially unsafe banks and do not lend → Counterparty risk
 - τ excess liquidity cannot be lent

Liquidity Shortfall in the Bad State of the World

$$\theta D_0(S_0) - [\phi(1 - \theta) + \theta] (1 - \tau) S_0$$

Demand for liquidity of banks subject to negative shocks

Supply of liquidity by banks that are *not* subject to liquidity shocks and that choose to be in the market

Crucial to understand how banks choose between deposits and long-term funding/capital

Bank's capital structure choice at time 0

Budget constraint: $D_0(S_0) + e_0 = S_0$

Optimal choice of long-term funding trades off the cost of the latter and deposits

$$C'(e_0) = \theta r_1(S_0)$$

with quadratic cost of capital $C(e_0) = (e_0)^2/2$:

$$e_0 = \theta r_1(S_0)$$

r_1 cost of raising funds in the bad state of the world that depends on the opportunity cost of the $\phi(1 - \theta)$ banks that are willing and able to lend

Assume again that the opportunity cost of healthy banks is quadratic $r_1(x) = x^2/2$:

$$r_1(S_0) = \theta D_0(S_0) - [\phi(1 - \theta) + \theta](1 - \tau)S_0$$

When does more liquidity lead to larger liquidity shortfalls?

I substitute r_1 in e_0 and e_0 the in the budget constraint

$$D_0 = S_0 \frac{1 + \theta [\phi (1 - \theta) + \theta] (1 - \tau)}{1 + \theta^2}$$

More liquidity makes the money market more unstable if $\frac{1 + \theta [\phi (1 - \theta) + \theta] (1 - \tau)}{1 + \theta^2} > 1$

This is for sure if $\tau = 0$

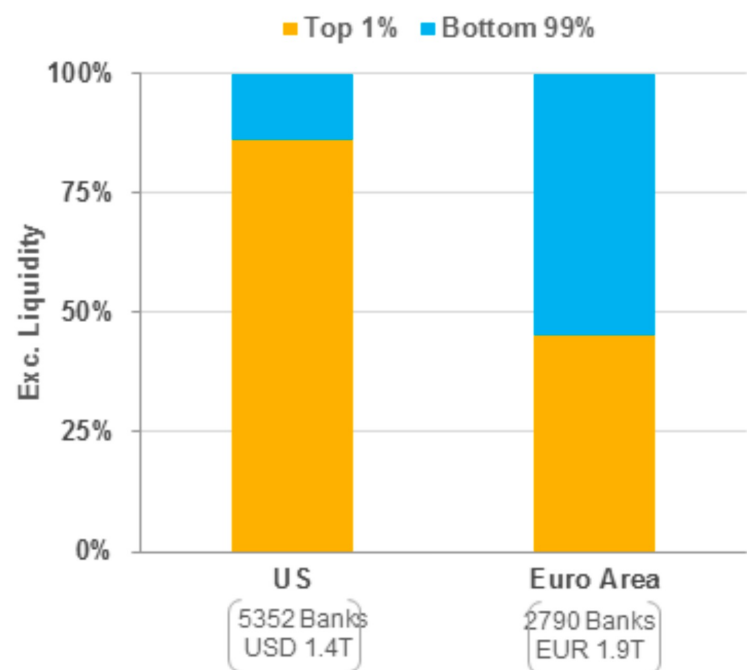
Thus, expectation of high liquidity ex post create liquidity shortages!

The model and the actual implementation of liquidity injections

- Banks demandable liabilities increase more than the actual liquidity
- **LSAPs** have the objective of flattening the yield curve and **decrease long-term interest rates**
 - Shouldn't they change the trade off between deposits and long-term funding in favor of long-term funding?
- With **negative interest rate policies**, the concern is a decrease in deposits:
 - Should large asset purchases be coupled with negative rates that reduce the supply of deposits?
 - Or negative interest rates make the mechanisms in this paper even more relevant?

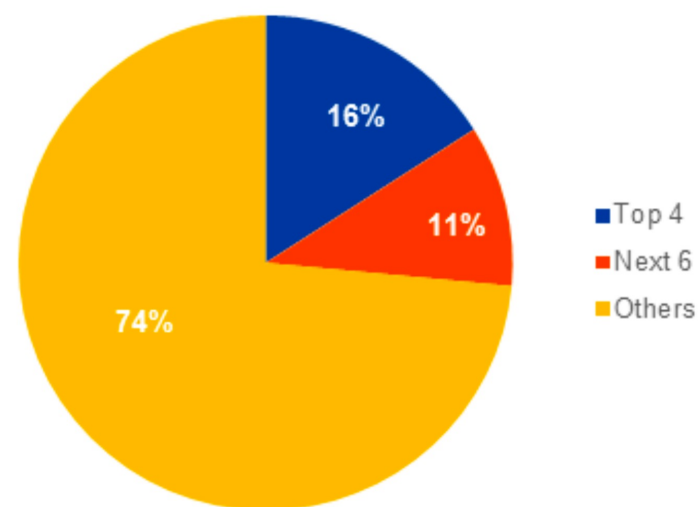
The distribution of excess reserves matters: United States and euro area

Distribution of excess liquidity across banks: US vs. euro area (percent)



Sources: Consolidated Reports of Condition and Income (FFIEC) and ECB.
 Note: The methodology used to estimate individual banks' excess liquidity from the FFIEC data is in line with Chang et al. (2014). The Fed's H.3 and H.4.1 statistical releases have been used to compare estimated values with aggregate figures.

Euro area: distribution of excess liquidity (percent)



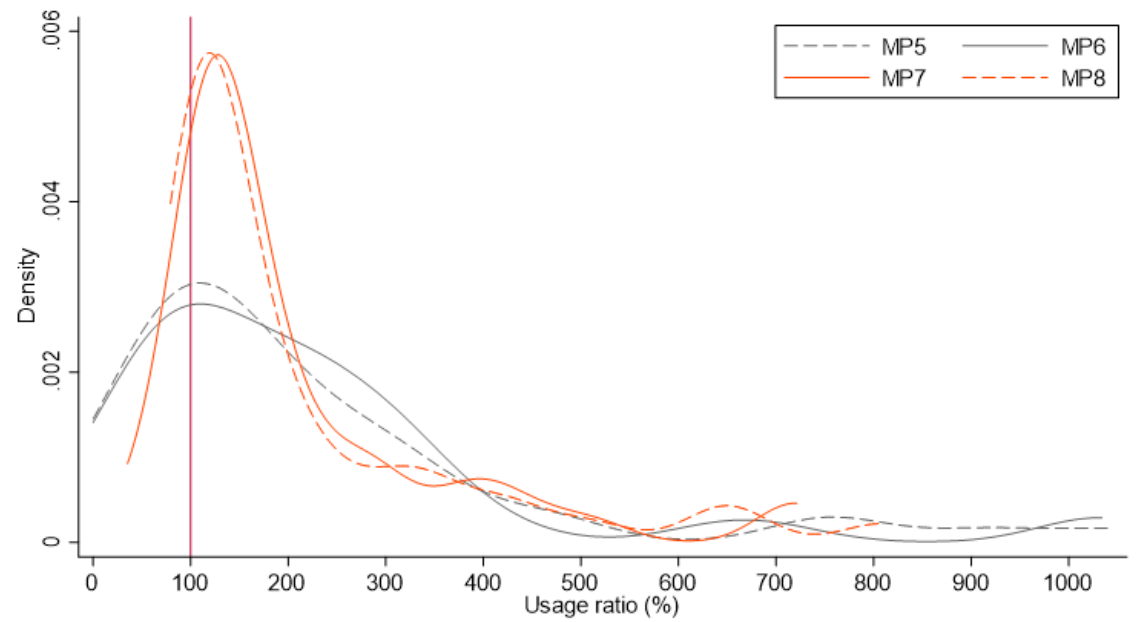
Sources: ECB and ECB calculations.
 Latest observations: Maintenance period 5 (from 31 July to 17 September 2019).

The ex ante distribution of liquidity

- In the model, excess liquidity is homogeneously distributed across banks in the model, but banks make different capital structure and investment choice
- In practice, LSAP do not result in a homogeneous distribution of liquidity
 - On the one hand, this could make the findings of the model even stronger: **high excess liquidity banks** are stronger in the eurozone and may be precisely those that **do not want to be tainted**
 - On the other hand, the stronger **high excess liquidity banks attract more deposits**, which would weaken the instability result
- Shall we be concerned about **quantitative tightening** if most of the liquidity is with banks that do not want to be tainted?

The effects of the tiering on the distribution of liquidity

From my paper on “Money Markets and Bank Lending”



Conclusions

- The money market is of tantamount importance for financial stability and the transmission of monetary policy
 - We know too little about it—We often struggle to distinguish between the effects of demand and supply of liquidity on equilibrium outcomes
- Models like Acharya and Rajan (2022) are crucial
 - A simpler version of the model?
 - More discussions of the actual features of LSAP
 - Distribution of liquidity may ease concerns on quantitative tightening