FEDERAL RESERVE BANK *of* ST. LOUIS

A Cautionary Note on U.S. Monetary Policy Normalization

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Any opinions expressed here are my own and do not necessarily reflect those of the Federal Open Market Committee.

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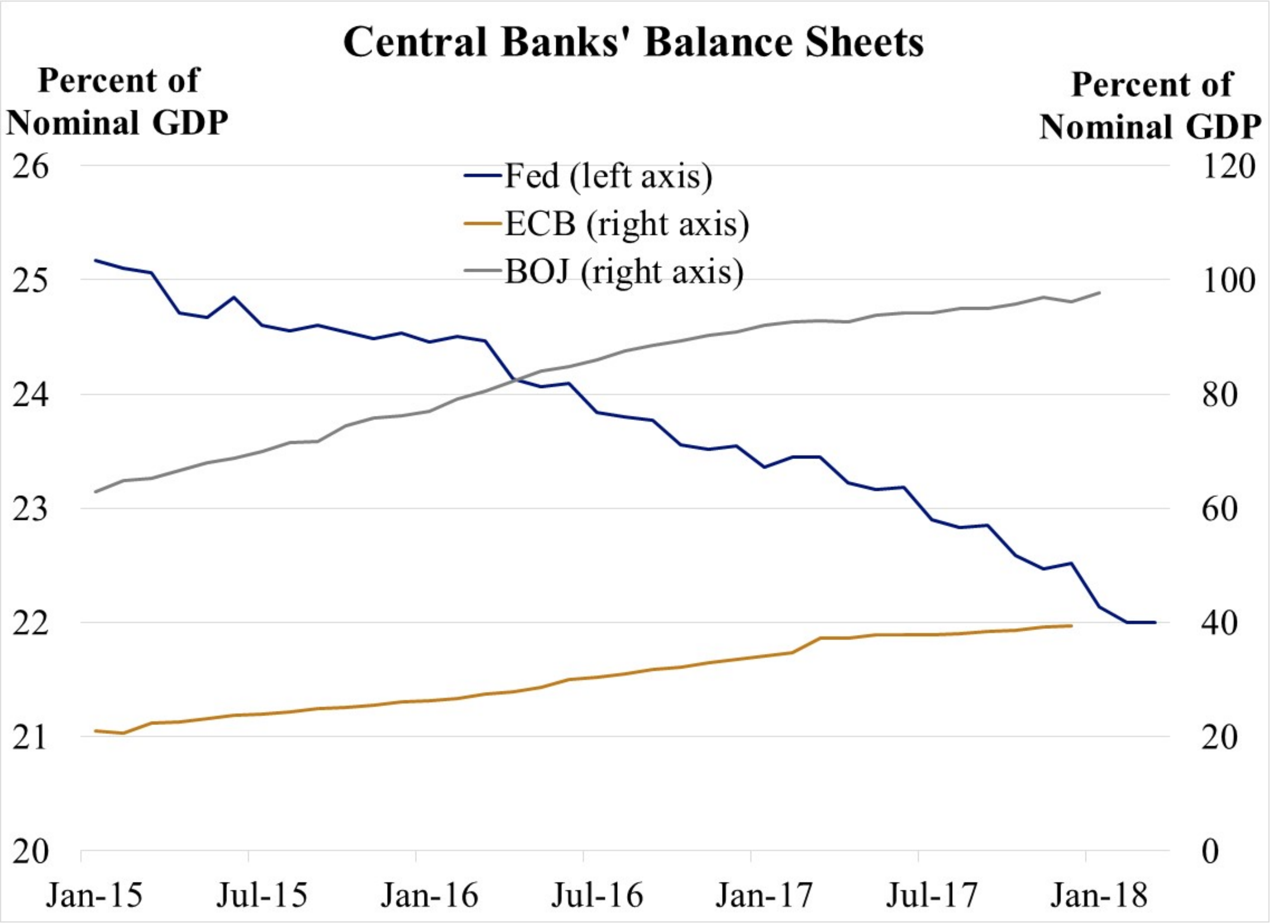
Introduction

The monetary policy situation

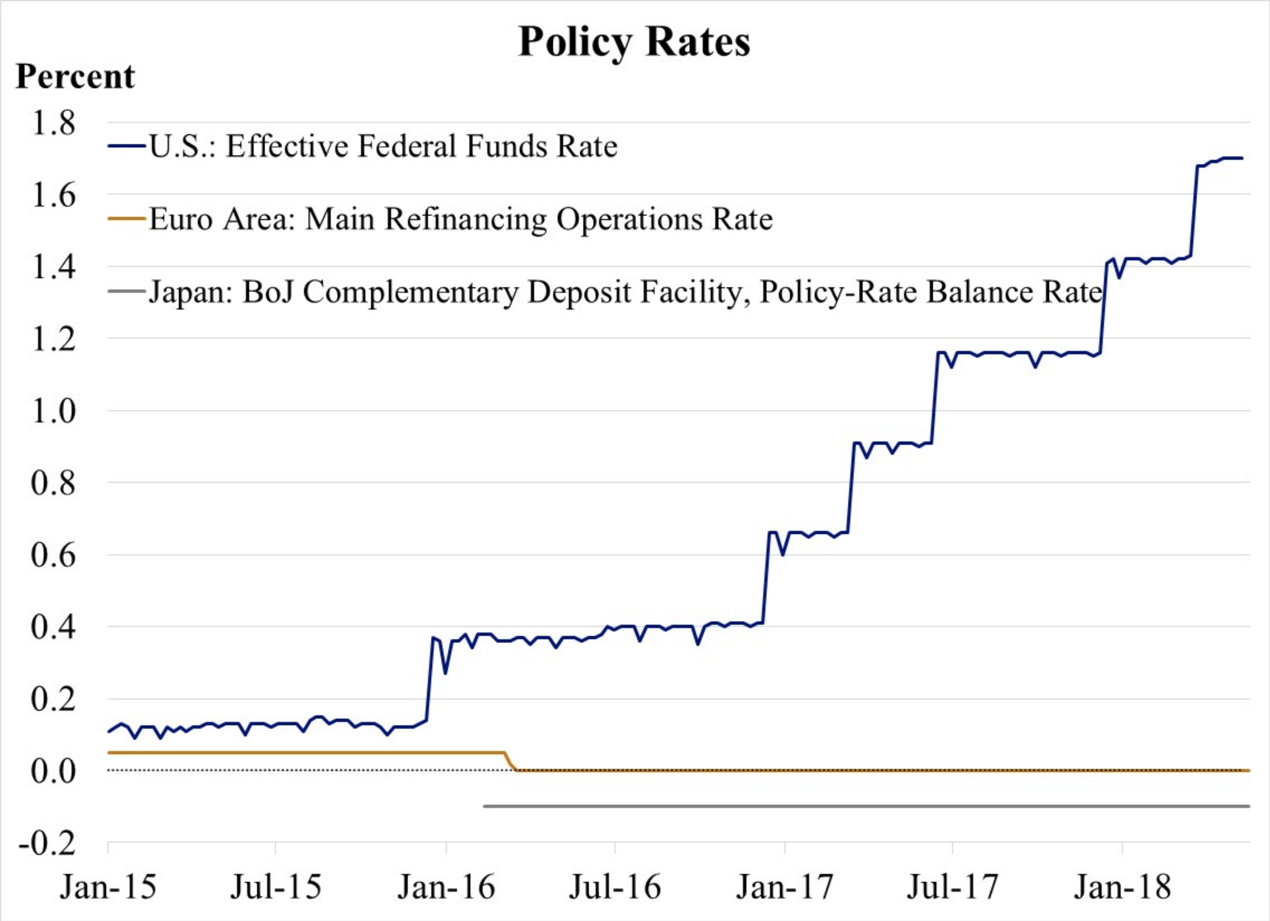
- U.S. monetary policy has been normalizing during the last 2½ years.
  - The Federal Reserve’s balance sheet has been shrinking relative to U.S. gross domestic product (GDP).
  - The Fed’s policy rate—the federal funds rate target—has been increasing relative to policy rates in key foreign economies.

Fed's balance sheet has been shrinking



Sources: Federal Reserve Board, Bureau of Economic Analysis, European Central Bank, Statistical Office of the European Communities, Bank of Japan, Cabinet Office of Japan and author's calculations. Last observations: March 2018, December 2017 and January 2018.

Fed policy rate versus ECB and BOJ



Sources: Federal Reserve Board, European Central Bank and Bank of Japan. Last observation: Week of May 16, 2018.

Today’s key monetary policy question

- How far can the Fed go along the current normalization path, given the likely paths of other key economies?
  - This talk offers a few reasons for caution in raising the U.S. policy rate further given current global macroeconomic conditions.

Three reasons for caution

- I will discuss three reasons why I think caution may be justified in deciding whether to raise the policy rate further in the near term. These reasons relate to the following areas:
  - Market-based inflation expectations in the U.S.
  - The neutral policy rate in the U.S.
  - The flattening U.S. yield curve

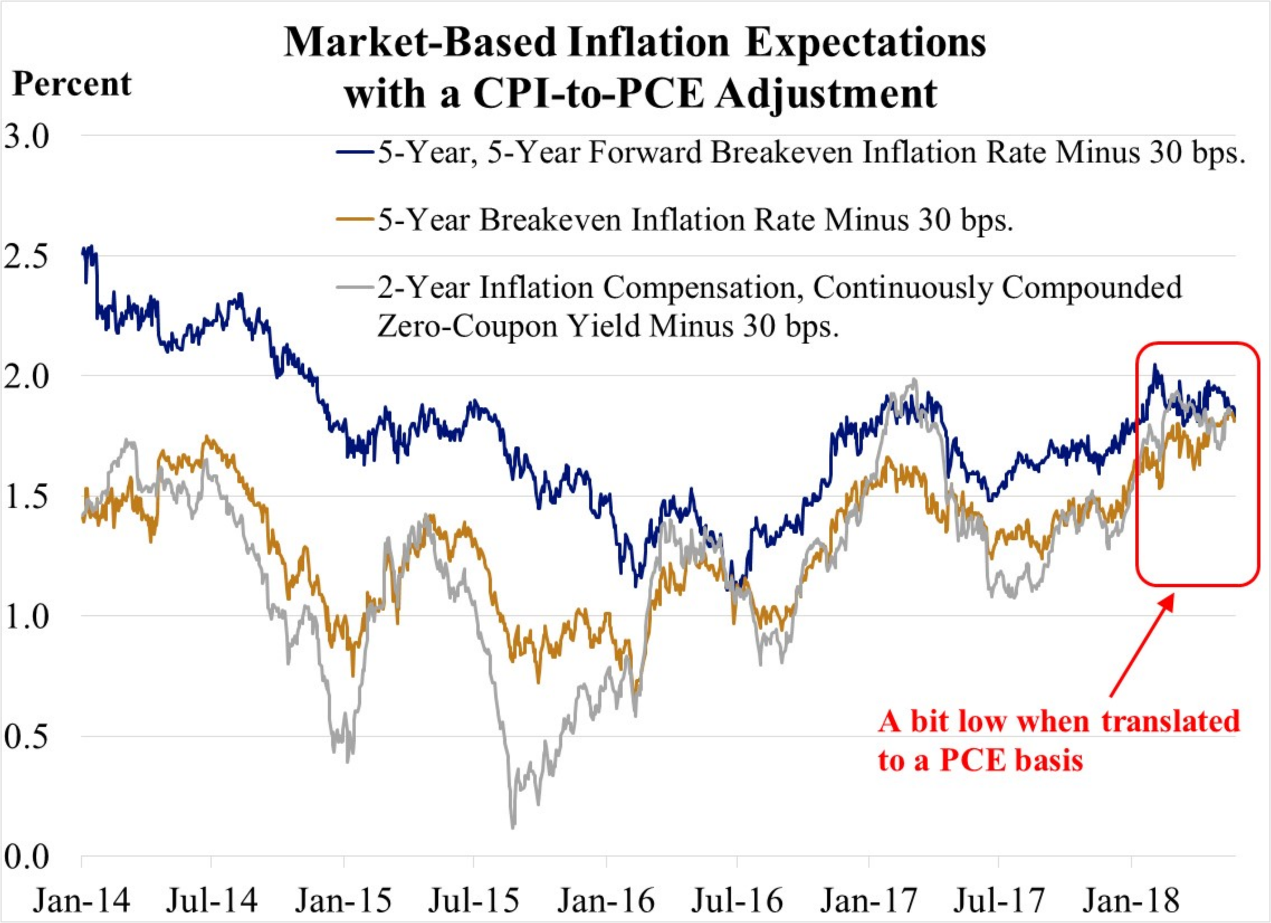
U.S. Market-Based Inflation Expectations Remain Somewhat Low

Inflation expectations still low

- Market-based measures of inflation expectations remain centered below the Federal Open Market Committee's (FOMC's) 2 percent target, inhibiting the Committee's ability to maintain the credibility of the target.*
- Technical matter:
    - The market-based measures are for CPI inflation, and so we adjust them downward somewhat to roughly translate into PCE inflation.
    - Historically, PCE inflation has run somewhat lower than CPI inflation.

** The inflation target is in terms of the annual change in the price index for personal consumption expenditures (PCE).*

Inflation expectations remain a bit low



Sources: Federal Reserve Board and author's calculations. Last observations: May 25 (breakeven inflation rates) and May 18, 2018.

A market-based judgment

- Market-based inflation expectations can be interpreted as saying that financial markets do not believe the Fed will quite hit the PCE-based inflation target, even over a period as long as the next five years.
- This is a market judgment that already prices in all current macroeconomic developments, including a market expectation of future Fed policy, which tends to be somewhat more dovish than the Committee’s policy rate outlook.*

** The median appropriate policy rate path projections from the March 2018 Summary of Economic Projections are as follows: 2.1% (end of 2018), 2.9% (end of 2019), 3.4% (end of 2020) and 2.9% (longer run).*

Re-centering inflation expectations

- These developments suggest that financial markets believe inflationary pressure in the U.S. is likely to be muted over the forecast horizon.
- To the extent market-based inflation expectations have increased recently, it may be due in part to developments in global crude oil markets, a factor that should ultimately have only temporary effects on inflation.
- A reasonable policy going forward may be to temper the pace of normalization in order to re-center inflation expectations at the Committee’s 2 percent target.

The Current U.S. Policy Rate Is Neutral

U.S. policy rate at neutral

- The Fed's policy rate setting is likely at the longer-run neutral level today, putting neither upward nor downward pressure on inflation.
- This suggests that it may not be necessary to change the policy rate to keep inflation at target.

The trend short-term safe real rate

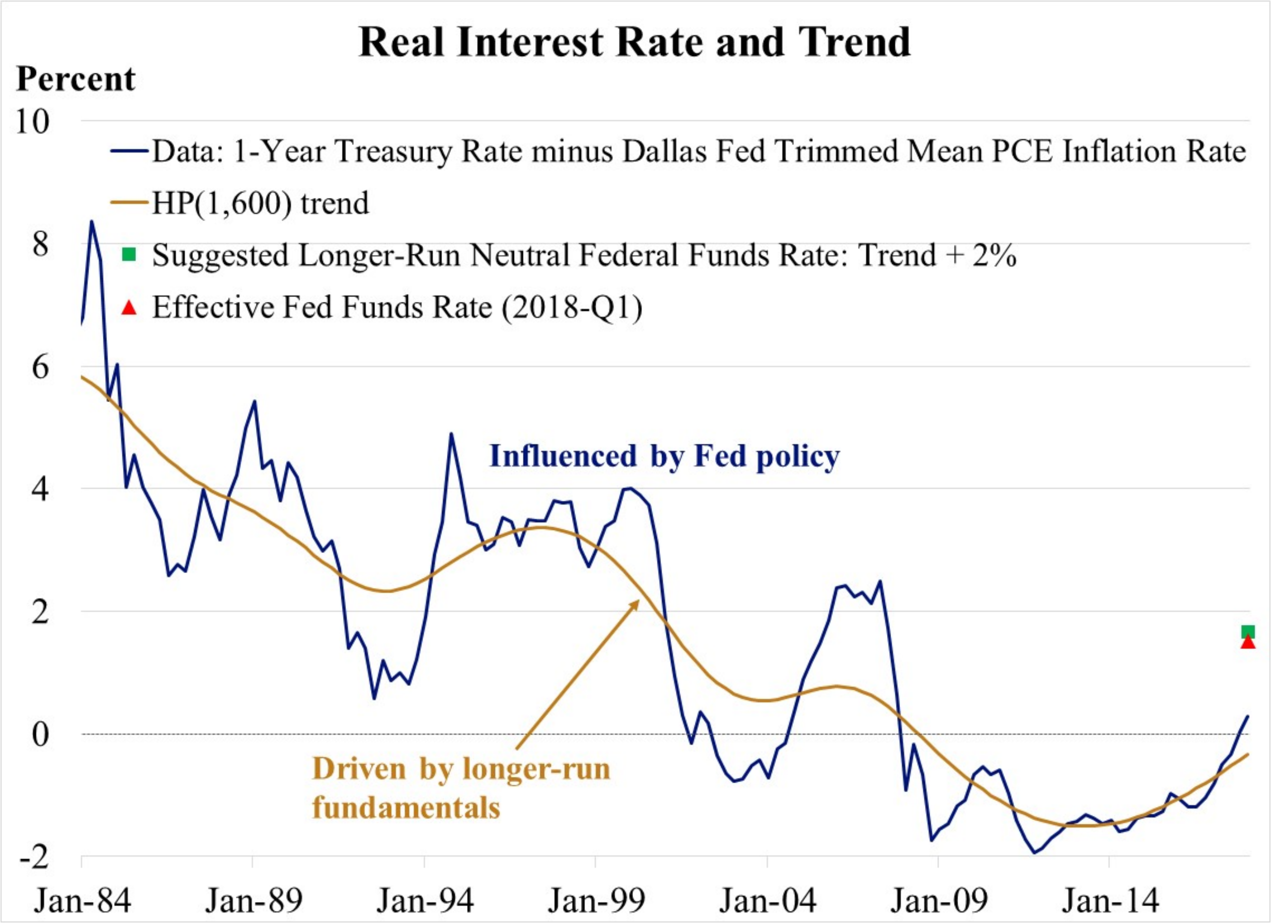
- I discussed the U.S. trend short-term safe real interest rate, the so-called "r-star," at a conference earlier this year under the title "R-Star Wars." *
- That talk described the longer-term trends in U.S. short-term safe real interest rates, which are independent of Fed actions.
- Those trends were described as driven by at least three factors: productivity growth, labor force growth and the global demand for safe assets.
- All three trend factors are pushing the real interest rate to low levels relative to historical experience since the 1980s.

** See J. Bullard, "R-Star Wars: The Phantom Menace," remarks delivered at the 34th Annual NABE Economic Policy Conference, Feb. 26, 2018.*

The trend short-term safe real rate is low

- The level of the trend short-term safe real rate, r-star, is a starting point for where the U.S. nominal policy rate should appropriately be set.
- The “R-Star Wars” analysis suggests that r-star remains in negative territory.
- That analysis also suggests that the nominal policy rate set by the FOMC is already pressing against the upper bound of a neutral setting.
- The next chart shows the simplest version of that analysis, which merely places a Hodrick-Prescott trend through the raw data.

The trend U.S. short-term safe real rate remains negative

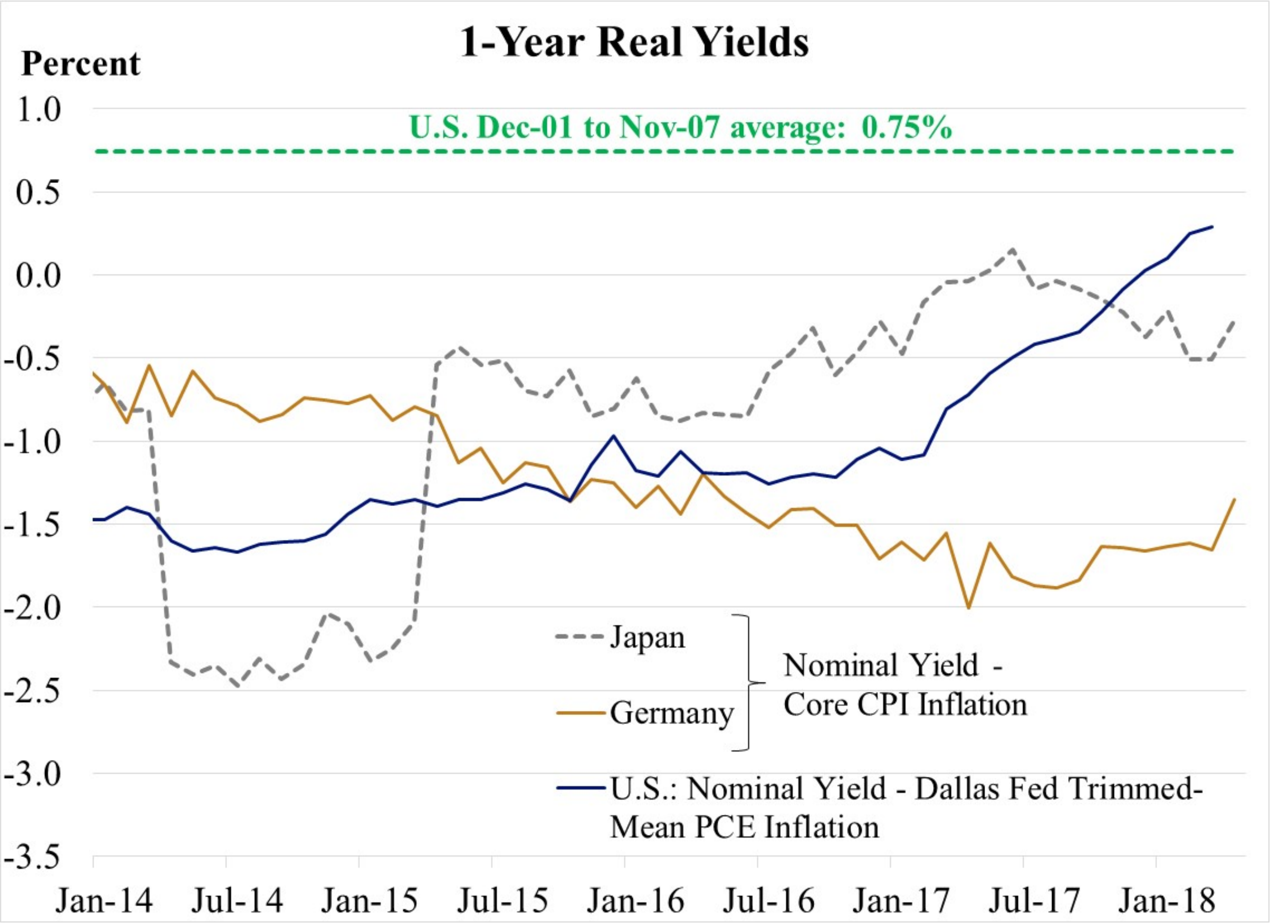


Sources: Federal Reserve Board, FRB of Dallas and author's calculations. Last observation: 2018-Q1.

The global trend in short-term safe real rates

- A similar, very simple analysis can be carried out for the eurozone and Japan.
- One could do a more extensive analysis to get the trend component, but I think the message would likely be very similar.
- Both the BOJ and the ECB appear to be somewhat more accommodative than the Fed, according to this metric.

Low safe real rates: A global phenomenon



Sources: Federal Reserve Board, FRB of Dallas, Ministry of Finance of Japan, Organization for Economic Cooperation and Development, Reuters, Statistical Office of the European Communities and author's calculations. Last observations: March 2018 and April 2018.

The U.S. Yield Curve Is Relatively Flat

The slope of the yield curve

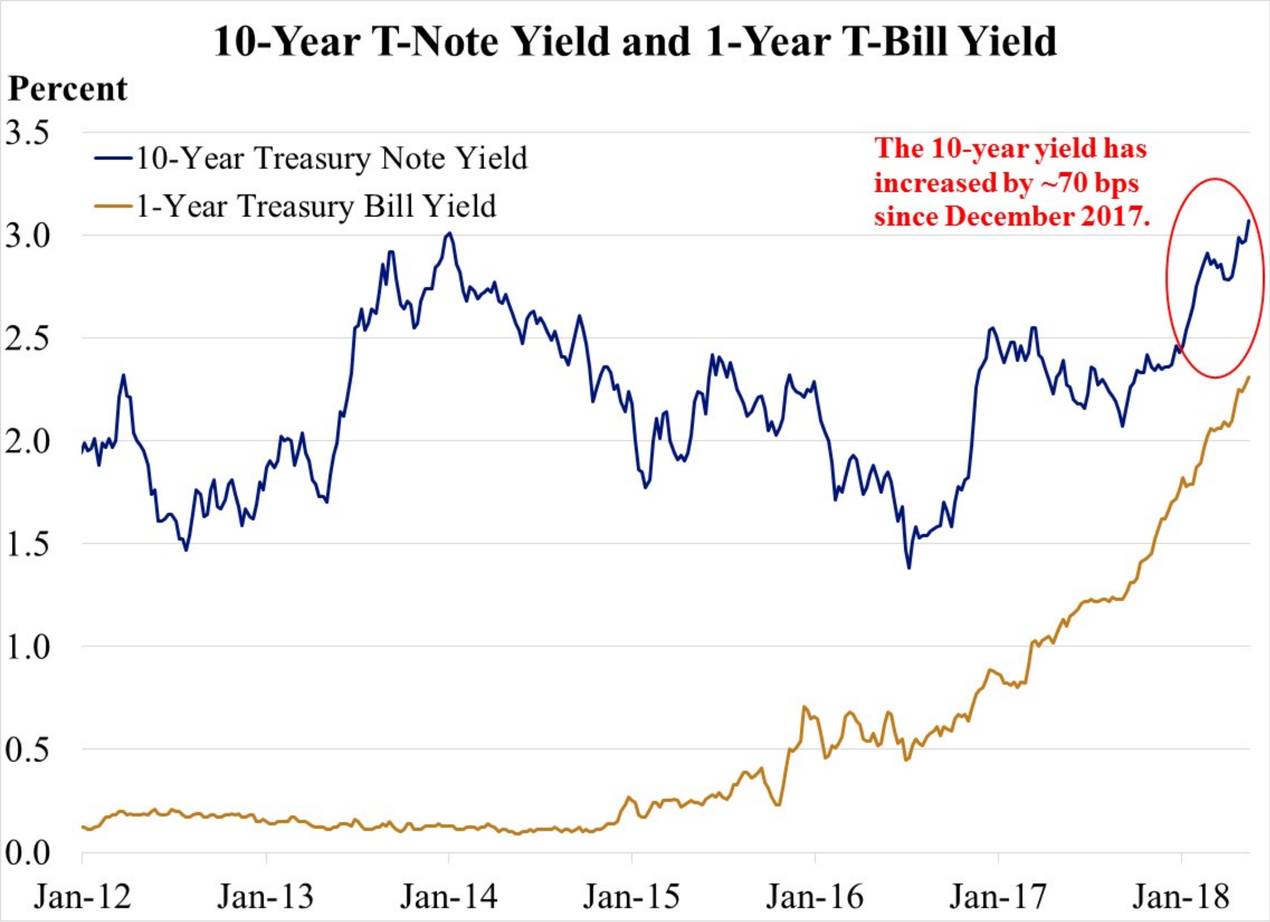
- The U.S. nominal yield curve has been flattening since 2014.*
  - The spread between 10-year and one-year Treasury yields was close to 300 basis points at the beginning of 2014.
  - That same spread is currently (week of May 16) only 76 basis points.
- The flattening is due to rising short-term yields vis-à-vis relatively stable or slowly rising long-term yields.

** See J. Bullard, "The U.S. Economy Three Months into 2018," remarks delivered at the Arkansas Bankers Association & Arkansas State Bank Department's Day with the Commissioner, April 4, 2018.*

Nominal yield curve flattening

Sources: Federal Reserve Board and author's calculations. Last observation: Week of May 16, 2018.

Flattening due to rising short-term rates



Sources: Federal Reserve Board and author's calculations. Last observation: Week of May 16, 2018.

Possible yield curve inversion

- It is possible that the nominal yield curve will invert sometime in the next year.
- If the yield curve does invert, research by the San Francisco Fed suggests that the signal of an impending economic downturn would be strong.*
- In my view, it is unnecessary for the FOMC to be so aggressive as to invert the yield curve.

* *See M.D. Bauer and T.M. Mertens, "Economic Forecasts with the Yield Curve," FRB of San Francisco* Economic Letter *2018-07, March 5, 2018.*

An inverted yield curve helps predict recessions

Sources: Federal Reserve Board and author's calculations. Last observation: Week of May 16, 2018. The shaded areas indicate NBER recessions.

International evidence on yield curve inversion and recessions

- The international evidence on the relationship between yield curve inversions and subsequent recessions is not as strong as it is for the U.S. alone.*
- One reason for this may be that the U.S. is a large and relatively closed economy, while many other nations have smaller and more open economies.
- Smaller and more open economies may partially import longer-term interest rates from abroad that are not necessarily reflective of those nations' economic prospects.

** See M. Chinn and K. Kucko, "The Predictive Power of the Yield Curve Across Countries and Time,"* International Finance, *2015, 18(2): 129-56.*

Conclusion

Summary

- In this talk, I have outlined some reasons for caution in the U.S. monetary policy normalization process.
- Inflation expectations in the U.S. remain somewhat low, suggesting that further normalization may not be necessary to keep inflation near target.
- The current level of the U.S. policy rate appears to be neutral, meaning it is putting neither upward nor downward pressure on inflation.
- The U.S. nominal yield curve could invert later this year or in 2019, which would be a bearish signal for U.S. macroeconomic prospects.

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