

## Liquidity Dries Up

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**T**he Federal Open Market Committee (FOMC) raised the federal funds rate at its past four meetings; at both its July and August meetings the rate increased 75 basis points, the two largest single rate increases in over 25 years. The federal funds rate is the main way the FOMC implements monetary policy. The standard explanation is that when the federal funds rate increases, borrowing rates that banks offer increase (both mortgages as well as other loans). Thus, fewer people want to borrow, due to higher borrowing costs.

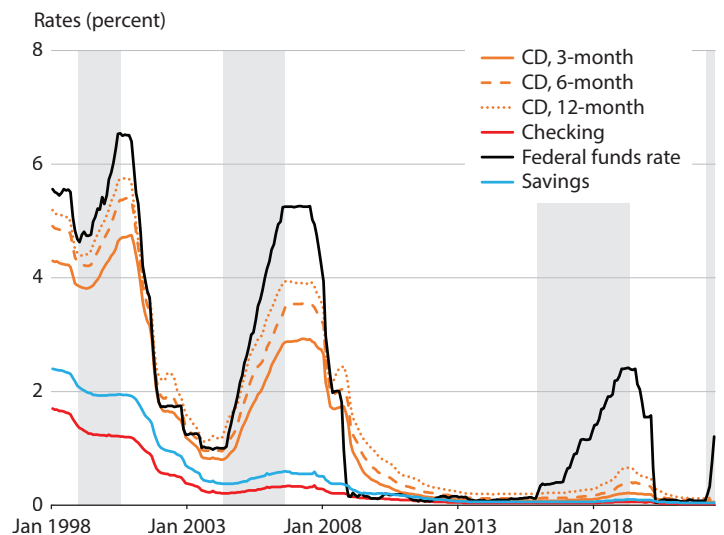
The Federal Reserve has been increasing the federal funds rate, but the interest rates banks pay on deposits have stood still, leading to outflows of bank deposits and the drying up of liquidity.

Modern macroeconomic research proposes new channels of monetary policy transmission. This research investigates the links between monetary policy and its macroeconomic effects. In this essay, we study the deposit channel of monetary policy (Drechsler, Savov, and Schnabl, 2017). We first explain the mechanism and then show how it is working in the 2022 tightening cycle.<sup>1</sup>

Imagine a simple world where you can choose between three assets: cash, deposits, or bonds. Cash is the most liquid asset but pays no interest. Deposits, such as checking, savings, or time deposits, are less liquid than cash, but they pay rates set by the bank. Bonds are the least liquid among these assets, and assume, for simplicity, that bonds pay the federal funds rate. Banks raise deposits and create loans. Moreover, banks also have market power and set the interest rate on deposits. In this environment, when the FOMC raises the federal funds rate, cash becomes more expensive to hold. How do bank deposit rates respond?

Figure 1 shows interest rate data on checking, savings, and 3-, 6-, and 12-month certificates of deposit (CDs).<sup>2</sup> The gray bars in the figure represent tightening cycles—periods when the FOMC raised the federal funds rate. Checking and savings rates show almost no response to the increase in the federal funds rate. They have been near

Figure 1  
**Deposit Rate by Product, January 1998–June 2022**



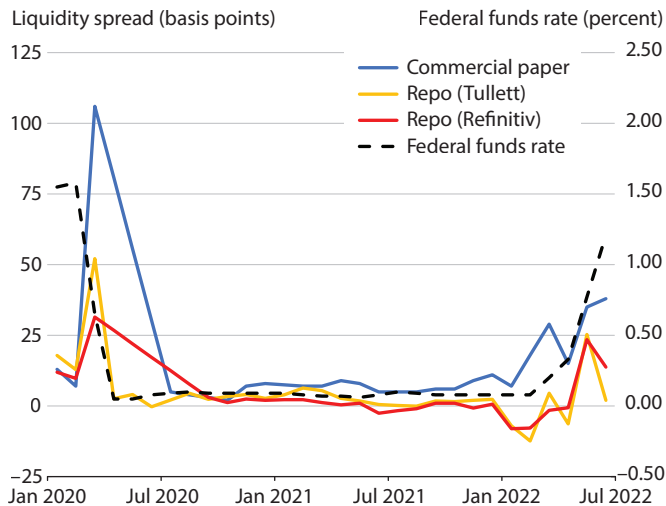
NOTE: Gray bars indicate tightening cycles.

SOURCE: Data are from Ratewatch (retrieved from Haver). Federal funds rate, Federal Reserve Bank of New York (retrieved from Haver).

zero since the 2007-09 Financial Crisis. In the first two tightening cycles, around 2000-05, the CDs all seem tied to the federal funds rate while it is rising. However, if we look at the last two tightening cycles, CDs hardly move at all in response to a rising federal funds rate. In fact, in the current 2022 tightening cycle, between February and June, the monthly average of the effective federal funds rate increased 113 basis points.<sup>3</sup> Checking and savings rates did not increase, and 3-, 6-, and 12-month CD rates increased by 1, 2, and 3 basis points, respectively.

These findings mean that the *deposit spread*—the difference between the federal funds rate and the deposit rate—is increasing. Therefore, it is becoming more costly for people to hold not only cash but also bank deposits. Thus, we expect households and firms to remove their money from deposits and shift their money to other markets with better returns, such as bonds. When deposits are removed from the banks, the banks have less money to lend and *liquidity dries up*.

Figure 2  
Short-Term Liquidity Spread, January 2020–June 2022



SOURCE: Three-month commercial paper (AA financial) and Treasury bills, Board of Governors of the Federal Reserve System H.15 report. Repos, Tullett Prebon and Refinitiv (retrieved from Haver). Federal funds rate, Federal Reserve Bank of New York (retrieved from Haver).

Intuitively, it works as follows. On the one hand, there is a smaller supply of liquidity because households and firms move their money out of cash and deposits to less-liquid assets. On the other hand, the demand for liquidity continues, as households and firms still find it desirable to have liquid assets in case they need quick access to funds. Therefore, in equilibrium, the liquidity provided by financial assets becomes more valuable and investors are willing to accept a lower return on assets that are more liquid precisely because these assets are more liquid.

To measure this *liquidity premium*, we compute the liquidity spread:

$$\text{Liquidity Spread} = r_{\text{illiquid}} - r_{\text{liquid}}.$$

We define the short-term liquidity spread as a safe, *illiquid* asset—in this case, 3-month AA financial commercial paper or repurchase agreement (repo) rates—minus a safe, *liquid* asset—in this case, 3-month Treasury bills.<sup>4,5</sup> If this spread is positive, then illiquid assets are paying higher rates to compensate for the lack of liquidity and thus there is a liquidity premium. Figure 2 shows the short-term liquidity spread and the federal funds rate from January 2020 to June 2022.

At the start of the COVID-19 pandemic, we see a big jump in the liquidity spread, most of which is gone by July 2020. By July 2020, the FOMC had lowered the federal funds rate to near zero and injected large amounts of liquidity into the market. Consequently, the market was flooded with liquidity and the liquidity premium disappeared; the liquidity spread dropped to around zero. At the beginning of 2022, when the FOMC started raising the federal funds rate, we see a jump in short-term liquidity spreads, with the commercial paper spread up 50 basis points since the beginning of 2022.

In conclusion, when the FOMC raises the federal funds rate, cash and deposits become costly to hold because there are higher interest rates available in other markets. Thus, firms and households seek out higher-return investments, which are usually less liquid. When liquidity dries up, there is a higher liquidity premium for safe, liquid assets. ■

## Notes

<sup>1</sup> For other modern transmission mechanisms see, for example, the redistribution channel by Auclert (2019), the investment channel by Ottonello and Winberry (2020), the turnover-liquidity transmission mechanism by Lagos and Zhang (2020), or Tobin's *q* channel by Jeenas and Lagos (2022).

<sup>2</sup> The data are from Ratewatch, retrieved from Haver.

<sup>3</sup> The FOMC sets a target federal funds rate, which has a range of 25 basis points. In January 2022, the target rate was between 0 and 25 basis points. On any given day, there are many transactions that settle at slightly different federal funds rates. The daily effective federal funds rate is the volume-weighted median rate of these transactions. We use the monthly effective federal funds rate, which is an average of the daily effective federal funds rates. The effective fed funds rate was 8 basis points in January 2022.

<sup>4</sup> Commercial Paper is essentially an "IOU" that a company may sell and later repay. Repurchase agreements are a form of agreement in which a dealer would sell a security and then buy it back later for a slightly higher price.

<sup>5</sup> Krishnamurthy and Vissing-Jorgensen (2012) use commercial paper as a safe illiquid asset. An upper bound for default on AA financial commercial paper for 1972–2017 was 1% according to Moody's Investor Service (2018). Further, Nagel (2016) argues that repos backed by Treasury collateral are very safe. The Tullett Prebon repo is backed by general collateral and a mix of securities, while the Refinitiv repo is backed by Treasuries.

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