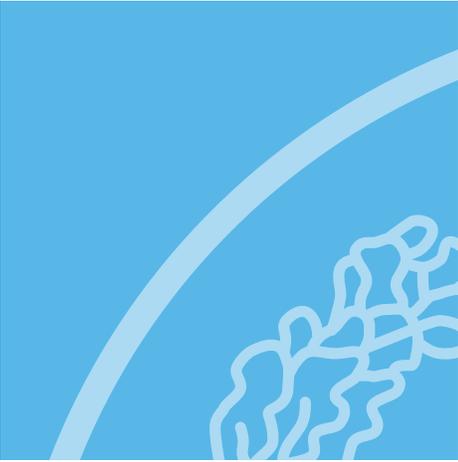




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Liquidity Regulations, the  
Neutral Real Federal Funds Rate,  
and the Money Premium



August 2016

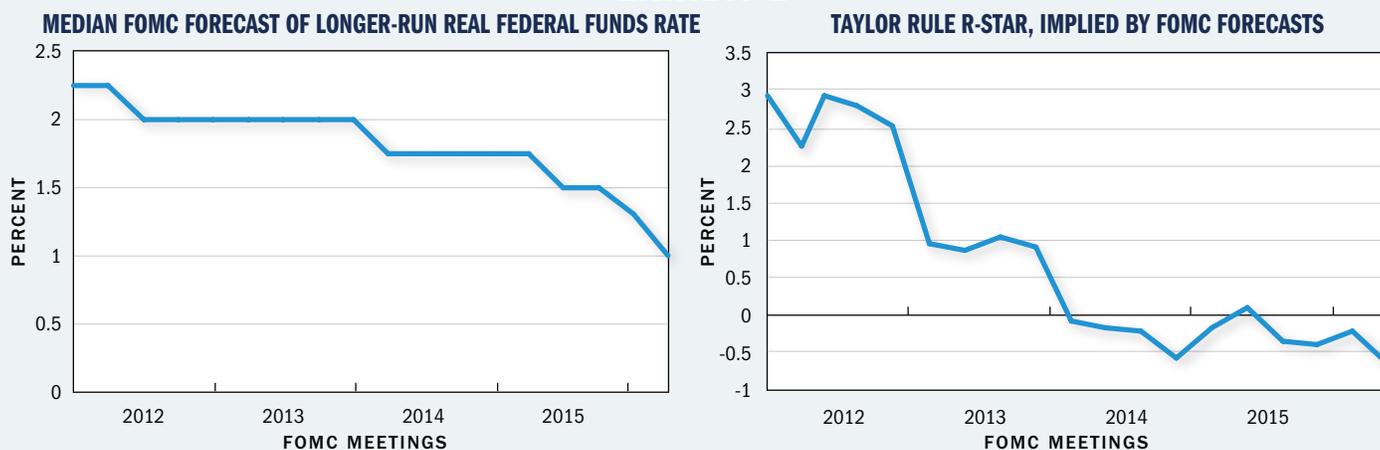
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## EXHIBIT 1



Source: Federal Reserve Board; TCH Analysis

### LIQUIDITY REGULATIONS, R\*, AND THE MONEY PREMIUM

In this research note, we present evidence that additional liquidity regulation, like the net stable funding ratio (NSFR), may reduce the ability of the Federal Reserve to provide stimulus to the economy, increase the frequency with which the Federal Reserve needs to resort to extraordinary monetary policy measures, and encourage the type of private money creation in the shadow banking sector that played a major role in the last financial crisis.

### WHAT IS R\*?

In the United States, the Federal Open Market Committee (FOMC, the Federal Reserve System's monetary policy setting body) conducts monetary policy by setting a target for the overnight federal funds rate. The federal funds rate is one of the interest rates banks charge each other for overnight credit. Monetary policy works to influence economic activity primarily through the real interest rate, the nominal (stated) interest rate minus inflation. By raising the real interest rate, the FOMC can encourage slower economic growth and lower inflation. By lowering the real interest rate the FOMC can attempt to speed up the economy and increase inflation. The neutral (or "equilibrium") real federal funds rate (also known as  $r^*$ , pronounced "r-star") is the rate above which the FOMC slows the economy and below which the FOMC stimulates the economy.

### HOW IS R\* CURRENTLY BEHAVING?

$R^*$  has been falling over recent years and is currently at historical lows. Exhibit 1 presents two measures of  $r^*$ , both calculated from the FOMC's quarterly Summary of Economic Projections (SEP). The first measure can be read directly from the survey results. In each SEP, FOMC participants report their estimate of the longer-run nominal federal funds rate, the rate expected to prevail after any shocks to the economy have passed. Subtracting from that estimate the FOMC's inflation target of 2 percent yields an estimate of longer-run  $r^*$ . As shown in the panel to the left, longer-run  $r^*$  has fallen steadily since the Committee began reporting the statistic in January 2012 and recently has fallen particularly sharply. The Committee's estimate of longer-run  $r^*$  now stands at 1 percent, down from 2¼ percent in 2012.

The second measure, shown in the right panel of Exhibit 1, is an estimate of shorter-run  $r^*$ , the neutral policy rate currently prevailing. The estimate is calculated using the median FOMC participant's projection of the appropriate federal funds rate and the median forecasts of the inflation rate and the unemployment rate. The estimate is calculated by assuming that the projection of appropriate policy is derived by applying the Taylor (1999) monetary policy rule to the forecasts of the unemployment rate and the inflation rate, but allowing for a time-varying intercept equal to  $r^*$ . Put another way, the deviation of the median committee member's assessment of appropriate policy from what would be called for

by the Taylor rule is attributed to variations in the neutral rate. The results plotted are the resulting estimates of shorter-run  $r^*$  at the end of the year following the year of the FOMC meeting when the forecasts were reported. As shown in Exhibit 1, this estimate of short-run  $r^*$  has fallen substantially since the SEP began in 2012 and is now equal to about -65 basis points.<sup>1</sup>

### WHY IS A LOW $R^*$ A BAD OUTCOME?

A low level of  $r^*$  complicates monetary policy both over the intermediate run, by reducing the amount of stimulus the FOMC can impart, and over the longer run by increasing the odds the FOMC will again hit the zero lower bound for nominal interest rates. The amount of stimulus provided by monetary policy can be measured by the difference between the current real federal funds rate and  $r^*$ . Consequently, over the intermediate term, a low  $r^*$  implies that monetary policy provides less stimulus than it would if  $r^*$  were at historically normal levels.<sup>2</sup> For example, if inflation is running at the FOMC's target of 2 percent, the FOMC can't reduce the real interest rate below -2 percent (the minimum nominal rate of 0 minus the inflation rate of 2 percent). If  $r^*$  is 2 percent (as estimated by the FOMC in 2012), then the FOMC can deliver, at most, 4 percentage points of stimulus by setting the federal funds rate at 0. But if  $r^*$  is, say, 1 percent, (as estimated by the FOMC now) the FOMC can only deliver, at most, 3 percentage points of stimulus. With the recovery continuing to be sluggish, less stimulative monetary policy implies that the

FOMC will need to continue to tighten gradually, at best, to bring inflation up to its 2 percent target. These concerns were summarized in a recent note by John William, President of the Federal Reserve Bank of San Francisco:

*The critical implication of a lower natural rate of interest is that conventional monetary policy has less room to stimulate the economy during an economic downturn, owing to a lower bound on how low interest rates can go. This will necessitate a greater reliance on unconventional tools like central bank balance sheets, forward guidance, and potentially even negative policy rates. In this new normal, recessions will tend to be longer and deeper, recoveries slower, and the risks of unacceptably low inflation and the ultimate loss of the nominal anchor will be higher.<sup>3</sup>*

Over the longer run, a low-level of  $r^*$  increases the chances that the United States will again find itself trapped at the zero lower bound. Assuming that the FOMC is able to keep inflation near its 2 percent target, nominal interest rates will tend to trend around  $r^*$  plus 2 percent. During past recessions, the FOMC has, on average, lowered the federal funds rate by a little over 5 percentage points. Suppose half the decline, or 2½ percentage points reflects a return to normal. With  $r^*$  low, a 2½ percentage point decline would leave the federal funds rate uncomfortably close to the zero lower bound, frequently requiring the FOMC to resort to nontraditional measures, such as large scale purchases of longer-term Treasury and agency securities.<sup>4</sup>

Even worse, those nontraditional measures tend to be less effective, raising the possibility that

1 In the earlier part of the sample period, the estimate of shorter-run  $r^*$  was likely held up by the zero lower bound on nominal rates, which prevented the FOMC from lowering the federal funds rate below its effective lower bound. However, if that was the case, it is unclear why the Committee did not increase its large scale asset purchase programs further.

2 Yellen, Janet, "Normalizing Monetary Policy: Prospects and Perspectives," March 27, 2015. <http://www.federalreserve.gov/newsevents/speech/yellen20150327a.htm>

3 William, Jonathan, "Monetary policy in a low  $r^*$  world," August 15, 2016.

4 Haldane, Andrew. "Stuck," speech given to Open University, London. June 30, 2015.

inflation will fall despite the easing of policy.<sup>5</sup> As inflation falls, monetary policy becomes less stimulative (because the real federal funds rate rises), inflation could fall further, and a deflationary spiral could develop.

## WHAT IS THE CAUSE OF THE DECLINING AND LOW R\*?

Janet Yellen, Chair of the Federal Reserve Board and of the FOMC, has repeatedly expressed concern that  $r^*$  is declining. In response to a question in the press conference following the June 2016 FOMC meeting, for example, she said:

*...I think all of us are involved in a process of constantly reevaluating where is that neutral rate going, and I think what you see is a downward shift in that assessment over time, the sense that maybe more of what's causing this neutral rate to be low are factors that are not going to be rapidly disappearing but will be part of the new normal.<sup>6</sup>*

Given the impact of  $r^*$  on the efficacy of monetary policy, it seems worth considering why it is declining, and how that decline could be reversed or at least halted. Clearly, the headwinds holding back economic growth after the financial crisis tend to push down  $r^*$ ; however, those headwinds appear to have largely dissipated. In the news conference cited above, Janet Yellen noted as possible causes slow productivity growth and the aging of the population.

Another likely reason why  $r^*$  has been falling is

5 See Engen, Eric M., Thomas Laubach, and David Reifschneider (2015) "The Macroeconomic Effects of the Federal Reserve's Unconventional Monetary Policies," Finance and Economics Discussion Series 2015-005, <https://www.federalreserve.gov/econresdata/feds/2015/files/2015005pap.pdf>.

6 Transcript of Chair Yellen's Press Conference, June 15, 2016, p.7. <https://www.federalreserve.gov/mediacenter/files/FOMCpresconf20160615.pdf>

the tightening of bank liquidity regulations that has occurred over recent years. That possibility was first identified last year by a working group of central bankers, convened by the Bank for International Settlements (BIS) to assess the cumulative impact that the package of new bank regulations known as Basel III is having on monetary policy.<sup>7</sup> The working group concluded that, in general, the combined consequences of the new regulations were difficult to predict, but the tightening of liquidity regulations would have some predictable consequences and, in particular, that:

*One such consequence that could have important monetary policy implications will be a steepening of the front end of the yield curve for any given expected path for overnight rates. In jurisdictions where the central bank primarily influences the overnight rate, but longer-term interest rates are more relevant for economic activity, the central bank will thus need to target a somewhat lower level of interest rates to achieve the same economic outcome.<sup>8</sup>*

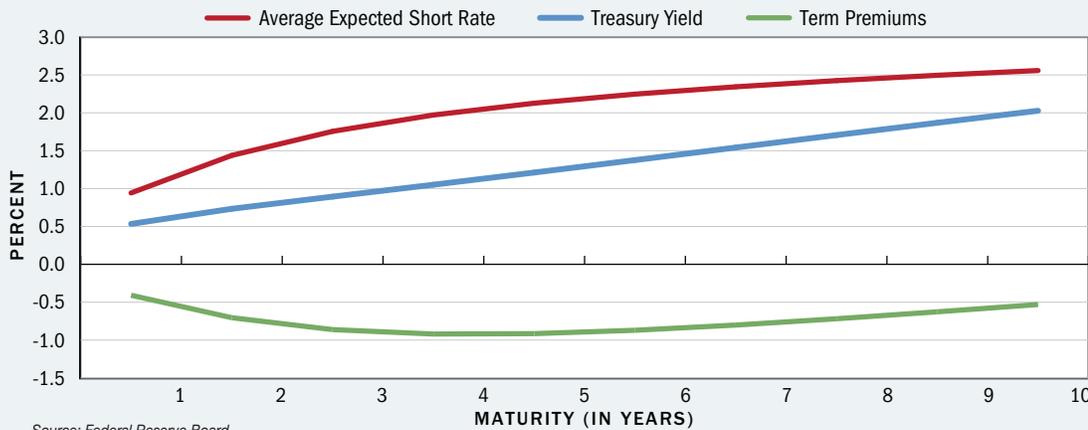
The United States is in the situation that the working group identified: the central bank primarily influences the overnight rate, though longer-term rates are more relevant for economic conditions. So because of the tightening of liquidity regulations, the FOMC will need to target a lower real federal funds rate to get the same economic outcome. In other words, tighter liquidity regulations may lower  $r^*$ .

Before analyzing how and whether tighter liquidity regulations are contributing to the decline in  $r^*$  we need to define some additional terms.

7 CGFS Papers No. 54, "Regulatory change and monetary policy," Committee on the Global Financial System and the Markets Committee, May 2015. An author of this note was co-chair of the CGFS working group.

8 P.36

**EXHIBIT 2: RATES ON TREASURY SECURITIES, AS OF 3/31/2016**



Source: Federal Reserve Board.

## WHAT ARE “TERM PREMIUMS,” “FORWARD TERM PREMIUMS,” AND THE “MONEY PREMIUM”?

### Term premiums

Term interest rates (interest rates that are fixed over the term of the instrument, where the instrument has an initial maturity greater than overnight) can be thought of as having two components. One component equals essentially the average expected overnight rate over the maturity of the term instrument; it is the rate that you would expect to earn (or pay) if you rolled over overnight obligations for the term of the instrument. The second component is the term premium, which reflects the compensation the investor receives for the interest rate risk associated with holding a fixed-rate instrument of that term. Term premiums can be positive or negative. A positive term premium means that investors receive a higher return on longer-dated fixed-rate securities than they would expect to earn if they rolled over overnight or other short-term investments for the same period. A negative term premium means that investors receive a lower return on longer-dated fixed-rate securities than they would expect to earn if they rolled over overnight or other short-term investments for the same period. Investors might accept a lower return—a negative term premium—because fixed-rate nominal instruments often go up in value in bad times, when interest rates fall, and down in value in good times, when interest rates rise, making them a valuable hedge.

Exhibit 2 is a plot of the current Treasury yield

curve. A yield curve is a plot of term interest rates against the maturity (or term) of the corresponding instrument, in this case, Treasury securities. The exhibit also plots the average expected overnight interest rate and the term premium, where both are derived from a model maintained by staff of the Federal Reserve Board.<sup>9</sup> As can be seen, the yield curve is below the path of expected average short-term rates implied by the econometric model used, implying that the term premium is negative.

### Forward term premiums

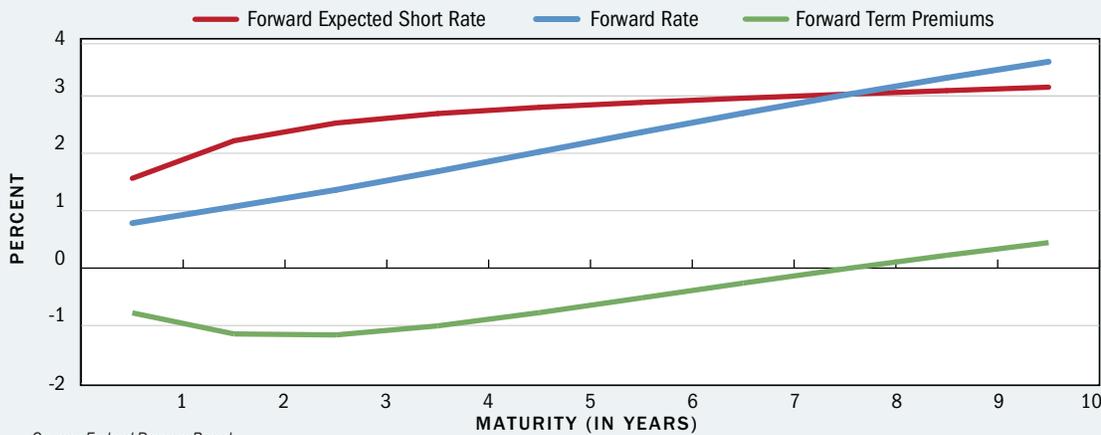
The yield curve tells you the fixed interest rate that corresponds to each term. It also implicitly defines the forward rates that correspond to shorter-term borrowing at some specific point in the future. For example, if the six-year interest rate is 5 percent and the five-year interest rate is 4.8 percent, then the one-year forward rate five years out is 6 percent.<sup>10</sup> That's because borrowing for 5 years at 4.8 percent and one year rate at 6 percent results in an annual borrowing cost over the 6 years of 5 percent.

As with term rates, forward rates can be thought of as having two parts: the expected average short-term rate over the forward interval and the forward term premium. In the example, if the

<sup>9</sup> Kim, Don H. and Jonathan Wright (2005), “An Arbitrage-Free Three-Factor Term Structure Model and the Recent Behavior of Long-Term Yields and Distant-Horizon Forward Rates,” Finance and Economics Discussion Series 2005-33, <https://www.federalreserve.gov/pubs/feds/2005/200533/200533abs.html>.

<sup>10</sup> These examples are just approximate. They do not take into account compounding.

### EXHIBIT 3: RATES ON TREASURY SECURITIES, AS OF 3/31/2016



Source: Federal Reserve Board.

expected short-term rate over the year beginning in five years were 4 percent, then the forward term premium would be 2 percentage points (4 percent plus 2 percent equals the forward rate of 6 percent). Importantly, the forward rates, future expected rates, and forward term premiums are just a different way of presenting the same information as the yield curve, the expected average short term rate, and term premiums. Exhibit 3 plots the current forward Treasury curve along with the expected short-term rate and forward term premiums that correspond to the data plotted in Exhibit 2.

### Money-premium

Instruments that have money-like characteristics – ones that either can be converted to cash quickly without depressing their value or that mature very soon – are especially valuable to investors. They provide a place for corporate money managers or households to keep funds for cash management purposes, and they provide the same function for banks or money funds. Money-like instruments include bank deposits, deposits at the Federal Reserve, very short-term government debt, repurchase agreements, and high quality commercial paper. Because of the added value of these instruments as a money substitute, investors are willing to accept a lower yield on them than otherwise. The amount by which the yields on these instruments fall below otherwise similar instruments is known as the money-premium.

### HOW DO TIGHTER BANK LIQUIDITY REGULATIONS LOWER R\*?

#### Basel III liquidity requirements

Basel III includes two new liquidity requirements. The first, which has already been put in place, is the liquidity coverage ratio (LCR). The LCR requires banks to hold sufficient high-quality liquid assets (HQLA) to meet a 30-day net cash outflow associated with an episode of idiosyncratic and market-wide stress. The second, which was recently out for public comment, is the net stable funding ratio (NSFR), which is intended to ensure that banks have stable funding over a one-year horizon.

A bank can raise its LCR in any combination of three ways. Most obviously, it can increase its holdings of HQLA, but HQLA is expensive to hold because the yields on liquid assets tend to be low.<sup>11</sup> The second way a bank can improve its LCR is by increasing its projected 30 day cash inflow. To increase its cash inflows, the bank will need to shorten the maturity of its lending to within 30 days. The third way is to reduce its projected cash outflow by lengthening the maturity of its borrowings

11 Holding HQLA is especially costly for banks bound by leverage ratio requirements, as opposed to risk-based capital requirements, because those banks will have to hold material amounts of capital against the government securities and reserve balances in HQLA. Consequently, a binding or near-binding leverage ratio as in the United States (see the TCH research note “Shortcomings of Leverage Ratio Requirements,” August 2016 <https://www.theclearinghouse.org/issues/articles/2016/08/20160809-tch-research-note-on-shortcoming-of-the-leverage-ratio>) will amplify the downward pressures on  $r^*$  discussed in this note.

beyond 30 days. All large U.S. banks are subject to the LCR, and, at least in the interbank market, they can't all lengthen the maturities of their borrowing and shorten the maturities of their lending, so interest rates will have to adjust to leave banks content to borrow and lend to each other. In particular, in equilibrium, very short-term rates will have to fall relative to somewhat longer-term short rates. That shift in rates will make borrowing at maturities less than 30 days more attractive and lending at maturities more than 30 days more attractive by just enough to offset the countervailing incentives established by the LCR.<sup>12</sup>

How would that downward pressure manifest? On average over time, the overnight interest rate can't be expected to increase over the subsequent couple months (interest rates can't always rise, about half the time, they have to fall), so the downward pressure on the front end of the yield curve has to be reflected in term premiums that start low and then rise sharply as the maturities of the instruments increase from overnight to several months. Indeed, a recent Federal Reserve working paper reports finding exactly that result for the term premiums evident in Treasury bill yields over the twenty years before the crisis, and attribute the finding to the premium investors are willing to pay for money-like instruments.<sup>13</sup> In the next section, we present evidence that term premiums at the front end of the yield curve have become especially low recently.

12 In addition, financial institutions that are not subject to the LCR would have an incentive to lend long to, and borrow short from, those institutions that are subject to the LCR, migrating liquidity risk outside of the regulated sector, as discussed further below.

13 Mark Carlson, Burcu Duygan-Bump, Fabio Natalucci, William R. Nelson, Marcelo Ochoa, Jeremy Stein, and Skander Van den Heuvel (forthcoming), "The demand for short-term, safe assets and financial stability: some evidence and implications for central bank policies." *International Journal of Central Banking*. Preliminary version available as a working paper at <http://www.federalreserve.gov/econresdata/feds/2014/files/2014102pap.pdf>.

As discussed above, monetary policy in the United States, and also in most other major jurisdictions, is conducted by targeting the overnight interest rate. But economic activity is primarily tied to longer-term interest rates, including 30-year mortgage rates, 10-year corporate bond rates, or even 3-month Eurodollar rates. If term premiums slope up steeply at the front of the yield curve, then, to achieve any given level of economic activity, the Federal Reserve will have to establish a lower level for the overnight interest rate. And, for any given level of inflation, that lower level of the overnight interest rate requires a lower real overnight interest rate. Moreover, over time, the real overnight rate will have to be lower on average, including when the economy is in equilibrium (the business cycle is running neither too hot nor too cold). In other words,  $r^*$  must decline, which, as shown above, is precisely what has happened.<sup>14</sup>

A bank can also satisfy the LCR by increasing its holdings of HQLA. A number of assets qualify as HQLA, including longer-term government and agency securities. But banks are reportedly reluctant to hold such longer-term instruments to satisfy liquidity requirements because of the added volatility they contribute to bank earnings. Consequently, it seems possible that the increase in demand will be larger for shorter-term securities, including in particular reserve balances, T-bills, and agency discount notes. If so, that increased demand will contribute further to the downward pressure on the front end of the yield curve.

Moreover, HQLA consists, by definition, of secu-

14 A concise discussion of different ways to define and measure  $r^*$  can be found in the January 2010 Bluebook (the document describing monetary policy alternatives provided to the FOMC prior to its meeting (the name was changed later to "Tealbook Book B")) pp. 28-29. <http://www.federalreserve.gov/monetarypolicy/fomchistorical2010.htm>

rities that are “...easily and immediately convertible into cash with little or no expected loss of value...;” that is, securities with money-like characteristics.<sup>15</sup> So the increased demand for HQLA will naturally tend to increase the money-premium. In short, a tightening of liquidity regulations makes liquidity more valuable. We discuss some implications of that added value below in the “Why is an elevated money premium a bad thing?” section.

## WHAT EVIDENCE IS THERE THAT NEAR-TERM TERM PREMIUMS ARE LOW AND THE MONEY PREMIUM HIGH?

In the previous section, we explained that tighter liquidity regulations will drive down  $r^*$  by reducing the term premium at the front end of the yield curve. Earlier we presented evidence that  $r^*$  has been declining and is currently at historical lows. If liquidity regulations are contributing to the low level of  $r^*$ , then we would expect to have seen a decline in near-term term-premiums to low levels. In this section we present evidence that the near-term term premiums have indeed fallen and are near historical lows.

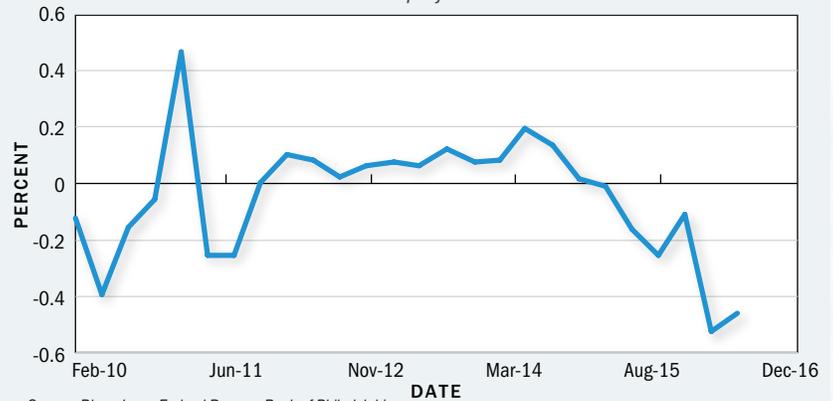
### Term premiums

As described above, the term premium is the difference between a term interest rate and the average short-term rate expected over the same term. Forward term premiums are just the term premium for some forward interval. To estimate term premiums, it is necessary to have an estimate of expected future short rates. There are two usual ways to estimate term premiums; they differ by how expected future short-term rates are estimated: (1) use a survey-based measure of expected future short rates, and (2) use an econometric model to project future short-term

<sup>15</sup> LCR final rule, p.12 (B.1)

**EXHIBIT 4: MARKET FUTURES FOR 3-MONTH RATE - SURVEY RATE, 1 YEAR AHEAD**

*OIS rate minus SPF projection of the Tbill rate*



Source: Bloomberg; Federal Reserve Bank of Philadelphia.

rates. Both methods currently show that near-term term premiums are at historic lows.

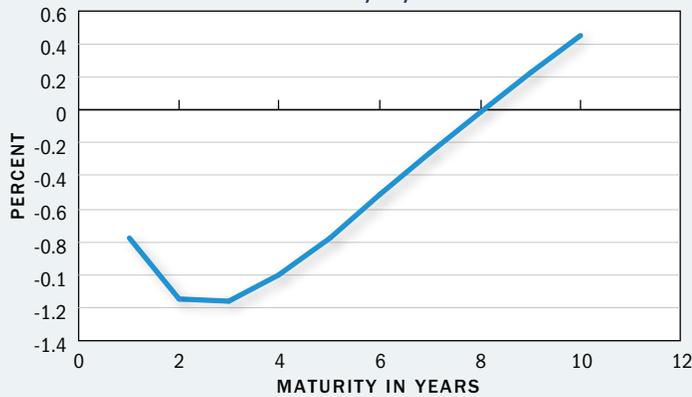
Exhibit 4 reports forward term premiums calculated using expected future short-term rates taken from a survey. In particular, the exhibit shows the difference between the one-year-ahead Overnight Indexed Swap (OIS) rate and the corresponding projection of the 3-month Treasury bill rate from the Survey of Professional Forecasters. This estimate of the forward term premium 12-months ahead has fallen steadily in recent years and is near the lowest it has been since OIS trading began in 2007.

Exhibit 5 reports forward term premiums calculated using projections of short-term rates from an econometric model. The data plotted are the same as in Exhibit 2—the forward term premiums calculated by staff at the Federal Reserve Board. The left panel shows the current estimate of the forward Treasury term premium curve, which drops sharply negative at the front end of the curve.<sup>16</sup> The right panel shows a time series of the forward term premium one-year hence. Like the survey-based estimate shown in Exhibit 1, the term premium has fallen in recent years and is near historical lows.

<sup>16</sup> Because the model assumes term premiums reflect interest rate risk, not money premiums, the forward term premium is restricted to equal zero at horizon zero. Consequently, downward pressure at the front end can only appear as an initial sharp drop followed by an increase. An interesting and relevant exercise would be to reestimate the term structure model without restricting term premiums to equal zero at horizon zero.

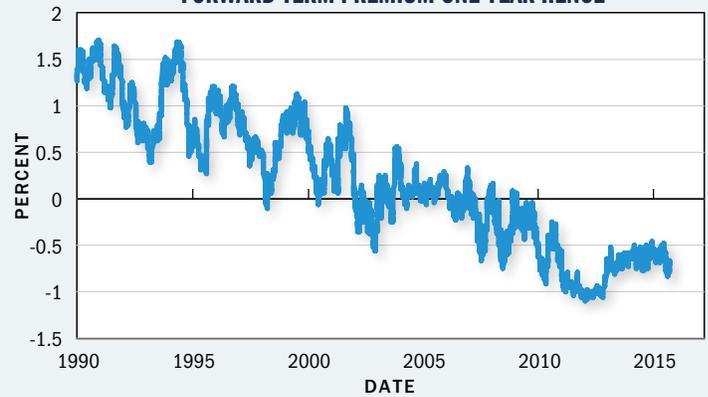
## EXHIBIT 5

TERM STRUCTURE OF THE FORWARD TREASURY TERM PREMIUM,  
AS OF 3/31/2016



Source: Federal Reserve Board.

FORWARD TERM PREMIUM ONE-YEAR HENCE



### Money premium

It is important to note that a low near-term term premium is not only the way that tighter liquidity regulations put downward pressure on  $r^*$ . A low near-term term premium is also an indication, as discussed above, that tighter liquidity regulations are making money-like instruments more valuable. That is, that the tighter regulations are raising the “money premium.”

Another measure of the money premium, known as the z-spread, developed by Greenwood, Hanson, and Stein (2014) is the difference between a Treasury bill rate fitted from a fitted yield curve and the actual Treasury bill rate.<sup>17</sup> As shown in Exhibit 6, the z-spread on the one-month bill, after being volatile during the crisis, has risen to the upper end of its historical range.

### WHY IS AN ELEVATED MONEY PREMIUM A BAD THING?

When the money-premium is high, the interest rates on money-like instruments are lower than other instruments. As noted in Gorton and Metrick (2012), Gorton (2010), and Stein (2012), private financial intermediaries take advantage of this money premium when they issue certain types of collateralized short-term debt, such as asset-backed commercial paper or engage in repo transactions. They argue that this “private money creation” was a big part of the growth in

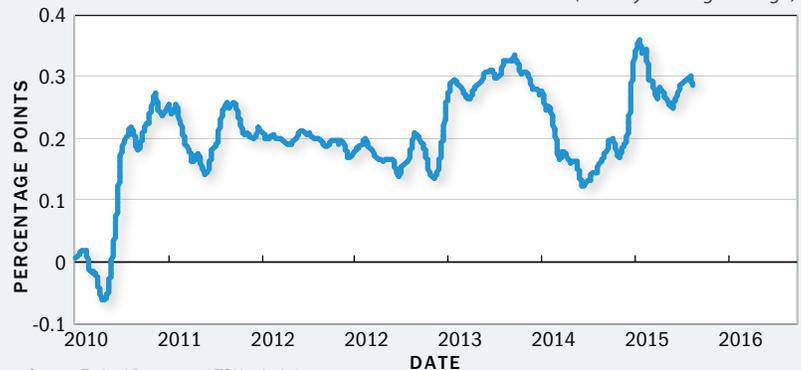
the shadow banking sector in the years preceding the financial crisis, where seemingly safe maturity and liquidity transformation led to the run-like behavior in financial markets observed during the crisis. While the shadow banking system does not appear to be growing rapidly now, the currently elevated money-premium may be providing similar incentives that could lead to a re-expansion of the shadow banking system in the future.

### WHAT IS THE BEST WAY TO RAISE $R^*$ AND REDUCE THE MONEY PREMIUM?

Given the seriousness of these potential consequences, it is worth considering possible policy responses. The responses all amount to either increasing the supply of government-created money like instruments or reducing the demand for money-like instruments. We discuss three: shorten the maturity of Treasury debt, expand the creation of liquidity by the Federal Reserve, and refrain from implementing the NSFR.

EXHIBIT 6: MEASURE OF THE MONEY PREMIUM

Model Estimate of the T-Bill Rate minus Actual T-Bill Rate (45-Day Moving Average)



Source: Federal Reserve and TCH calculations.

17 Greenwood, Robin, Samuel G. Hanson, and Jeremy C. Stein (2015), “A Comparative-Advantage Approach to Government Debt Maturity,” *Journal of Finance* LXX (4): 1683-1722.

## Shortening the maturity of Treasury debt

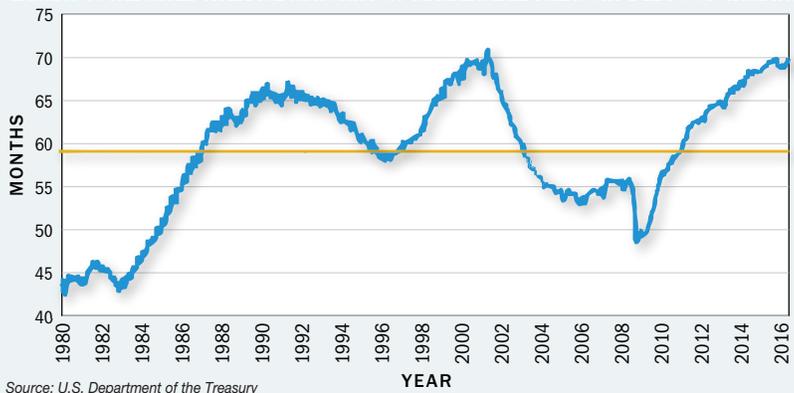
R\* could be raised and the money premium reduced by increasing the supply of government created money-like instruments. The U.S. Treasury could reduce the maturity of its debt by replacing longer-term securities with bills. As shown in Exhibit 7, the average maturity of marketable Treasury debt outstanding has risen to near its historical high and is projected by the Treasury to rise substantially further. Nevertheless, because longer-term term premiums are currently estimated to be negative, it is cheaper for the Treasury to fund itself long term rather than roll over short-term borrowings. Consequently, one serious drawback to this approach is that it would mean asking the Treasury to deviate from its primary funding goal – financing government borrowing needs at the lowest cost over time – in order to achieve a macroeconomic objective.

## Increasing liquidity transformation by the Federal Reserve

Another way to increase the supply of government-created money-like instruments would be for the Federal Reserve to engage in increased liquidity transformation. As suggested in Carlson et al (forthcoming), the Federal Reserve could increase the net supply of liquid assets by expanding its balance sheet, which would increase the quantity of reserve balances (deposits of banks at the Federal Reserve), but only if the assets it acquires and takes out of public circulation are not very liquid<sup>18</sup>. For example, if the Federal Reserve bought Treasury bills, the quantity of reserve balances would rise, but the net change in the supply of liquid assets would be roughly zero. At the other end of the spectrum, if the Federal Reserve were to increase its discount window lending to depository institutions, taking illiquid assets as collateral, the corresponding rise in reserve balances would increase the net supply

18 See footnote 13.

EXHIBIT 7: WEIGHTED-AVERAGE MATURITY OF MARKETABLE TREASURY DEBT OUTSTANDING



Source: U.S. Department of the Treasury

of money-like instruments and so, could push the money premium down. Any such approach, however, would likely prove controversial.

## Refraining from adopting the NSFR

The simplest policy response would be to refrain from adopting the NSFR requirement, avoiding an unnecessary further increase in the demand for money-like instruments. A tightening of liquidity regulation and supervision was a critical and appropriate part of the response of U.S. authorities to the financial crisis. Important components of that tightening have been the establishment of the LCR requirement as well as the creation of the annual Comprehensive Liquidity Analysis and Review, a horizontal examination of the liquidity of the largest banks. Nevertheless, as discussed in a recent TCH research note, the NSFR would do little to nothing to help fortify or measure bank liquidity, and it would add substantially further to the demand for money-like instruments, especially as the Federal Reserve's balance sheet and financial conditions normalize.<sup>19</sup>

As a rule of thumb, when you find yourself in a hole, stop digging. Refraining from adopting the NSFR wouldn't raise  $r^*$  and lower the money premium, but it would at least leave  $r^*$  higher, and the money premium lower, than they would be if the NSFR were adopted. Given the already questionable added value of the NSFR, and the severity of the consequences of further declines in  $r^*$  and increases in the money premium, a reconsideration of its costs and benefits would be prudent. ■

19 The Clearing House (2016), "The Net Stable Funding Ratio: Neither Necessary Nor Harmless," [https://www.theclearinghouse.org/~media/tch/documents/20160705\\_tch\\_nsfr\\_note.pdf](https://www.theclearinghouse.org/~media/tch/documents/20160705_tch_nsfr_note.pdf)