Developments in demand for US Treasuries

July 2024

Investor Base: Please discuss recent developments in demand for Treasury securities and any changes in the investor base. What factors are affecting domestic and foreign demand, and how does the Committee anticipate investor demand may evolve over the next several years?

Executive Summary

1. Please discuss recent developments in demand for Treasury securities and any changes in the investor base
   - The demand base for U.S. Treasuries has continued to shift toward more price sensitive investors (demand from these investors displays a degree of sensitivity to yield levels).
     - Hedge funds, included in the household category, will consider relative value, carry, roll, and volatility measures as a part of their decision process to put on a trade.
     - Money market funds, included in the mutual fund category, will consider bill spreads vs. SOFR as well as bill spreads vs. agency discount notes or commercial paper in their investment allocation process.
   - Demand from foreign investors and banks has been muted over the past two years.

2. What factors are affecting domestic and foreign demand, and how does the Committee anticipate investor demand may evolve over the next several years?
   - Regulatory developments have the potential to impact demand from banks (capital requirements) and money market funds (SEC mandatory liquidity fee requirement).
   - Asynchronous global monetary policy has the potential to impact foreign demand.
   - Developments in the global macro economic outlook will impact asset allocation decisions for asset managers, such as mutual funds and households.

How has demand evolved for major Treasury investor types?

Recent developments in demand for U.S. Treasuries by investor type

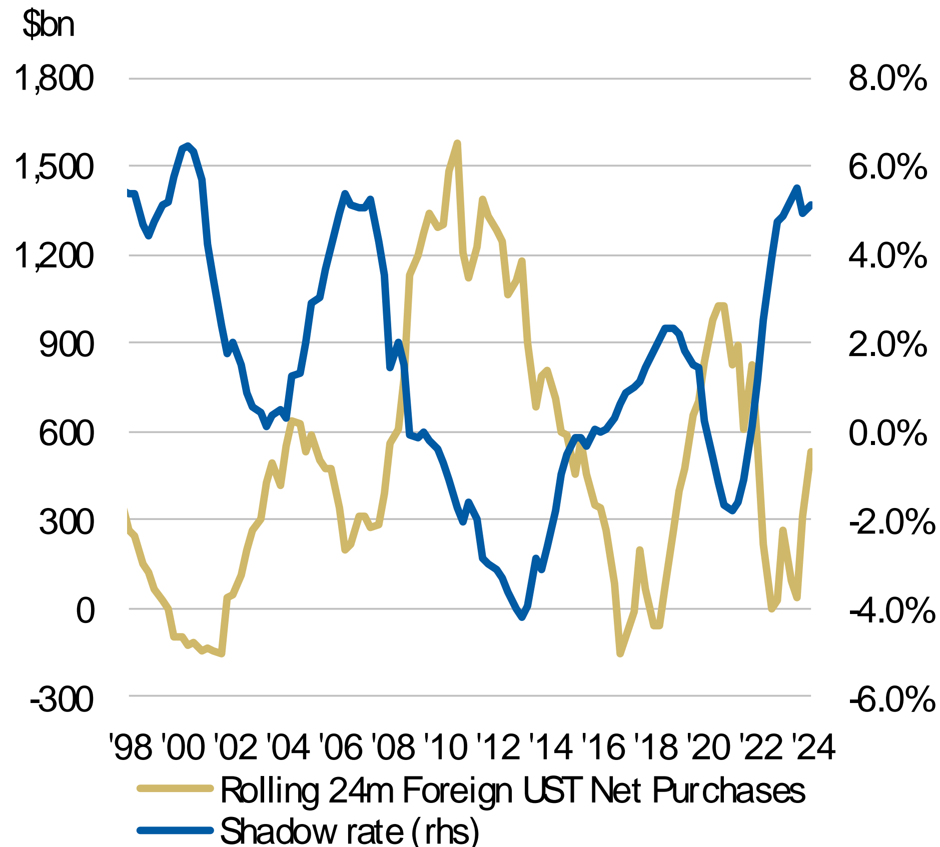
Treasury Securities (Z.1) as of 1Q24

Type	Amount ($bn)	%	1Y CAGR	2Y CAGR	5Y CAGR
Foreign	8,136	33%	8%	3%	5%
Fed	4,176	17%	-16%	-16%	12%
Mutual Funds	3,951	16%	64%	10%	13%
Households	2,416	10%	26%	90%	12%
Banks	1,615	7%	8%	-1%	17%
State/Local Govt	1,572	6%	-5%	5%	16%
Pension Funds	1,062	4%	12%	10%	7%
ETFs	505	2%	12%	22%	22%
Insurance	470	2%	15%	11%	5%
Other	395	2%	45%	39%	19%
BDs	304	1%	14%	91%	5%
GSEs	159	1%	6%	-13%	4%
Total	**24,761**		**10%**	**5%**	**10%**

Source: Federal Reserve

- Ongoing Quantitative Tightening (QT) has continued to passively reduce Fed holdings of Treasury securities. The recent taper of asset run-off will make the pace of reductions slower going forward.
- Growth in Treasury securities among money market funds and households has outpaced growth of the market. In response to a higher rate environment, pension funds increased their share in the Treasury market.
- Declines in deposits, which coincided with unrealized losses on securities, positive loan growth, and regulatory developments have reduced bank demand for securities over a two-year period. While bank demand waned in 2023, it has rebounded somewhat amid expectations of a lower Fed rate path in 4Q23-1Q24, but the sustainability of this trend is uncertain at this point.
- Foreign demand for U.S. Treasuries has been tepid, with US policy rates sustained at elevated levels.
- Over recent years, more price sensitive buyers have accounted for a larger share of Treasury ownership (demand from these investors displays a greater degree of sensitivity to yield levels).
  - Hedge funds will consider relative value, carry, roll, and volatility measures as a part of their decision process to put on a trade.
  - Money market funds will consider bill spreads vs. SOFR and bill spreads vs. agency discount notes or commercial paper in their process.

Recent Trends and Developments: Foreign

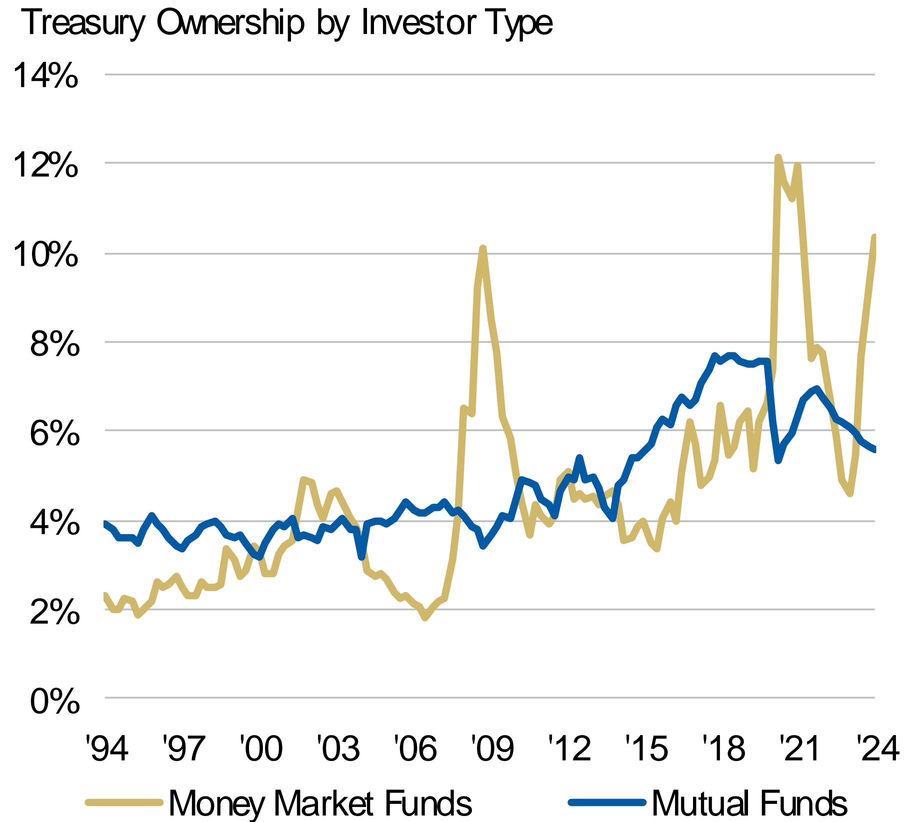


Source: Federal Reserve, Presenter's calculations

- Foreign demand is a key pillar of support for U.S. Treasuries, but historically it has shown signs of being cyclical in nature.
- Foreign demand has historically been inversely linked to the level of US policy rates, due to implications of a stronger USD and higher yields.
  - This introduces considerations for foreign private holders who may need to hedge their FX exposure; a stronger USD and higher yields creates higher FX-hedging costs.
- A shadow rate* can be used as a proxy to capture the Fed's monetary policy accommodation while at the zero lower bound.
- Consistent with the rise in rates over the last decade, foreign ownership of U.S. Treasuries has declined from 50% in 2013 to 33%, currently.
- Although, despite a lower share of the Treasury market, overall foreign holdings have increased by $5.6T since 2008, with the growth in the size of the overall market.

*based on Krippner's two-factor arbitrage-free Nelson and Siegel model where Yield constrained - option = Yield unconstrained

Recent Trends and Developments: Money Market Funds

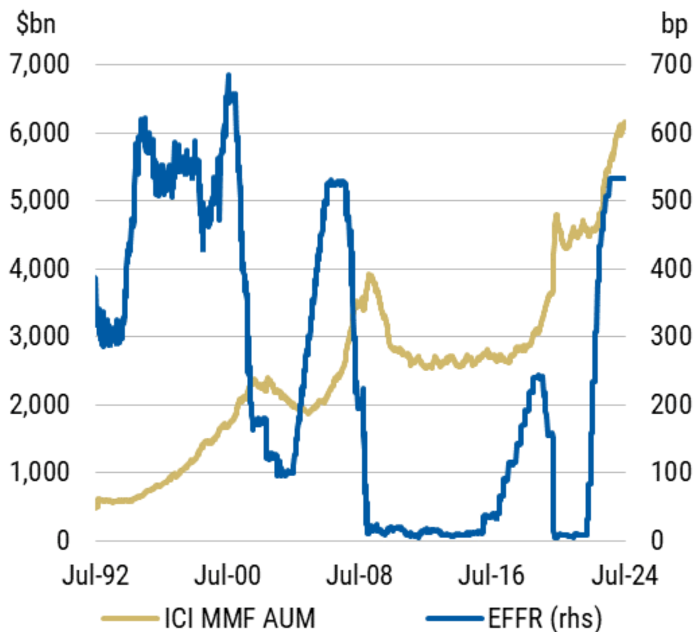


Source: Federal Reserve

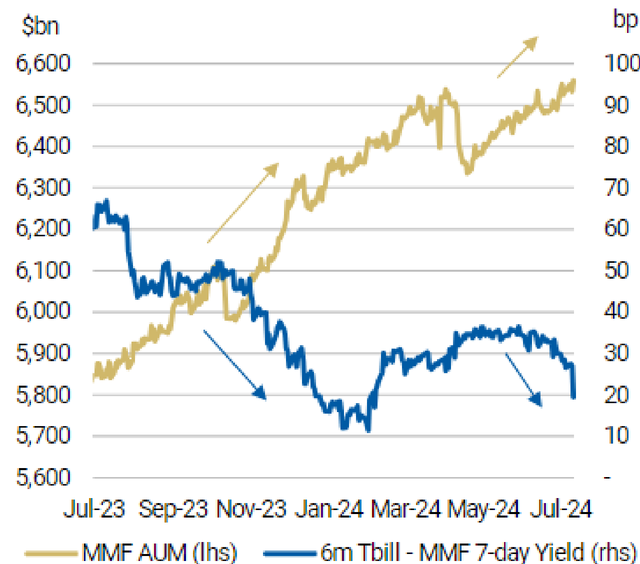
- Classified within the mutual fund category, money market funds have increased their holdings of U.S. Treasuries since the June 2023 debt-limit resolution.
- Total money market fund assets under management have increased ~$600B since June 2023 while holdings of Treasury securities have increased $1.3T.
- The US Treasury allocation of assets under management for money market funds is currently 38%, below a recent peak of over 50% in 2021.

Recent Trends and Developments: Money Market Funds

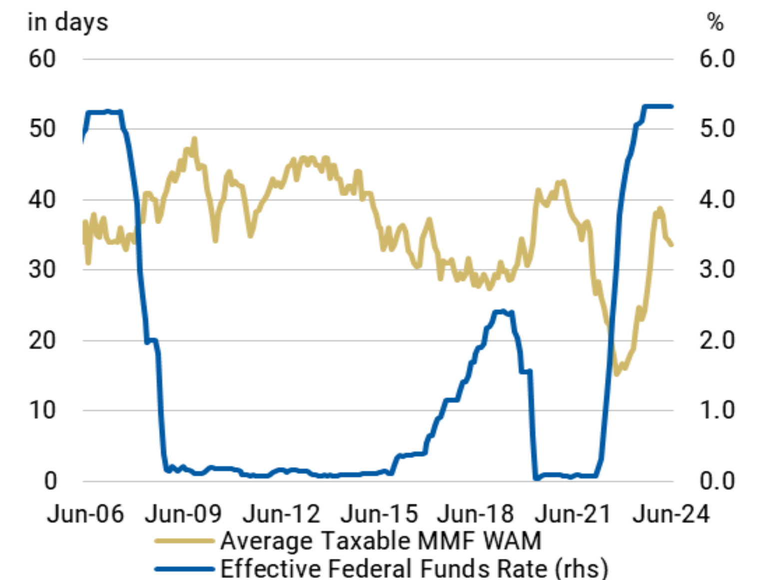
- Money market fund assets under management increase during Fed hiking cycles, as they can transmit higher policy rates to investors in the form of higher yields.
- Yet, money market funds also take in inflows in the immediate lead up to rate cuts because they can delay how fast yields decline by extending the weighted average maturity (WAM) of their portfolios. This allows money market funds to be viewed as more attractive compared to other cash alternatives (i.e., short-term bank certificates of deposits).
- Implications of a delay in how fast money market fund yields decline after rate cuts means there is a lag, between 12 and 24 months, with which assets under management tracks a rate-cutting cycle.



Source: Crane Data

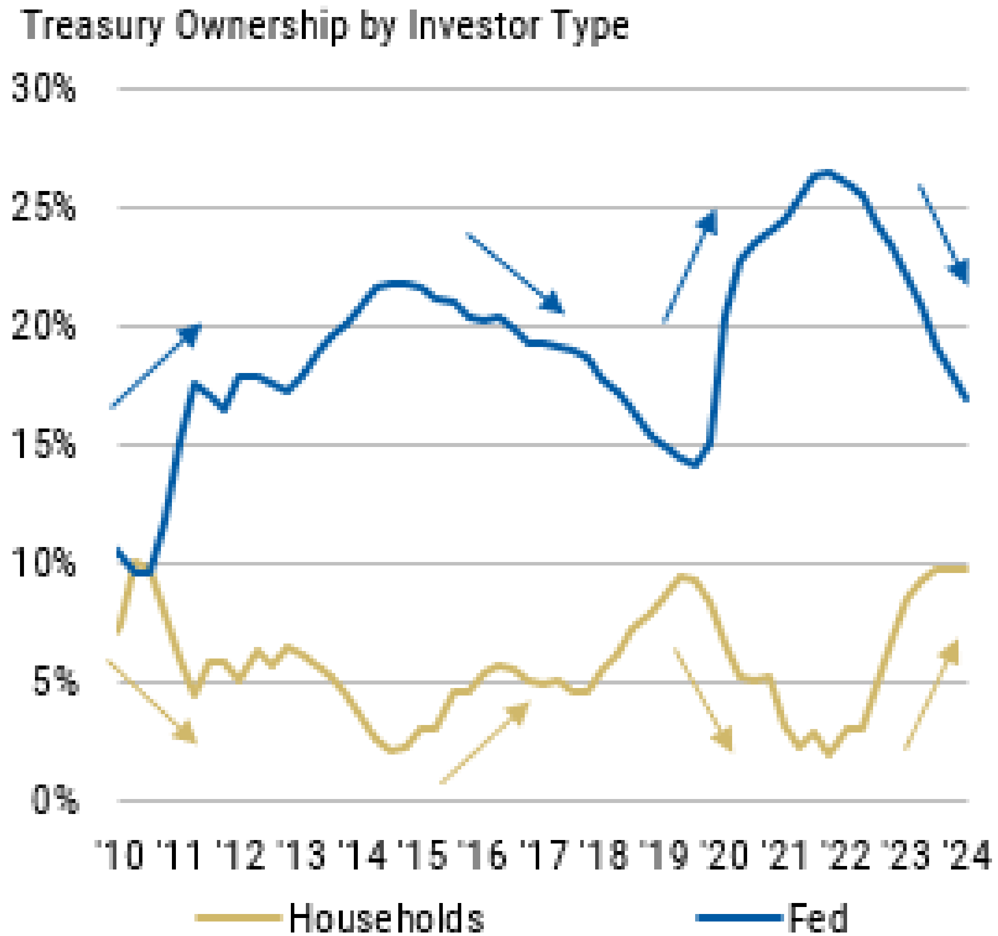


Source: Crane Data



Source: Crane Data

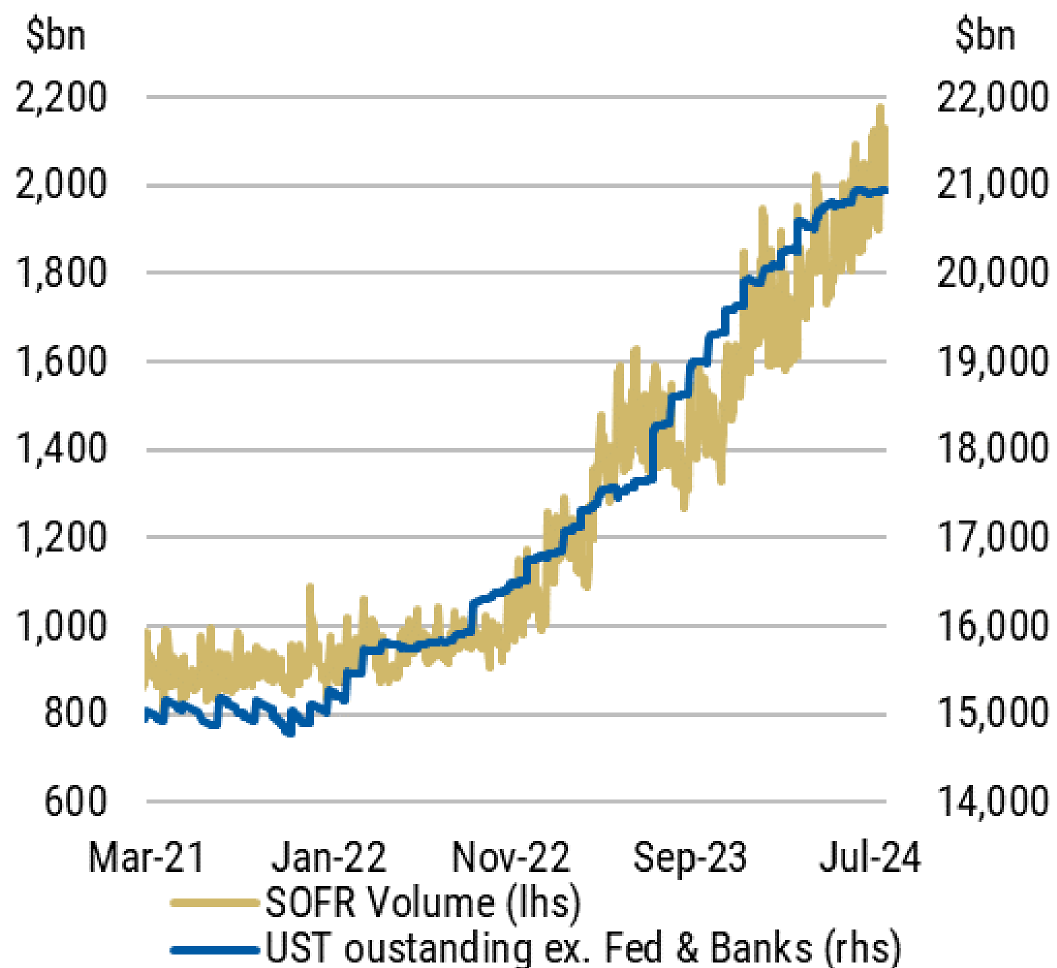
Recent Trends and Developments: Households



Source: Federal Reserve

- Historical ownership patterns indicate household ownership of U.S. Treasuries has a negative correlation with the Fed.
- As the Fed changes its holdings, the most price-sensitive investor category is a natural candidate to be the residual; hedge funds are included within the household category.
- Fed Quantitative Tightening (QT) has passively reduced $1.7T of Treasury holdings, while household holdings of Treasuries have increased by $1.7T since June 2022. Although, the pace of this reduction will slow after the decision to start tapering run-off in June.
- Ongoing Quantitative Tightening (QT), higher-for-longer rates, and high levels of UST issuance have shifted UST ownership towards investors that are more balance-sheet constrained and valuation sensitive.
- A larger amount of Treasury securities sitting outside the Fed may help explain the increase in demand for repo financing (by hedge funds), reflected in higher SOFR volumes.

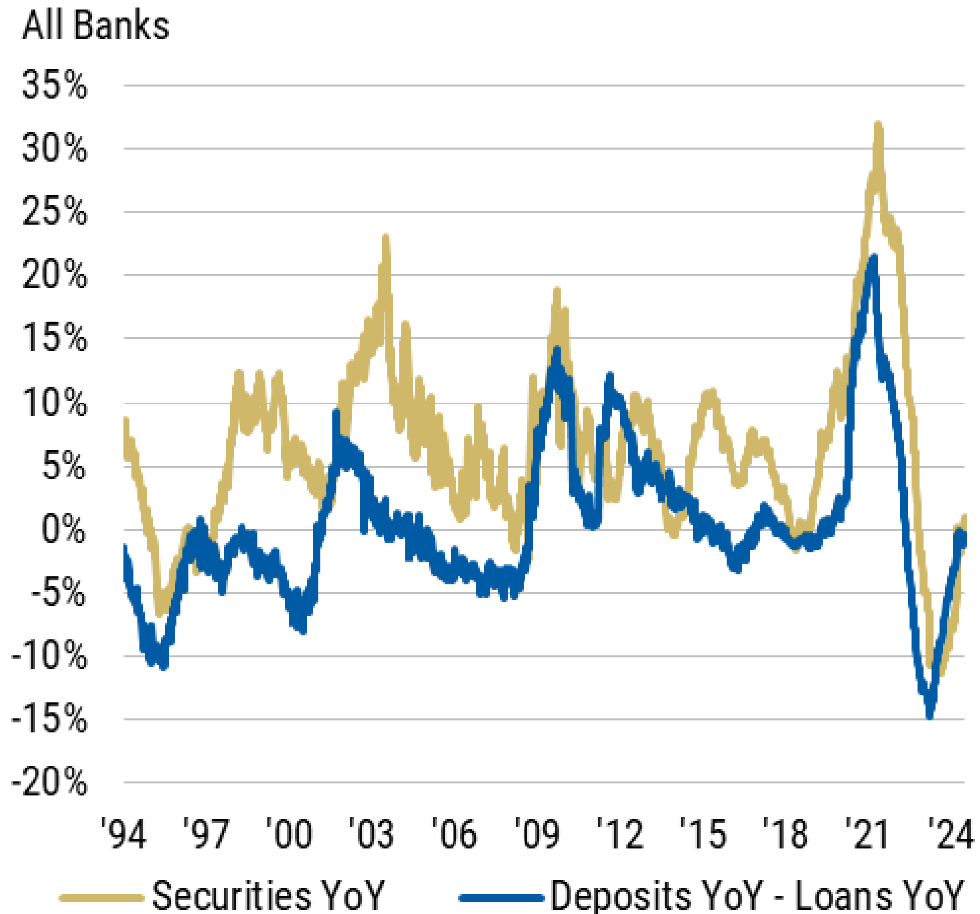
Recent Trends and Developments: Households



Source: Federal Reserve, US Treasury

- The increase in household U.S. Treasury holdings is a sign hedge funds may have significantly increased their long exposure to Treasury securities.
- These new purchases, which likely are financed via repo, combined with increases in futures open interest suggest the presence of the cash-futures basis trade:
  - In a recent charge, TBAC highlighted the growth in the cash-futures basis trade (TBAC Charge 1Q24).
- It is also important to recognize that the incentive to engage in the cash-futures basis trade starts with demand from asset managers, who continue to obtain exposure to USTs via futures.

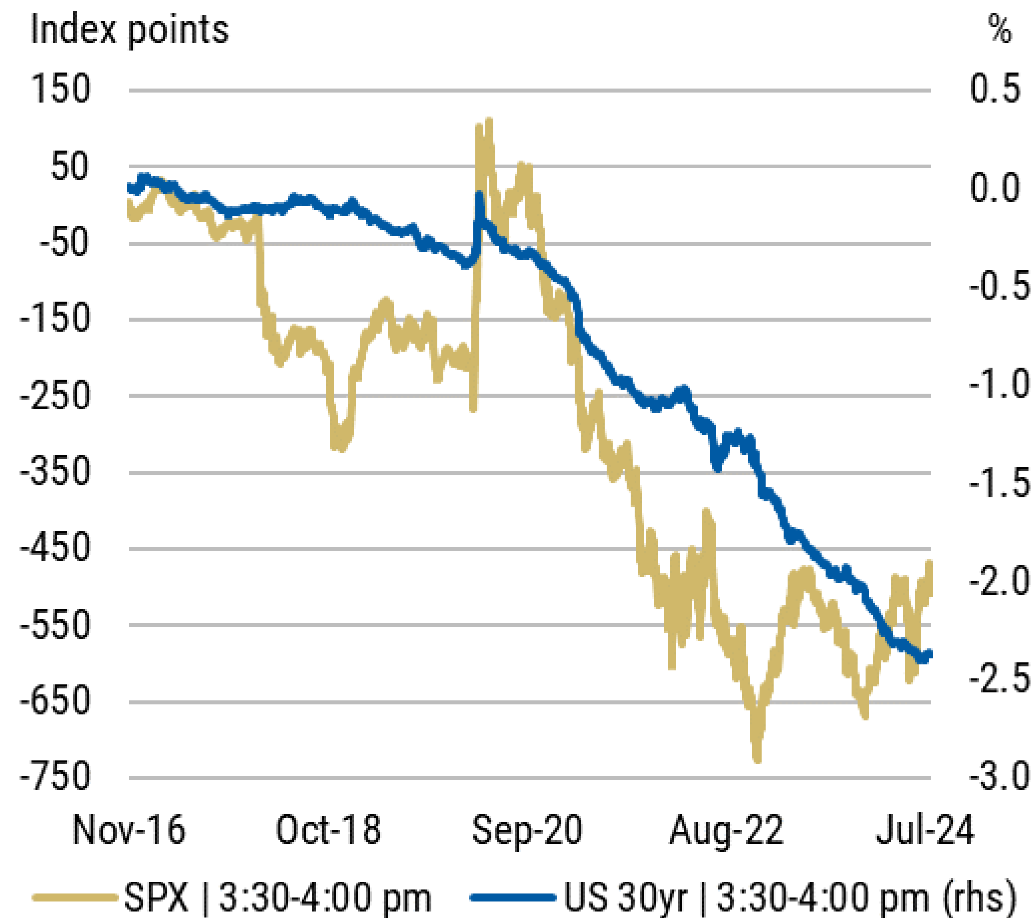
Recent Trends and Developments: Banks



Source: Federal Reserve

- Banks have reduced U.S. Treasury holdings over the Quantitative Tightening (QT) period as the current cycle presents challenges that hinder their ability to add US Treasuries:
  - Elevated uncertainty surrounding when the Fed would begin rate cuts has also weighed on bank demand for U.S. Treasuries.
- Bank demand for securities (Treasuries + MBS) is driven by deposit and loan growth.
- Positive loan growth and deposit outflows have contributed to lower bank demand for U.S. Treasuries over the past two years, relative to growth in the size of the Treasury market.
- Treasuries outstanding have grown at a 5% annual rate over the past two years, while those held by banks have declined at a 1% annual rate over the same period.
- Bank demand for Treasury securities displayed sensitivity to expectations of a lower Fed rate path in 4Q23-1Q24, but the sustainability of this trend is uncertain at this point.

Recent Trends and Developments: Pension Funds



Source: Presenter’s calculation

- Milliman* has shown a considerable improvement in the funded surplus for the 100 largest U.S. corporate defined benefit pension plans since 2020. In June, this cohort had a funded surplus of $46bn and a funded ratio of 103.7%.
- In recent years, price action across equities and long-end U.S. Treasuries has suggested a rotation out of equities into bonds during 3:30pm – 4:00pm ET.
- A funded surplus indicates the market value of assets exceeds the present value of future liabilities. Thus, pension funds may not need to assume the same degree of risk to ensure distribution obligations are met.
- Stocks at record highs and higher market yields in bonds present an opportunity to de-risk portfolios, by selling equities and buying bonds.
- We consider most rebalancing by pension funds to be executed near the close, to minimize slippage costs compared to closing prices. Since November 2016, the cumulative decline in the 30y Treasury yield during 3:30pm – 4:00pm ET is estimated to be -237bp.
- During this period, the S&P 500 is down over 500 index points, which indicates signs of a rotation out of equities into 30y Treasuries.

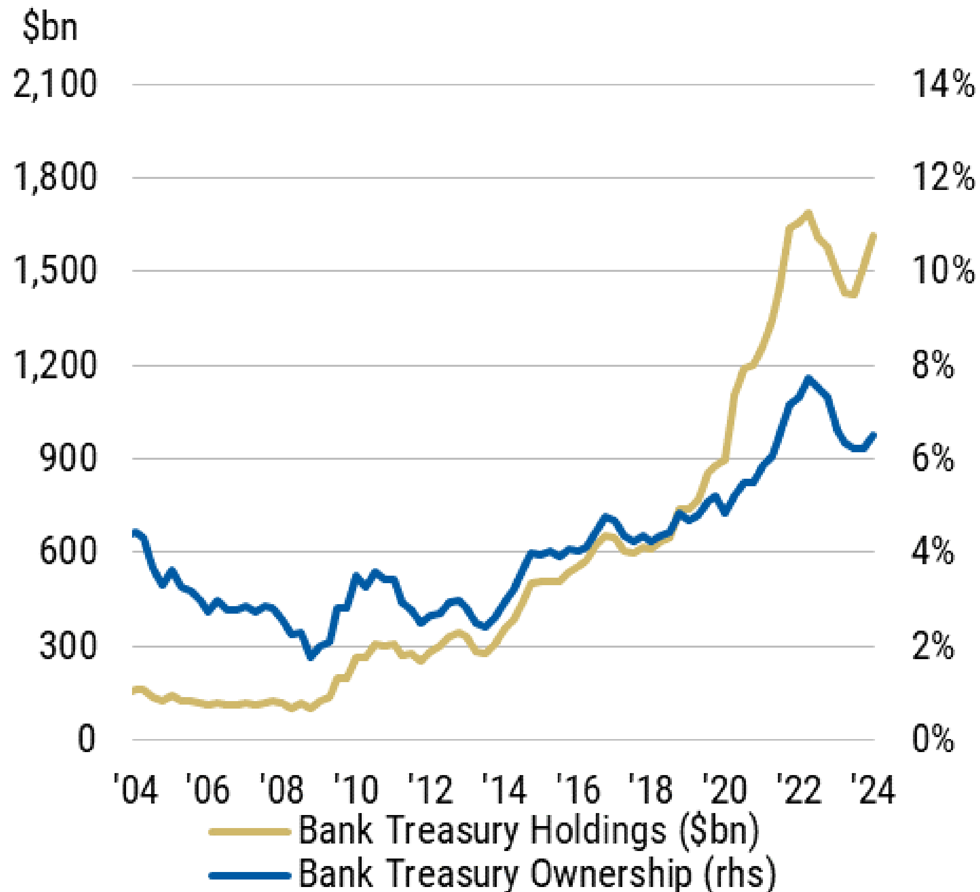
*https://us.milliman.com/en/insight/pension-funding-index-july-2024

What are factors to consider when evaluating the outlook for domestic and foreign demand?

Outlook for Foreign and Domestic Demand

- **Regulatory Factors:**
  - **Banks:** Bank demand for securities has been limited in the past two years, but changes to deposit assumptions and regulatory developments, related to capital requirements, suggest banks may allocate away from Agency MBS to Treasuries and may favor shorter-dated tenors on the curve.
  - **Money Market Funds:** Continued asset growth of money market funds in addition to regulatory developments, which may shift assets into government and treasury funds from prime, may imply a substantial and possibly prolonged increase in demand for T-bills.
- **Economic Factors:**
  - **Households and Mutual Funds:** Stock-bond correlations reverting to pre-pandemic norms mean Treasuries will perform better as a hedge to risk assets and could mean increased demand from households and mutual funds, given valuations. Although, expectations for larger fiscal deficits may result in households commanding higher term premium for their Treasury purchases.
  - **Pension Funds:** After decades of being underfunded, pension plans are now in a funded surplus which provides an opportunity to de-risk investment portfolios, adding a source of demand for the long-end. Even in a higher rate environment, pension funds could constitute a potentially meaningful source of demand in the long-end.
- **Monetary Policy Factors:**
  - **Foreign Investors:** As the point of lower policy rates approaches this could support demand from foreign investors, whose purchases of U.S. Treasuries is inversely linked to policy rates and influenced by the shape of the yield curve given currency hedging costs.

Regulatory Factors: Banks



Source: Federal Reserve

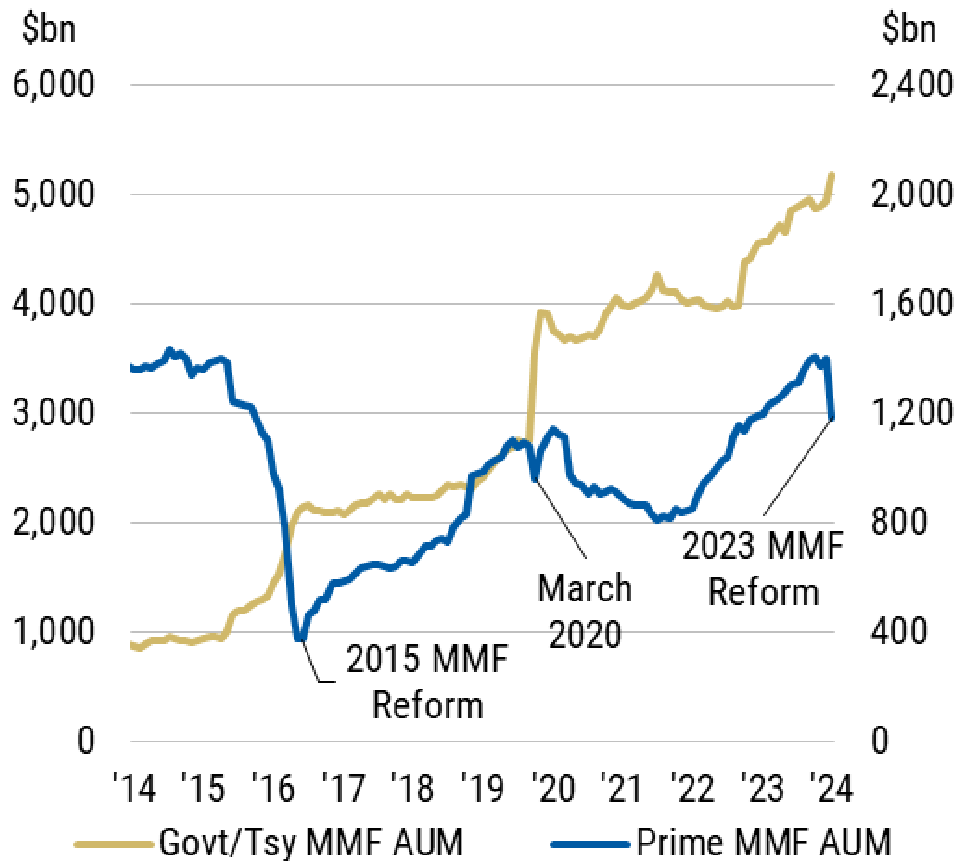
- Changes to deposit duration assumptions after the March 2023 regional bank stresses suggest banks may now favor shorter-dated (2-3y) over the belly (5-7y) part of the curve.

- Two key potential regulatory changes on TLAC (total loss absorbing capacity) and the LCR (liquidity coverage ratio) could cause structural shifts in the composition of assets banks hold.

- From an LCR (liquidity coverage ratio) perspective, Treasuries are desirable relative to riskier and less liquid fixed income products – this could be supportive of bank demand for U.S. Treasuries in the future.

- A potential reduction of the Fed's GSIB surcharge would free up capital and could have implications for bank demand for securities, including Treasuries.

Regulatory Factors: Money Market Funds



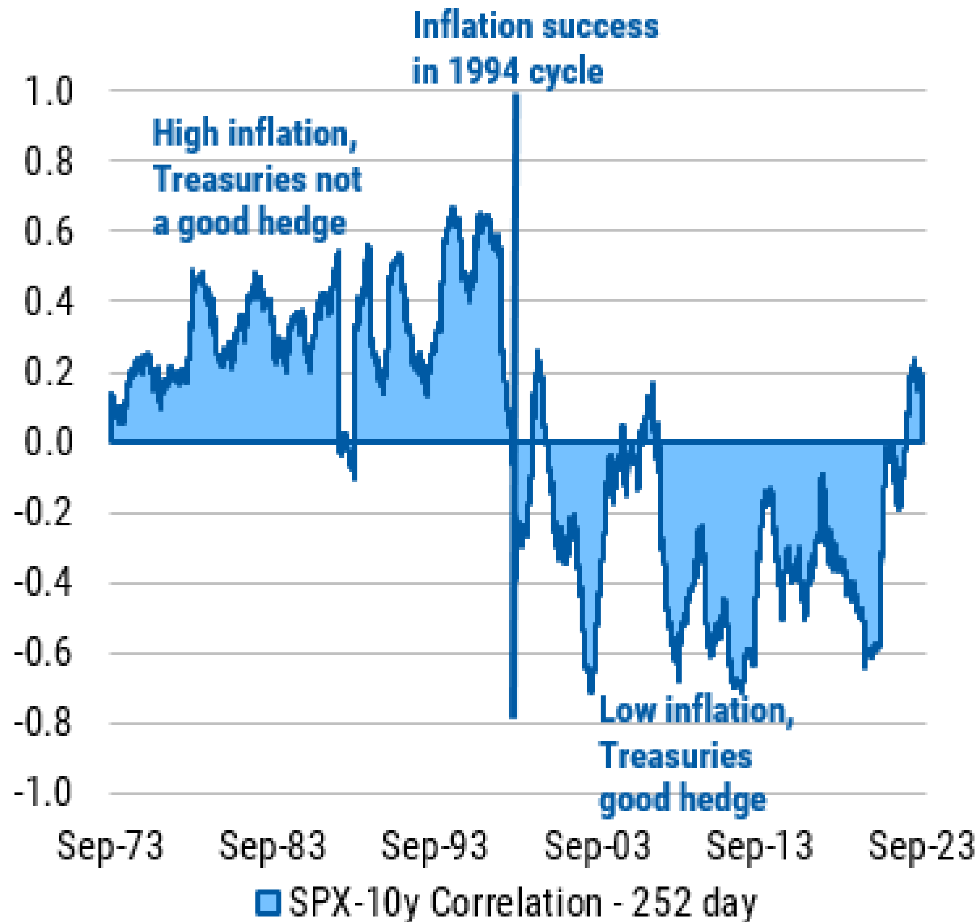
Source: Crane Data

- To comply with upcoming SEC mandatory liquidity fee requirements (set to take effect on October 2), some institutional prime funds have shifted their holdings to government and treasury funds.

- The impact from this re-classification of investment strategy has resulted in growth in assets under management for government and treasury funds.

- This constitutes a larger base especially for T-bills, given money market funds own approximately 33% of total bills outstanding, but also for short-dated coupons and FRNs.

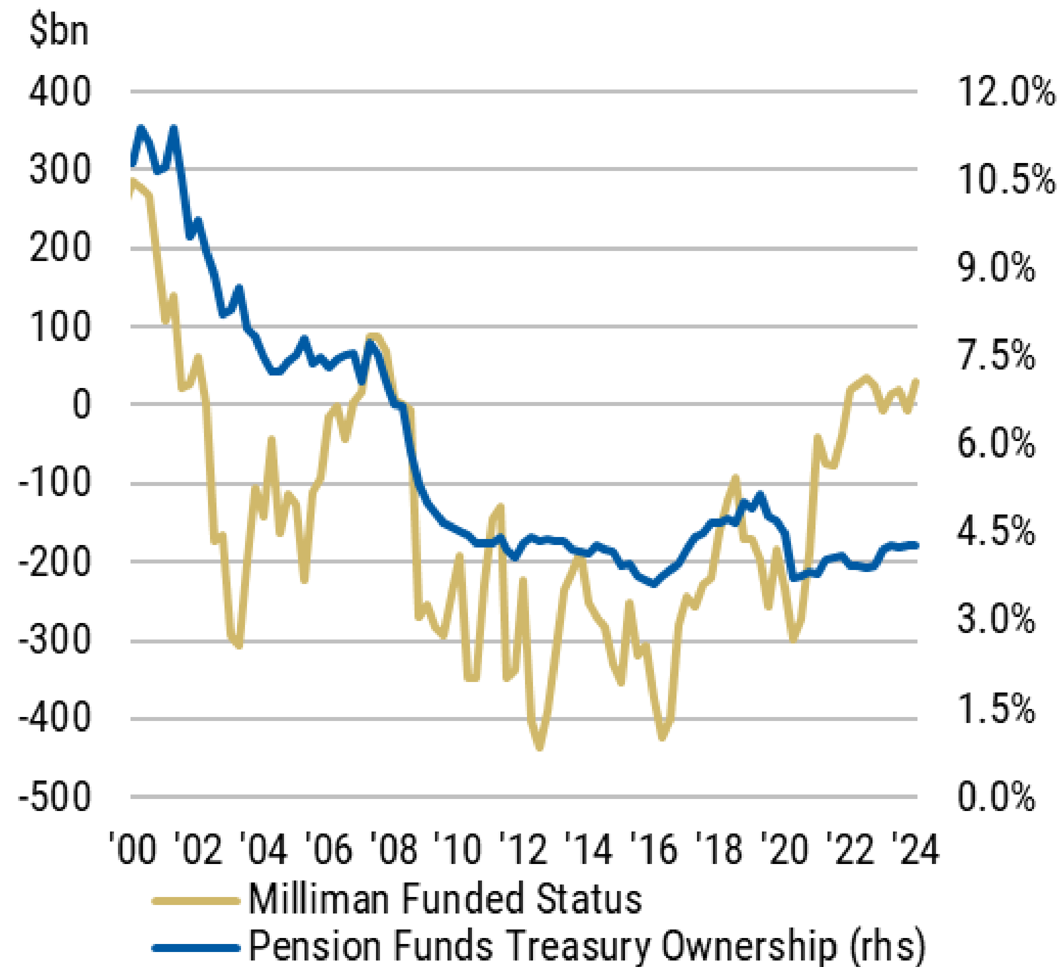
Economic Outlook: Mutual Funds / Households



Source: Presenter's calculation

- In the past two years, it has been common for higher yields and lower stock prices simultaneously (i.e., the correlation between stock and bond prices turned positive).
- The flip in the stock-bond correlation, after two decades of being negatively correlated, has decreased demand for Treasuries as the diversification benefits of Treasuries are lower under positive stock correlation assumptions.
- As risks to the dual mandate move into better balance, the Fed may shift its focus to downside risks to growth, similar to its stance for much of the past two decades when inflation was low, and the stock-bond correlation was negative.
- With inflation moving closer to the Fed's target, demand for Treasuries as a risk-asset hedge may increase.

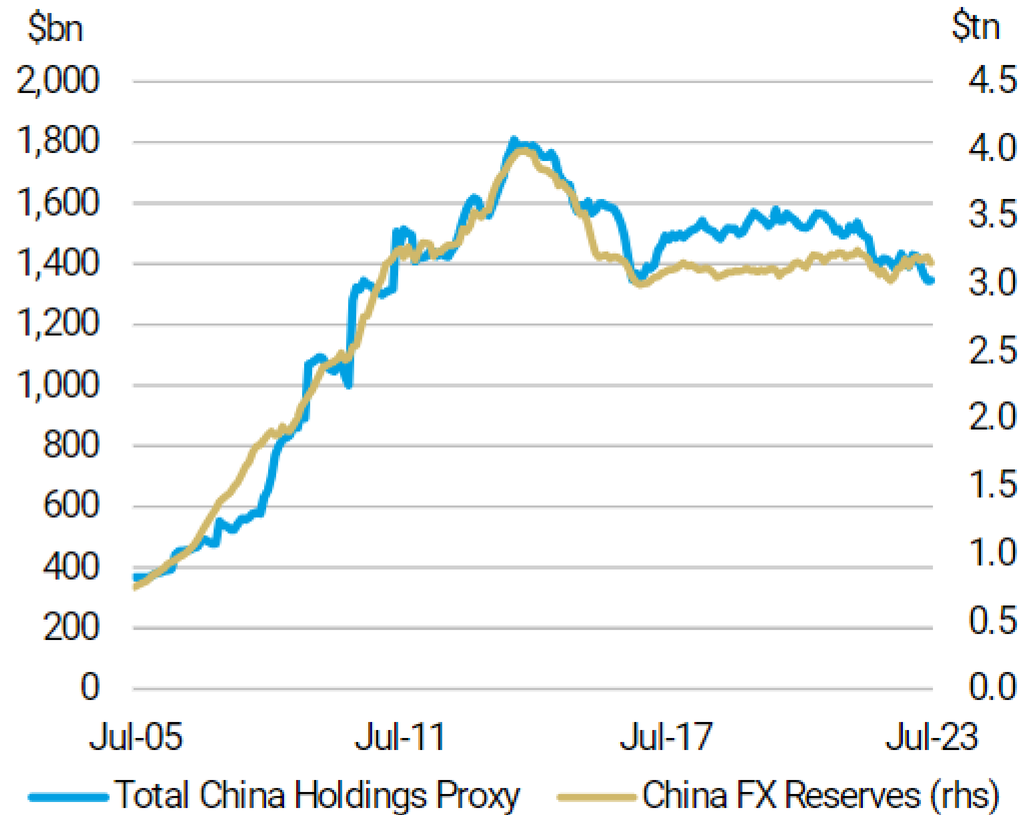
Economic Outlook: Pension Funds



Source: Milliman, Federal Reserve

- Since 2020, pension funds have steadily increased their ownership of U.S. Treasuries, relative to the size of the Treasury market.
- In recent years, the funded status for the largest 100 U.S. corporate defined benefit pension plans has been in a surplus (i.e., the market value of assets exceeds the present value of future liabilities).
- Overfunded pension plans provide an incentive to de-risk investment portfolios and rotate out of equities (return enhancers) and into Treasuries (volatility reducers).
- Higher levels of interest rates could keep pension plans overfunded and increase demand for U.S. Treasuries in the long-end of the curve.
- There has been an increase in pension demand for U.S. Treasuries since 2020, with potential for future further increases in pension ownership with funded ratios above 1.

Monetary Policy Outlook: Foreign Investors



Source: TIC, Presenter's Calculations

- The main driver of the decline in foreign ownership of Treasuries outstanding has been driven by foreign official holdings.
- Since foreign official holdings are a proxy for central banks around the globe, cyclical elements linked to monetary policy (i.e., yield levels and the US dollar) influence demand from foreign officials.
- Lower foreign FX reserves alongside a decline in holdings of Treasury securities suggests monetary authorities may feel pressured to defend their currencies from a stronger US dollar and in turn sell dollar assets, including Treasuries.
- The prospect of Fed rate cuts present the potential to increase foreign demand, in the form of a weaker U.S. dollar and lower FX hedging costs.
- A lower federal funds rate, to the point where the yield-curve is upward sloping and carry once again becomes positive for holding long U.S. Treasury positions, may also boost foreign demand.

Conclusions

- **Banks** may exhibit **increased demand** for U.S. Treasuries, but at a shorter maturity (2-3y) than historical trends (5-7y) in the aftermath of the March 2023 banking stresses.

- **Money market funds** may exhibit **increased demand** for T-bills, with shorter-dated coupons and FRNs also possible beneficiaries from asset growth and a larger Treasury allocation.

- The outlook for **household demand** is **uncertain** with this investor's share of the Treasury market at historical highs. A return of stock-bond correlations to pre-pandemic norms argues for demand for Treasuries as a risk asset hedge but expectations of higher fiscal deficits may temper demand tailwinds. In a lower and less volatile inflationary environment, there also may be less demand from retail investors for TIPS. We recommend this to be an area of further study.

- **Pension funds** may exhibit **increased demand** for long-end U.S. Treasuries, as plans in funded surplus provide an opportunity to de-risk investment portfolios and rotate out of return enhancers (equities) into volatility reducers (bonds).

- **Foreign investors** may exhibit **increased demand** for U.S. Treasuries as the point of lower US policy rates approaches and the yield curve dis-inverts. Although, potential changes in foreign trade policy could weigh negatively on foreign demand.