ATTN: Department of the Treasury via email submission to: Govsecreg@fiscal.treasury.gov

From: Christopher Vogel
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RE: U.S. Department of the Treasury Consultation on issuing SOFR indexed FRNs (TREAS-DO-2020-0007)

TD Bank Group ("TD") welcomes the opportunity to respond to the U.S. Department of the Treasury (the "Treasury") consultation (the "Consultation") regarding the Treasury's proposal to issue SOFR indexed FRNs. TD is the fifth largest bank in North America by branches and serves over 26 million customers in three key businesses operating in a number of locations in financial centers around the globe: Canadian Retail, which includes the results of the Canadian personal and commercial banking, wealth and insurance businesses; U.S. Retail, which includes the results of the U.S. personal and business banking operations, wealth management services, and the Bank's investment in TD Ameritrade; and Wholesale Banking. TD had $1.4 trillion in assets on October 31, 2019, and 89,031 average full-time equivalent employees in fiscal 2019. TD is global systemically important bank, a member of the Alternative Reference Rates Committee ("ARRC") and a primary dealer in the United States.

TD responses to the questions in the Consultation are set out below. For your convenience, the responses have been placed in the order in which the questions were presented in the Consultation, and the text of each question is presented in bold before our response. Capitalized terms used herein and not defined have the meanings set forth in the Consultation.

In summary, TD expects that there is sufficient demand for Treasury to issue 1-year SOFR FRNs alongside existing 2-year T-bill FRNs. We suggest the security to pay a compounded average interest rate, reset daily, pay interest quarterly, be issued mid-month, and use a lookback or lag structure. Similarly, the security should have strong waterfall fallback provisions in the event SOFR becomes temporarily or permanently unavailable. TD's responses reflect our consultations with clients, risk takers, and other stakeholders. TD also conducted a survey of buy side participants to help gauge the market's preparedness to buy SOFR FRNs.

Question 1: Market Demand

1.1. Which types of investors would be the primary buyers of Treasury SOFR-indexed FRNs? Would Treasury SOFR-indexed FRNs attract new investor types or additional demand from existing Treasury investors? Assuming the possibility of a 1-year or 2-year maturity, how would the tenor of a Treasury SOFR-indexed FRN affect demand?

We expect that the primary buyers of Treasury SOFR FRNs will be government-only money market funds. Additional investors will likely include central banks, corporate treasuries, bank portfolios, state and local government funds, and Government Sponsored Enterprises (GSEs). Many of these investors currently invest in Treasury T-bill FRNs and favor FRNs as a means of picking up additional yield while keeping duration short within their relatively narrow investment mandates.

The majority of Treasury SOFR FRN buyers would likely be existing buyers of bills and T-bill linked FRNs. However, TD's survey of buy side investors suggests that while some would sell bills and T-bill linked FRNs to buy SOFR FRNs, others would allocate assets away from cash, repo, and other products (including GSE
FRNs). On net, TD is of the view that the issuance of Treasury SOFR FRNs would likely draw additional investable assets into Treasury’s front-end product suite.

As is the case with Treasury’s existing T-bill FRNs, a 2-year maturity would be well-received, but may lack participation from money market funds as these investors have significant weighted-average life (WAL) constraints. Treasury should be able to increase the demand for SOFR FRNs by issuing at the 1-year point, which should provide the securities with stronger support from money market funds and could help lower funding costs over time.

1.2. Please estimate annual demand for Treasury SOFR-indexed FRNs. Would demand be greater for a shorter tenor? How would potential growth in issuance of SOFR-indexed FRNs by other issuers affect long-term demand for Treasury SOFR-indexed FRNs?

As noted in our answer to question 1.1, we expect that demand for Treasury SOFR FRNs would be stronger in the 1-year maturity as these would provide a natural complement to existing 2-year T-bill linked FRNs and would take advantage of money market fund demand. Customer feedback suggests that Treasury should be able to raise approximately $225-250bn per year in 1-year Treasury SOFR FRNs.

To date, Bloomberg data shows that the largest issuers of SOFR FRNs have been the Government Sponsored Enterprises (GSEs), who have collectively issued over $400bn of SOFR FRNs since July 2018. The majority of overall SOFR FRN issuance to date (55%) has been focused in the sub-1-year segment of this market, indicating very strong demand for shorter-dated SOFR FRNs. A smaller 40% of issuance to date has been brought to market in the 1-2-year part of the curve and modest 5% of issuance has been brought to market with final maturity over 2 years. This suggests that the vast majority of demand for SOFR issuance is short-dated. Existing SOFR issuance is expected to serve as a complement to Treasury SOFR FRN supply, with growth in non-Treasury SOFR FRN issuance helping to improve SOFR FRN liquidity overall and developing the investor base in the sector. In fact, GSE FRNs would likely adopt Treasury’s FRN structure, making Treasury SOFR FRNs the “benchmark” curve for their issuance.

Question 2: Pricing and Liquidity

2.1 Would introducing a Treasury SOFR-indexed FRN help Treasury finance the government at the lowest cost over time? Why or why not?

Given prior Treasury Borrowing Advisory Committee estimates suggesting that issuance in the 5-year and under part of the Treasury curve generally serves to decrease Treasury’s cost of financing longer-term and the expectation that SOFR FRNs will bring in new buyers, we expect 1-year SOFR FRNs to help decrease the government’s funding costs over time. SOFR FRNs would allow Treasury to issue additional debt at the 1-year point on the curve without increasing existing auction sizes.

Similarly, issuing 1-year SOFR FRNs could help reduce the self-referencing problem that currently occurs with Treasury’s T-bill FRNs. For example, during periods of funding stress, Treasury issues greater amounts of 3-month bills, which in turn could increase the cost of 2-year T-bill FRNs for Treasury. SOFR issuance would help lower the magnitude of this linkage, allowing Treasury to finance relative to SOFR, which tends to decline sharply in times of stress as the Fed cuts interest rates. Therefore, in times of stress, Treasury may be able to obtain advantageous funding via 1-year SOFR FRNs while also preventing the negative linkage between 3-month T-bill issuance and the costs of funding T-bill linked FRNs.
2.2 How would you expect a Treasury SOFR-indexed security to price relative to a comparable maturity 13-week T-bill FRN security? How would this pricing vary across the economic cycle and interest rate environments? Please provide pricing estimates.

Initially, the lower liquidity of SOFR FRNs could lead them to price slightly wide to T-bill FRNs. We expect that over a few months, market familiarity with the product will build and liquidity will increase. A May 2019 Treasury Borrowing Advisory Committee discussion found that 1-year SOFR FRNs would trade at a modest discount to T-bill FRNs. However, strong demand for 1-year SOFR FRNs from money market funds could allow SOFR FRNs to trade modestly richer relative to similar maturity T-bill FRNs once liquidity builds. Similar to existing T-bill FRNs, we would expect the overall demand for FRNs to increase as interest rates rise but wane as the market starts to price in rate cuts.

2.3 SOFR has risen significantly for certain short time periods, such as around some ends of months, quarters, and years. To what extent would such patterns, if they continue, affect the interest cost for Treasury on a SOFR-indexed FRN, the interest payments of which would be based on a SOFR averaged or compounded rate over a longer interest accrual period? To what extent would investors be willing to bid lower discount margins at auctions for Treasury SOFR-indexed FRNs in expectation of such patterns continuing? Please elaborate.

While SOFR has risen sharply in the past due to period-ends (such as the ends of months, quarters, and years), some of those effects are waning as some regulation is eased. There was a sharp spike in repo in September 2019 due to reserve scarcity issues. However, since then, the Federal Reserve has become much more involved in ensuring ample supply of repo in the market. The Fed has shown a willingness to prevent SOFR from surging higher or lower during times of stress by using their reverse repo and repo facilities. For example, in the period of stress that began on September 16, 2019, the Fed rapidly deployed reserves via the repo facility, quickly stabilizing the market. We believe the Fed will remain a key player in repo markets going forward, keeping SOFR in a more controlled band than it has been historically. We also note that historical spikes in SOFR have tended to be short-lived and would not have materially increased Treasury’s funding costs.

Conversely, investors would be more willing to purchase Treasury’s SOFR FRNs in order to take advantage of such temporary volatility in the future. This could lead investors to accept a marginally smaller discount margin in the securities over time as the securities provide them with the potential for achieving higher returns in the future.

In addition, the Fed has set up a repurchase agreement facility for foreign and international monetary authorities (FIMA Repo Facility), allowing foreign central banks to obtain cash from the Fed without selling their Treasuries (using Treasuries as collateral). In the future this program could decrease the need for central banks to sell Treasuries even when they need temporary liquidity to defend their home currencies. This would in turn decrease the pressure on dealer balance sheets and repo markets.

2.4 During the global financial crisis, repurchase agreement rates were persistently higher than Treasury bill rates. More recently, during the COVID-19 outbreak, liquidity in Treasury and other markets (including repurchase agreement markets) exhibited signs of stress. How would potential future periods of market stress affect SOFR? In a potential future period of market stress, how might interest costs for Treasury differ between a Treasury SOFR-indexed FRN and the 13-week T-bill FRN? Please elaborate.
As noted in our response to question 2.3, we expect the Fed to remain present in repo markets going forward, which should decrease the volatility of SOFR and make any spike relatively short-lived (possibly limited to month-, quarter-, or year-ends). Given that investors would have the capacity to switch between T-bill FRNs and SOFR FRNs in the future, we expect that SOFR FRNs will behave in a similar manner to T-bill FRNs in periods of stress. Note that in periods of market stress, the volumes underlying SOFR have tended to increase considerably, making it a more robust benchmark rate. This could be a positive for Treasury SOFR FRN issuance as investors would look to purchase securities linked to a more robust rate.

2.5 How liquid would Treasury SOFR-indexed FRNs be in secondary markets? Please compare the expected liquidity of Treasury SOFR-indexed FRNs to Treasury bills, the existing 13-week T-bill FRN, and off-the-run short-dated coupons.

The issuance of 1-year SOFR FRNs could improve the liquidity profile of existing T-bill FRNs, which trade infrequently in the sub-1-year point due to significant demand from money market funds and a scarcity of new issuance in the sector. While SOFR FRNs could initially see lower liquidity due to their novelty, we expect that increased issuance in the sector could provide the market with additional “liquidity events” (i.e., auctions). Once liquidity in SOFR FRNs gradually improves as the market become accustomed to Treasury SOFR FRN issuance, we expect SOFR FRNs to have similar liquidity characteristics to T-bill FRNs. Note that most short-dated SOFR FRNs tend to be held by “buy and hold” accounts, which tends to decrease the liquidity of these securities in secondary markets. We expect T-bill FRNs and SOFR FRNs to have superior liquidity to off-the-run short-dated coupons outside of Fed purchase periods.

Question 3: Security Structure

3.1 What are the primary considerations Treasury should evaluate when structuring a Treasury SOFR-indexed FRN? How would different potential security structures affect investment decisions by market participants, including with respect to activity in derivatives markets?

The Treasury may wish to look to existing GSE SOFR FRNs and existing 2-year T-bill FRNs in order to make investors more comfortable with the new 1-year SOFR FRN structure. Treasury may wish to consider a number of factors when structuring the SOFR FRNs:

- The term of the security – we expect 1-year would see most demand.
- Compounding – we expect compounding would see most demand.
- Whether lookbacks or lockouts should be used – we expect lookback (with an observation shift) would see most demand.
- Reset and coupon payment frequency, and when during the month the security is issued – we expect a daily reset of SOFR, averaged and paid quarterly, in arrears, would see most demand.
- Auctions, settlements, and coupon payments – we expect an auction early in the month (alongside 3-year, 10-year, and 30-year issues) that settles and pays coupons mid-month to see the most demand.
- Fallback language – we expect fallbacks should be in line with ARRC recommendations.
- Whether the security should be indexed to daily SOFR, SOFR Averages, or SOFR Index released by the New York Fed – we expect referencing the SOFR Index (and if not, then daily SOFR) would see most demand.
- Coupon floor – we expect an aggregate/cumulative 0% yield floor would see most demand as it would ensure investors never owe a payment to Treasury.
3.2 Some previously gathered feedback has suggested a 1-year final maturity for original issuance of a Treasury SOFR-indexed FRN. Is this maturity or another maturity preferable for a Treasury SOFR-indexed FRN? Please elaborate.

We expect a 1-year final maturity would garner the most demand as money market fund demand is greatest in this sector. Current sub-1-year T-bill FRNs are frequently held to maturity by investors, leading to a significant tightening of spreads and lack of available product as original issued 2-year T-bill FRNs roll down the curve. In order to take advantage of this stronger demand, Treasury may wish to issue directly in the 1-year maturity. Similarly, issuing a 1-year final maturity SOFR FRN would decrease the competition between current 2-year T-bill FRNs and the new 1-year SOFR FRNs.

3.3 Is a quarterly issuance frequency with two reopenings appropriate for a Treasury SOFR-indexed FRN, similar to the existing 13-week T-bill FRN? What factors should Treasury consider in making this decision?

In order to maintain consistency with existing 2-year T-bill FRNs, Treasury may wish to maintain the current structure of issuing a new security quarterly and reopening the security twice thereafter. This would allow the creation of liquid benchmarks which would improve market functioning. However, Treasury could also issue new 1-year SOFR FRNs on a monthly basis, maintaining 12 separate securities at all times. This would provide investors with a larger variety of investable opportunities, but may be slightly detrimental to liquidity due to smaller issue sizes.

3.4 When during the month should Treasury auction SOFR-indexed FRNs? When should auctions settle?

While we do not expect this to be a crucial point for investors given the strong demand for FRNs, the Treasury may wish to auction 1-year SOFR FRNs alongside the current 3-year, 10-year, and 30-year auction series and settle the issue mid-month. This would provide investors with greater flexibility and ensure that 1-year SOFR FRN supply is not directly competing with existing 2-year T-bill FRN issuance. Similarly, SOFR tends to see upward pressure at month-, quarter-, and year-ends. Issuing and settling the security mid-month would help avoid these disruptions.

3.5 Should interest on Treasury SOFR-indexed FRNs be calculated based on a simple average or a compounded average of SOFR? Should Treasury consider indexing the security to an average rate based on SOFR, such as those recently published by FRBNY as administrator for SOFR? [7] If so, what would be the optimal averaging period for a SOFR-indexed FRN?

In order to maintain existing market convention, Treasury may wish to use a compounded average SOFR rate when calculating the coupon for SOFR FRNs. While the difference will be marginal in the current period as rates are near zero, in the long-term it would align the calculation to swap market conventions. Our analysis suggests that investors are largely prepared to purchase FRNs linked to a compounded average SOFR rate. However, if Treasury believes that calculation requirements are too onerous for smaller investors, they can issue the security referencing the New York Fed’s published SOFR Index. In either case, we expect a 3-month compounded averaging period to be optimal as this would align with existing 2-year T-bill FRN and existing GSE SOFR FRN standards. Some GSE SOFR FRNs used simple averages, but we think this was the case initially when investors were not familiar with the product and an insufficient
number of investors had compounding systems in place. With the New York Fed publishing the SOFR Index, the calculation systems challenge has been addressed as the coupon calculation can be simplified. Note that in order for rated money market funds to purchase SOFR Index-linked FRNs, the SOFR Index will need to be approved by rating agencies as a valid benchmark. However, given sufficient notice, we do not believe this will be a significant impediment to demand for SOFR Index-linked FRNs.

The 90-Day SOFR Average should not be referenced for SOFR FRNs with quarterly coupons as not every interest period would have exactly 90 days. It would also not be possible to calculate accurate accrued interest in secondary trading. The SOFR Index efficiently addresses the need to produce flexible period averages and would be more appropriate.

3.6 What coupon frequency should be used for a Treasury SOFR-indexed FRN? Note that the existing 13-week T-bill FRN pays coupons quarterly. Would a semi-annual, or other coupon frequency be preferred? When during the month should coupon and principal payments be made?

Similar to existing T-bill FRNs we suggest the use of a quarterly coupon frequency. However, coupons and principal payments should be made mid-month.

3.7 Should the index rate for a Treasury SOFR-indexed FRN reset daily, weekly, or at some other frequency?

We suggest Treasury SOFR FRNs to reset on a daily basis as this would draw additional demand from investors with limited weighted average maturity (WAM) requirements, broadening the investor base for Treasury SOFR FRNs.

3.8 Should a Treasury SOFR-indexed FRN incorporate a lookback (i.e., last k rates for an interest period set at SOFR k days before the period ends), a lookback or “lag” (i.e., for every day in the interest period, use SOFR from k days earlier), or a payment delay (i.e., coupon and principal payments made k days after the end of the interest period) in its structure? If so, what values would be appropriate for each attribute? Please explain relevant considerations for these features.

We would support a 2-day observation shift (i.e., “2-Day Observation Shift”) approach. This is like the “lookback” or “lag” convention in the SONIA FRN market, but the weighting for each SOFR aligning with the number of calendar days that interest accrues for the underlying repo transactions for such rate (see diagram below). The weighting applied to each daily SOFR would also be consistent with ISDA’s conventions for SOFR. Two days is commonly used in compounded SOFR FRNs with an “Observation Shift” and would allow reasonable time for investors to receive compensation without materially altering the payoff structure for FRNs over time.
We would not suggest a lockout or a payment delay. A lockout would increase the risk to both investors and the Treasury, potentially locking the rate at unusually high or low levels for several days. This could potentially exacerbate any short-term volatility in SOFR and change the payoff structure of SOFR FRNs from SOFR over time. Similarly, a payment delay requires a change in convention in the final interest period to ensure that principal and interest can be paid on the maturity date. This change in convention may be difficult for systems to process and would move away from current conventions in the FRN market.

With respect to secondary trading considerations, the 2-Day Observation Shift approach allows for accrued interest to be calculated on the trade date (as all daily SOFR would already be published). For SOFR FRNs with no lookback and payment delay, there is no standard convention for how accrued interest should be determined intra-period. For SOFR FRNs with lockout, at least a 1-day lookback should be incorporated into the structure to facilitate accrued interest calculations.

For the 2-Day Observation Shift structure, we support the calculation of compounded SOFR by referencing the SOFR Index and if not, then each daily SOFR in the interest period. Although it is relatively new in the marketplace, a SOFR FRN based on the SOFR Index should be considered as it has the following added benefits:

- Compounding conventions are already internalized in the SOFR Index; this facilitates a consistency of calculations.
- Simplifies the process of calculating a compounded rate.
- Could help coalesce SOFR FRN and SONIA FRN conventions if SONIA FRNs start to reference the SONIA Index after the Bank of England begins to publish it in August 2020.

3.9 In light of FRBNY’s data contingency procedures for the publication of SOFR,[9] what contingency measures should Treasury consider incorporating into the terms of a SOFR-indexed FRN if SOFR, or an average rate based on SOFR, is temporarily unavailable or revised?

Treasury should follow a waterfall approach to fallbacks, allowing for the prior day’s SOFR to be used in the event of a temporarily unavailability of SOFR. However, Treasury should also choose robust fallback language consistent with ARRC recommendations in the event SOFR becomes permanently unavailable in the future. Treasury can use the 3-month T-bill yield as a fallback should SOFR be discontinued as Treasury already issues securities based on this rate.

Question 4: Existing 13-Week T-Bill FRN

4.1 If Treasury decides to issue SOFR-indexed FRNs, what, if any, changes should Treasury make to the existing 13-week T-bill FRN issuance program?

If Treasury decides to issue SOFR FRNs, we do not believe any changes to the existing T-bill FRN program are necessary.

4.2 Should Treasury issue FRNs indexed to both indices, or should Treasury consolidate FRN issuance on a single index?

We expect the market to be able to support issuance of both T-bill and SOFR FRNs. We suggest the Treasury may wish to issue 1-year SOFR FRNs and 2-year T-bill FRNs in order to avoid direct competition
between the two FRN issues. Issuing both FRNs would allow Treasury to better assess the costs of issuance over time, and possibly later tune the relative sizes of each issue to market demand.

4.3 If there is not sufficient demand for both Treasury FRNs to coexist, which index would generate the greater long-term demand and better meet Treasury's issuance objectives? Please elaborate.

We expect there to be sufficient demand for both 1-year SOFR FRNs and 2-year T-bill FRNs.

4.4 Should Treasury consider issuing 13-week T-bill FRNs with a 1-year final maturity? How should the decision regarding issuance of Treasury SOFR-indexed FRNs affect this possibility?

Treasury may wish to issue a 1-year SOFR FRN and continue with the existing 2-year T-bill FRN. The different maturity and reference index would avoid direct competition between the two issues and would help Treasury gauge the demand for the two products separately. In the future, if Treasury gauges sufficient demand and funding needs remain high, a 1-year T-bill FRN or 2-year SOFR FRN could be considered.

5 Market Transition

5.1 What proportion of likely investors is currently operationally ready to purchase Treasury SOFR-indexed FRNs? For those investors that are not ready, what are the main impediments? How much lead time and investment would be required for additional investors to become operationally ready to purchase Treasury SOFR-indexed FRNs? Would any of the security structure choices mentioned in Section 3 above affect the operational readiness of likely investors?

The key investors in 1-year SOFR FRNs (money market funds) seem to be generally prepared to buy SOFR FRNs and do not have structural issues that require significant lead-time to become operationally ready. Smaller investors such as state and local government funds may require some lead time to prepare their systems. However, many investors already purchased SOFR FRNs and should be prepared to participate if the characteristics of Treasury's SOFR FRN do not differ significantly from existing products. With the Libor transition only 18 months away, many more investors are readying their systems to book and account for SOFR products. TD's recent poll of buy side investors suggested that 93% of respondents were operationally ready to invest in SOFR FRNs. We recommend that Treasury consider the 1-year SOFR FRNs at the next quarterly refunding meeting in August. This would allow Treasury to issue the first 1-year SOFR FRNs as soon as the November refunding.

5.2 To what extent would Treasury's issuance of SOFR-indexed FRNs advance the overall market transition away from U.S. dollar LIBOR? How would different market segments (e.g., FRNs, derivatives, business loans, consumer products) be affected by Treasury's decision to issue SOFR-indexed FRNs? What effect would Treasury's issuance of SOFR-indexed FRNs have on the overall market transition away from LIBOR beyond that caused by current issuance of SOFR-indexed FRNs by other issuers? Please provide specific details of the cause and effect relationships you expect.

Treasury's issuance of a SOFR FRN would support the transition away from Libor by providing the market with a benchmark SOFR FRN format. Other issuers would be able to use the issue as a benchmark when
pricing their securities, helping to accelerate the transition from Libor to SOFR. We believe the issue of a Treasury SOFR FRN would also lend additional credibility to SOFR as a reference rate and make other investors more comfortable using the rate, structure, and increased market liquidity to issue their own FRNs. This issuance could in turn help spur derivative markets if investors decide to swap the issuance from floating to fixed.

In conclusion, we believe there is sufficient demand for Treasury to issue 1-year SOFR FRNs alongside existing 2-year T-bill FRNs. We suggest the security to pay a compounded average interest rate, reset daily, pay interest quarterly, be issued mid-month, and use a lookback or lag structure. Similarly, the security should have strong waterfall fallback provisions in the event SOFR becomes temporarily or permanently unavailable.

TD appreciates your consideration of these comments and welcomes the opportunity to discuss further. If you have any questions about this matter, please contact Christopher Vogel (christopher.vogel@tdsecurities.com / +1-212-827-2848)

Very truly yours,

Chris Vogel, Head of Global FX and Repo, TD Securities

Executive Managing Director

Footnotes

4. The primary dealers serve as trading counterparties to FRBNY in its implementation of monetary policy. Primary dealers are also required to participate in all Treasury marketable securities auctions.
6. The ARRC is a group of private-market participants convened by the Board of Governors of the Federal Reserve System and FRBNY to help transition from U.S. dollar LIBOR to SOFR. See [https://www.newyorkfed.org/arrc](https://www.newyorkfed.org/arrc).
7. For more information on the SOFR averages, see FRBNY, Statement Introducing the SOFR Averages and Index (March 2, 2020), available at [https://www.newyorkfed.org/markets/operating-policy/202002](https://www.newyorkfed.org/markets/operating-policy/202002).

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