



Market liquidity and Fed liftoff

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Peter Hooper, Torsten Slok, Matthew Luzzetti

60 Wall Street

New York, New York 10005

Tel: 212 250 7275

Passion to Perform

Overview and main messages



Volatility trends

- Volatility has picked up as the markets prepare for Fed liftoff this year (slides 4-6). Vol has moved toward highs reached during the pre-crisis period and more recently.
- Some increase in vol has been desirable. But concerns have risen that reduced liquidity in fixed income markets may amplify adverse reactions to the shift in Fed policy when it does occur or to other shocks.

Liquidity in the Treasury market

- The total volume of primary transactions in the Treasury market has been fairly stable, but has dropped significantly relative to the overall scale of Treasury securities held by the public (slides 8-10). Primary dealers' net position in Treasury has receded as well recently (slides 11-12).
- There are indications that it is becoming more difficult to undertake transactions in size—the amount of market volatility generated per dollar of transaction volume has declined noticeably, except at the short end of the curve (2-year maturity) (slides 13-17).
- Conversely, bid-ask spreads have shown no indication of reduced liquidity or increased stress in the Treasury market, and repo market indicators do not indicate unusual stresses or broad-based shortages of Treasury securities for collateral (slides 18-23).

Source: DB Global Markets Research

Overview -- continued



Underlying supply and demand factors in the Treasury market

- The supply of new Treasury securities has dropped off as the US budget deficit has declined sharply in recent years, thereby reducing market liquidity from the supply side (slides 25-26).
- Liquidity has also been reduced on the demand side as an increasing share of the available supply has been taken up by relatively price-insensitive holders like the Fed and foreign central banks. The share held by price-sensitive private domestic investors has declined significantly (slides 27-30).

Liquidity in the corporate bond market

- Issuance and trading in corporate bonds has risen significantly, and price-sensitive households have been driven by low Treasury yields to take up an increasing share of the market. But primary dealer inventories and trading in corporate bonds has dropped off substantially in recent years, raising concerns about liquidity in the corporate bond market (slides 32-35). Credit spreads have been widening and corporate fails to deliver/receive are trending upward (slides 36-37).

Bottom line

- While there is growing evidence of illiquidity in these markets, so far at least, this has not translated into broad market impairment. But liquid markets could quickly turn illiquid in response to a shift in Fed policy or some other shock, which could amplify any adverse market response, as occurred during the taper tantrum. We will continue to track these metrics on an ongoing basis to see how these conditions evolve. Stay tuned.

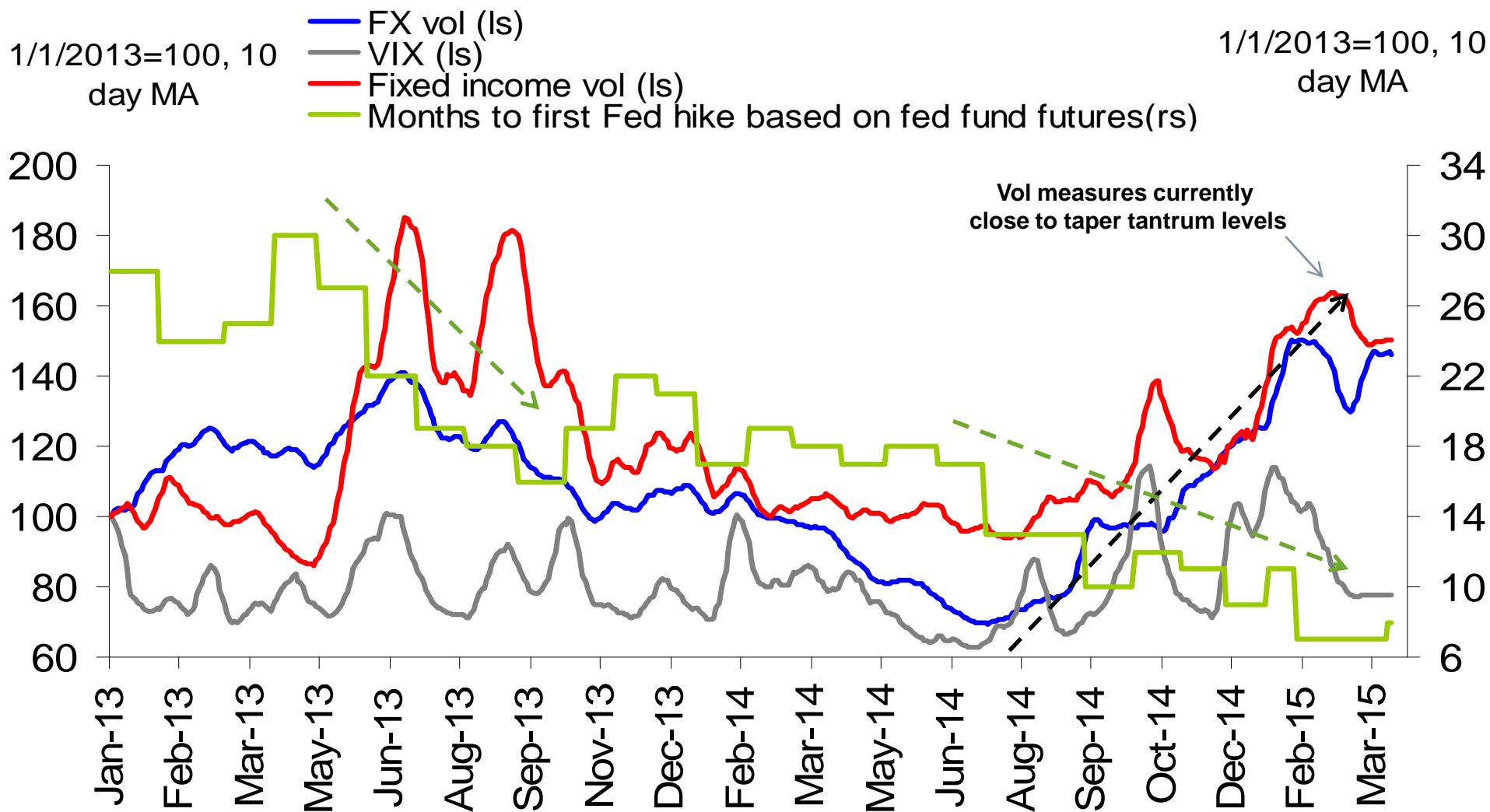
Source: DB Global Markets Research



Volatility trends



Volatility is trending higher as Fed lift-off draws nearer

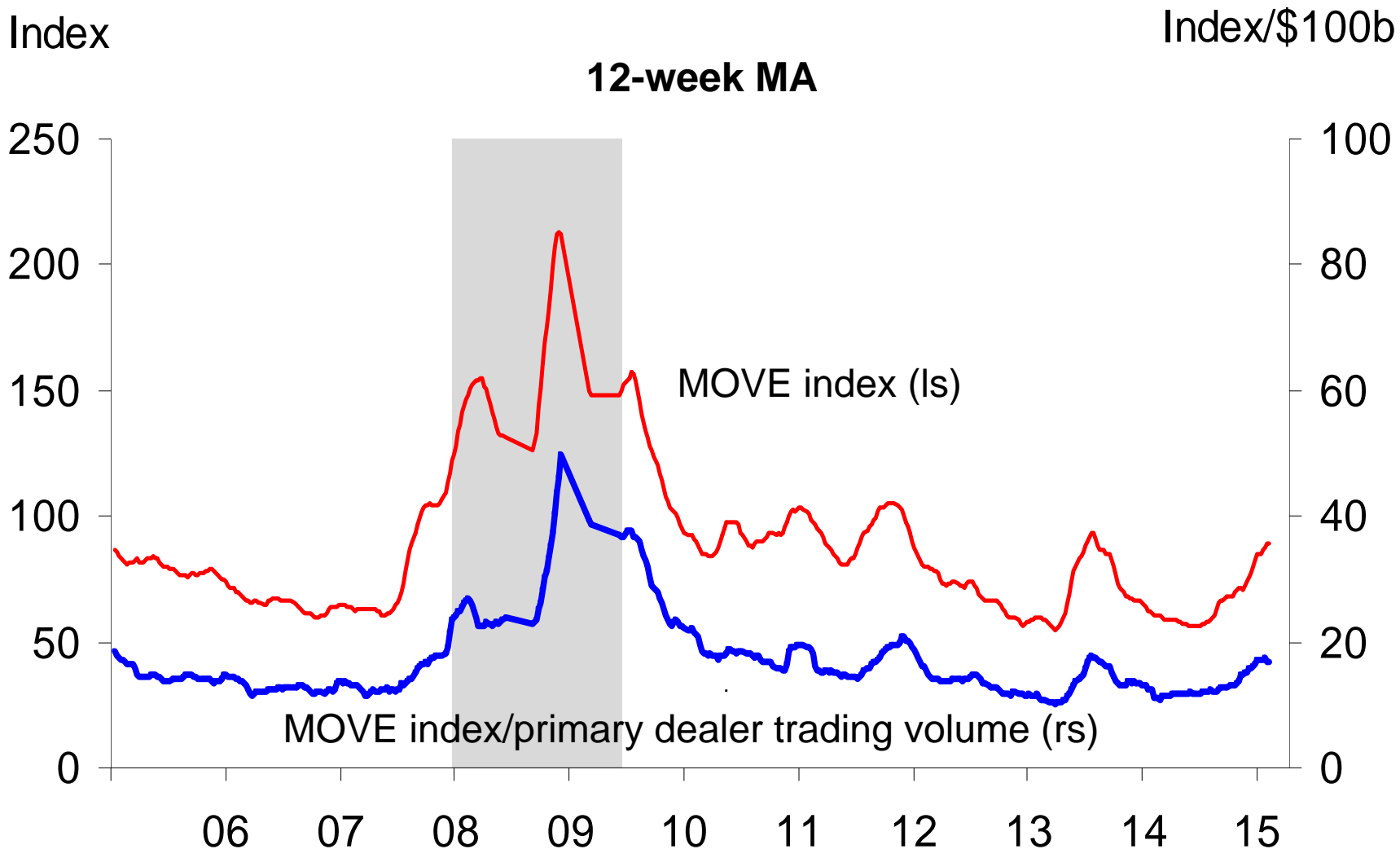


Note: FX vol: Deutsche Bank 3 month implied FX Volatility Index, FI vol: MOVE Index.

Source: Bloomberg Finance LP, DB Global Markets Research



Volatility moving well above recent and pre-crisis lows

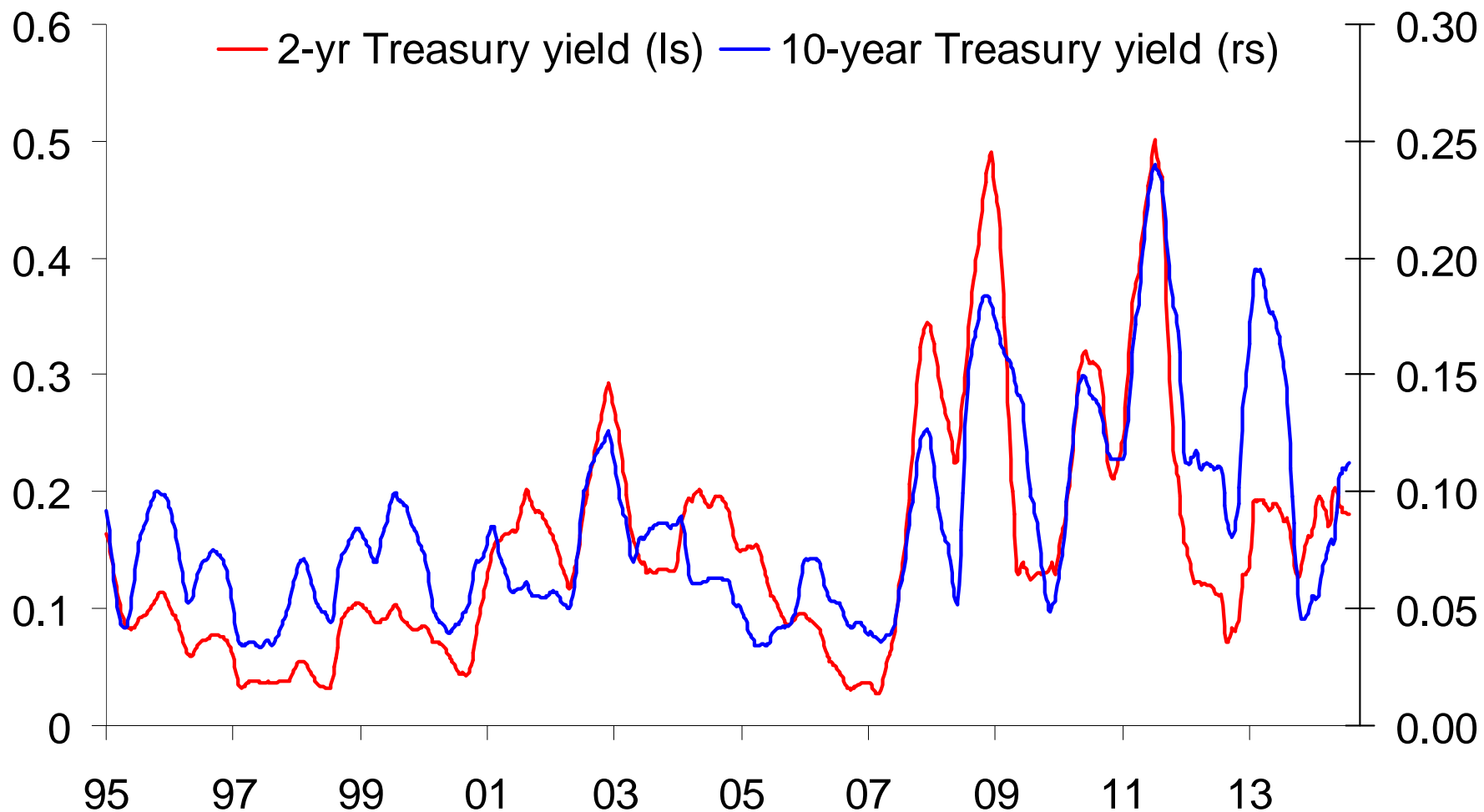


Source: FRBNY, BoA ML, Haver Analytics, DB Global Markets Research



Vol proxies running at close to pre-crisis highs

Stand. Deviation / Average (52-week rolling)

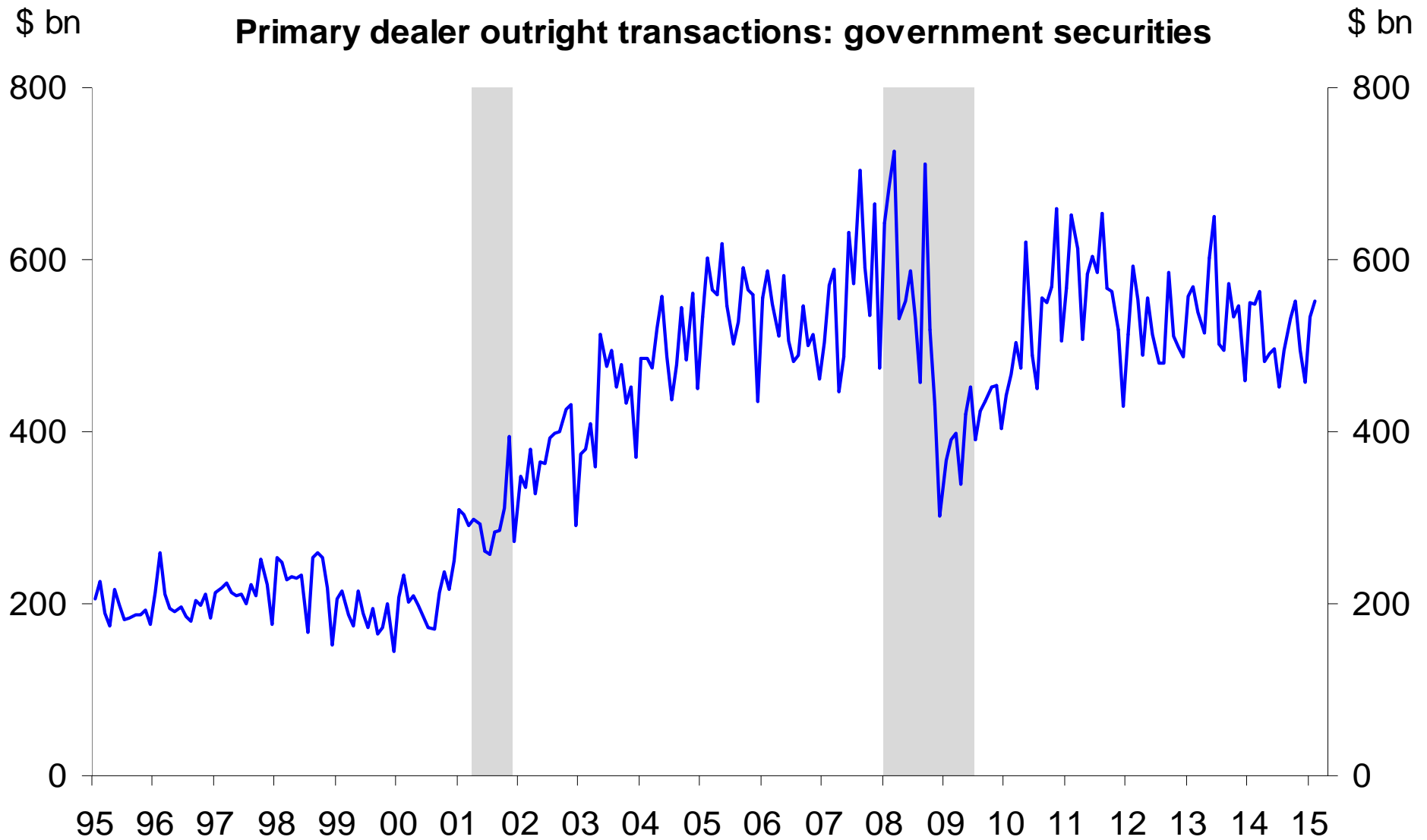


Source: FRB, Haver Analytics, DB Global Markets Research



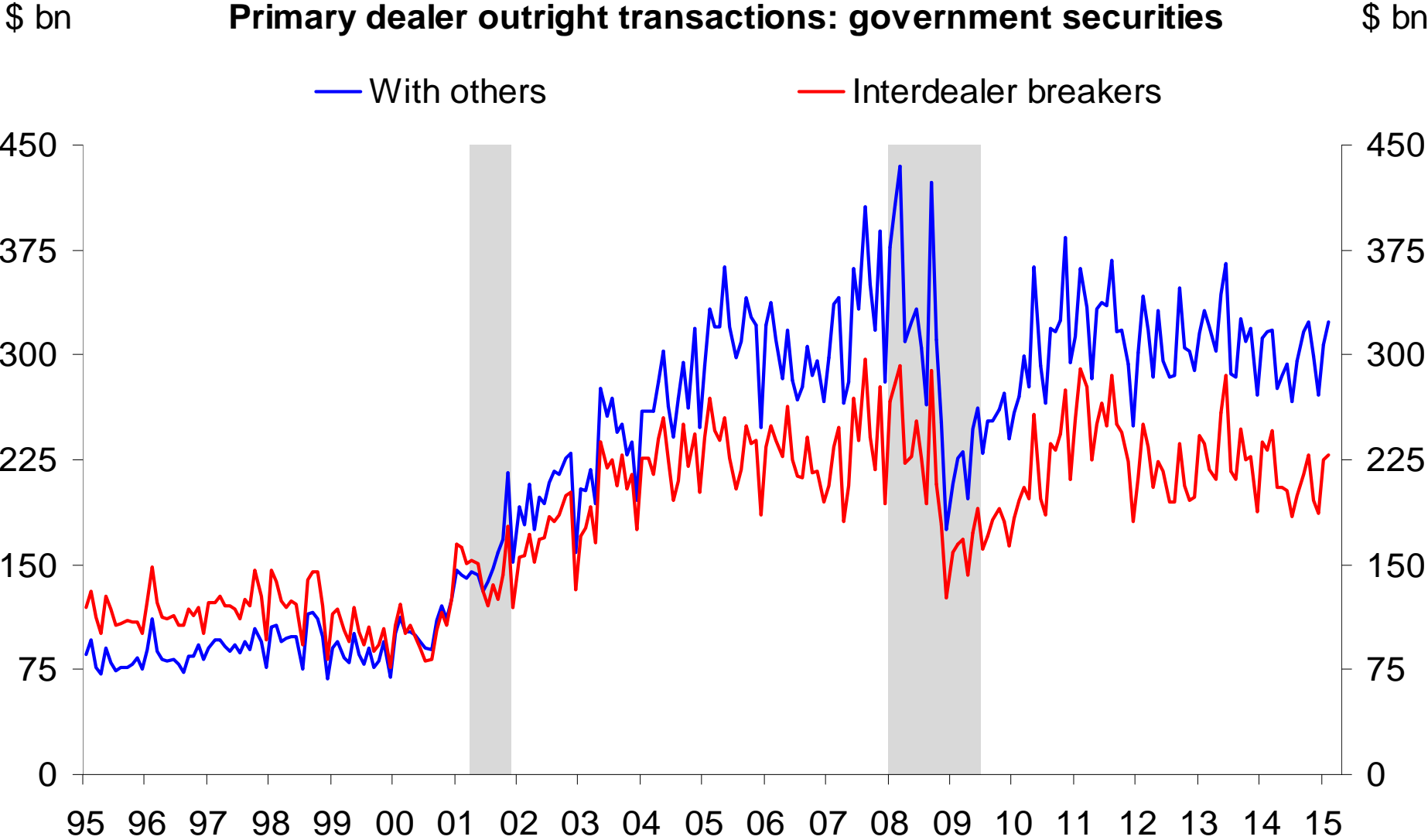
Liquidity in the Treasury Market

Primary dealer trading volumes broadly stable



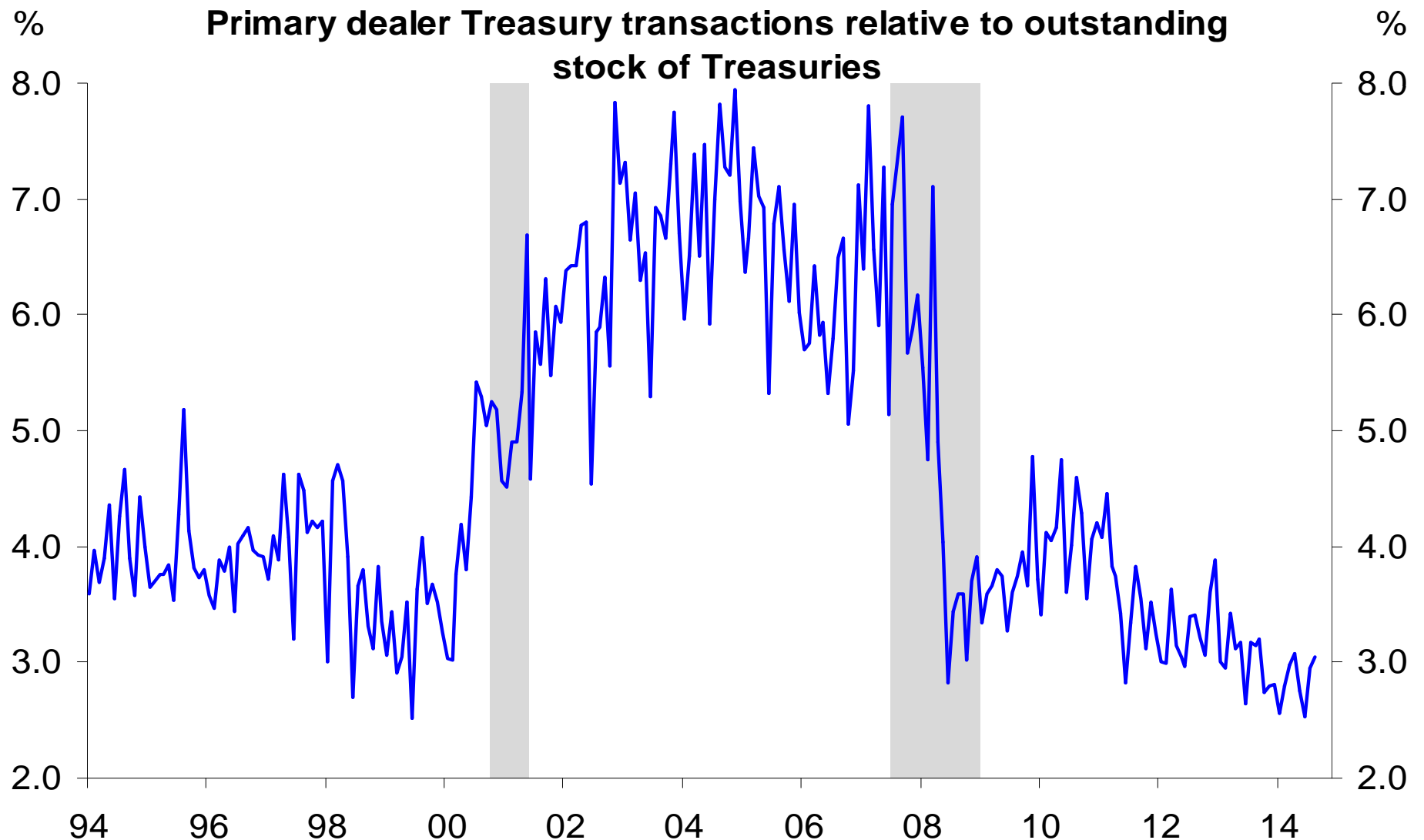
Source: FRBNY, Haver Analytics, DB Global Markets Research

Primary dealer trading by counterparty



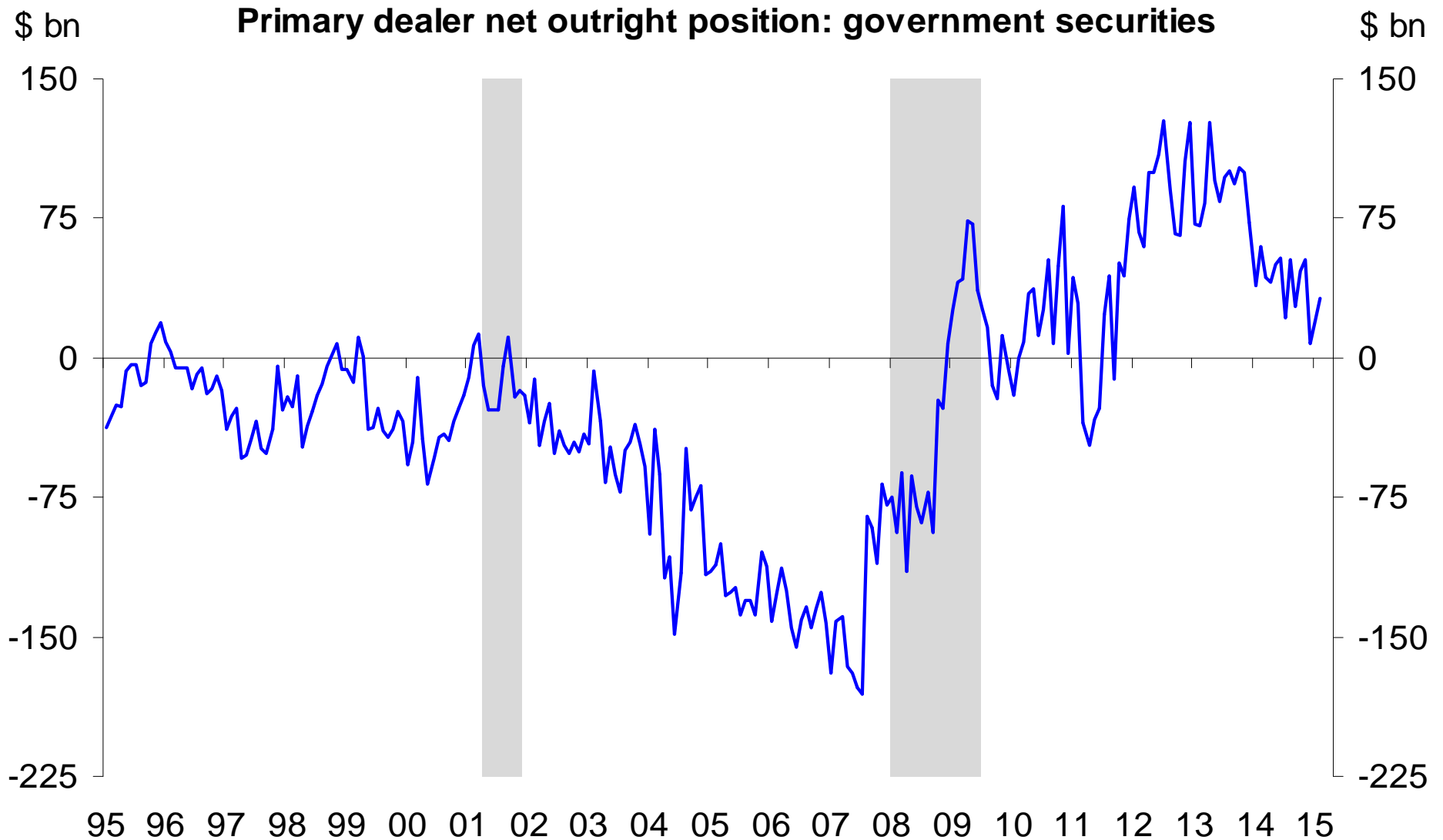
Source: FRBNY, Haver Analytics, DB Global Markets Research

But primary dealer trading volume has dropped relative to outstanding stock of Treasuries



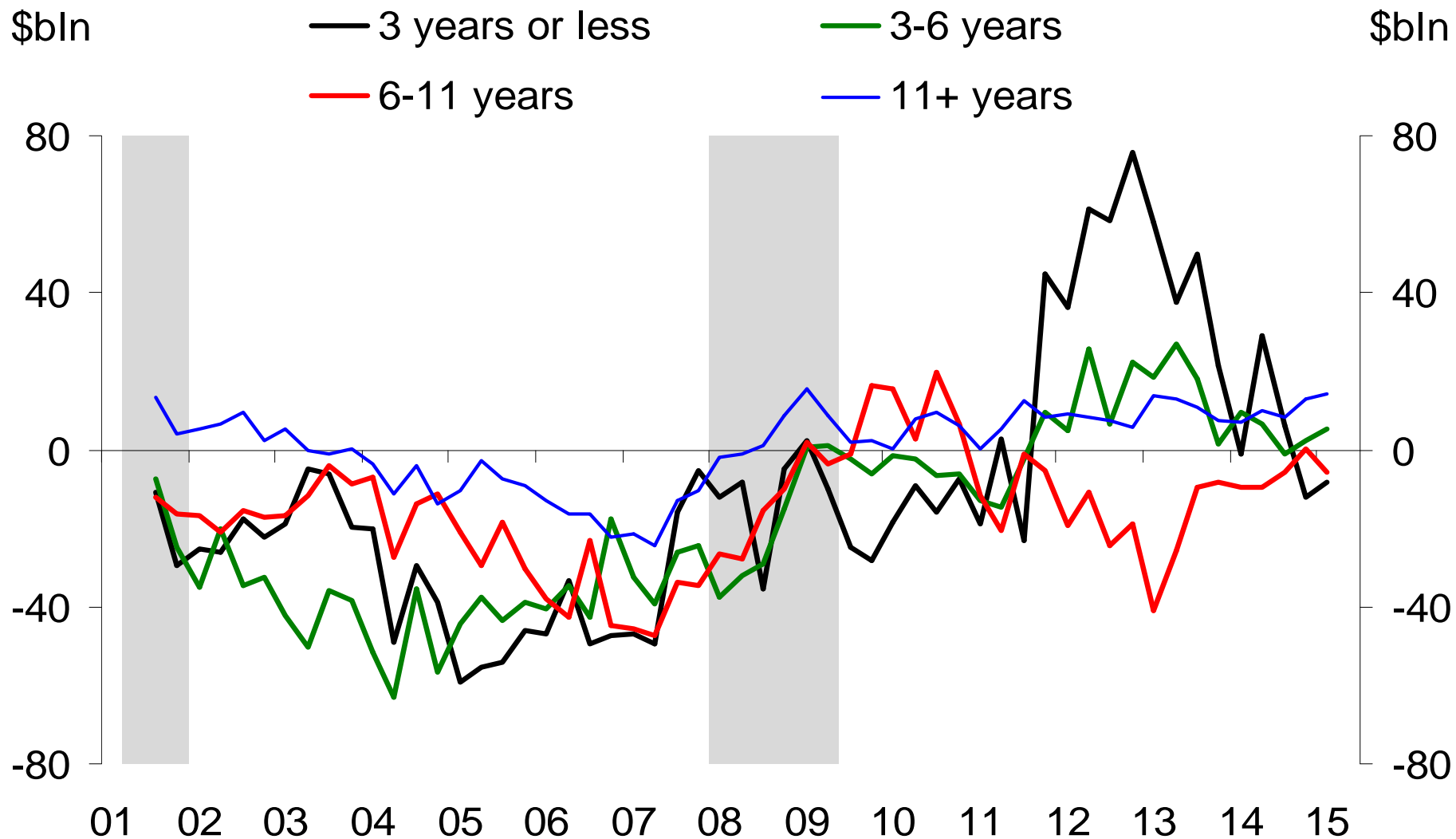
Source: Treasury, Haver Analytics, DB Global Markets Research

Primary dealer net positioning is slightly long Treasuries



Source: FRBNY, Haver Analytics, DB Global Markets Research

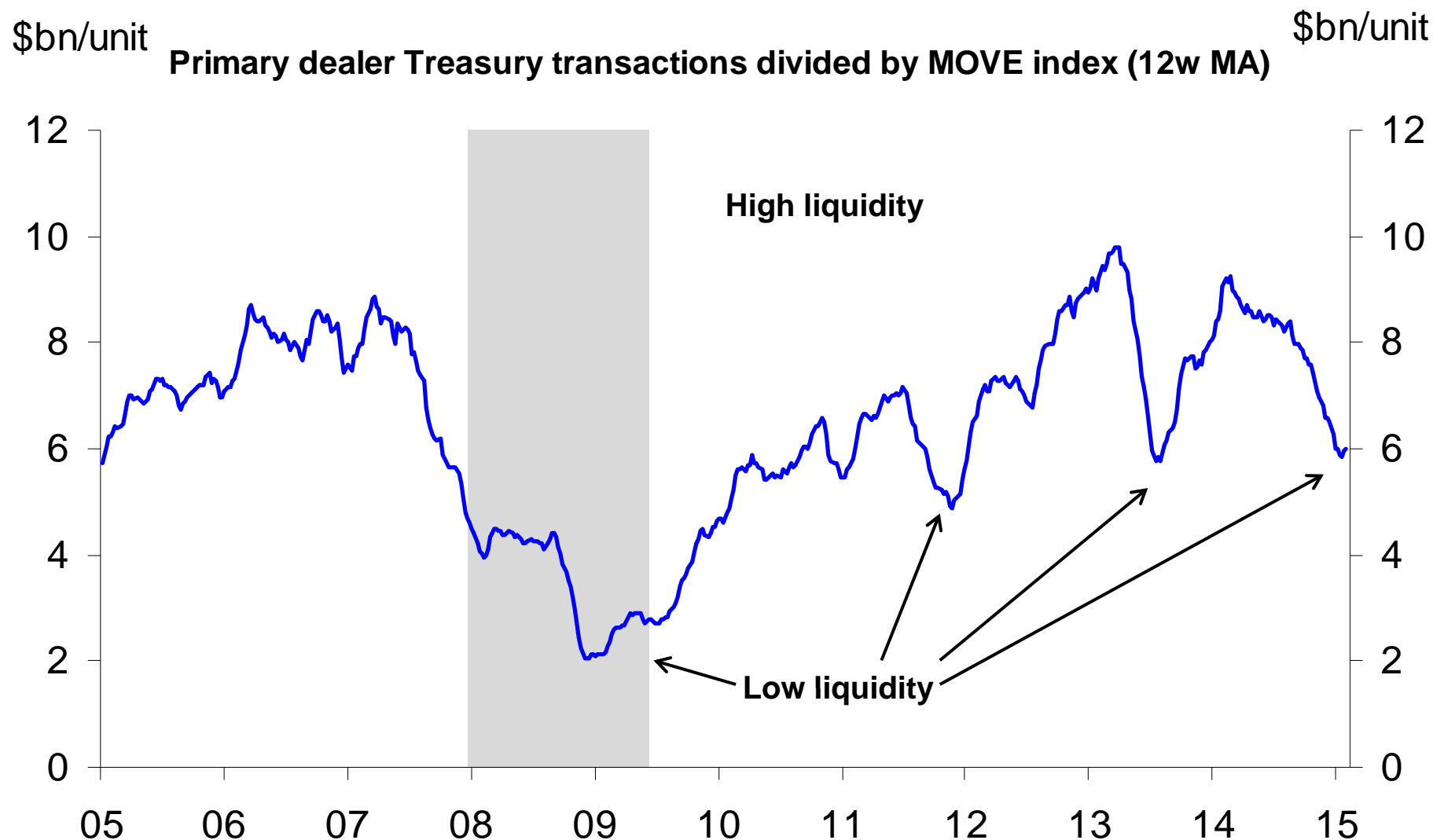
Primary dealer net positioning in Treasuries broken down by maturity



Source: FRBNY, Haver Analytics, DB Global Markets Research



Reduced liquidity suggested by decline in amount of transactions that generates a given amount of volatility

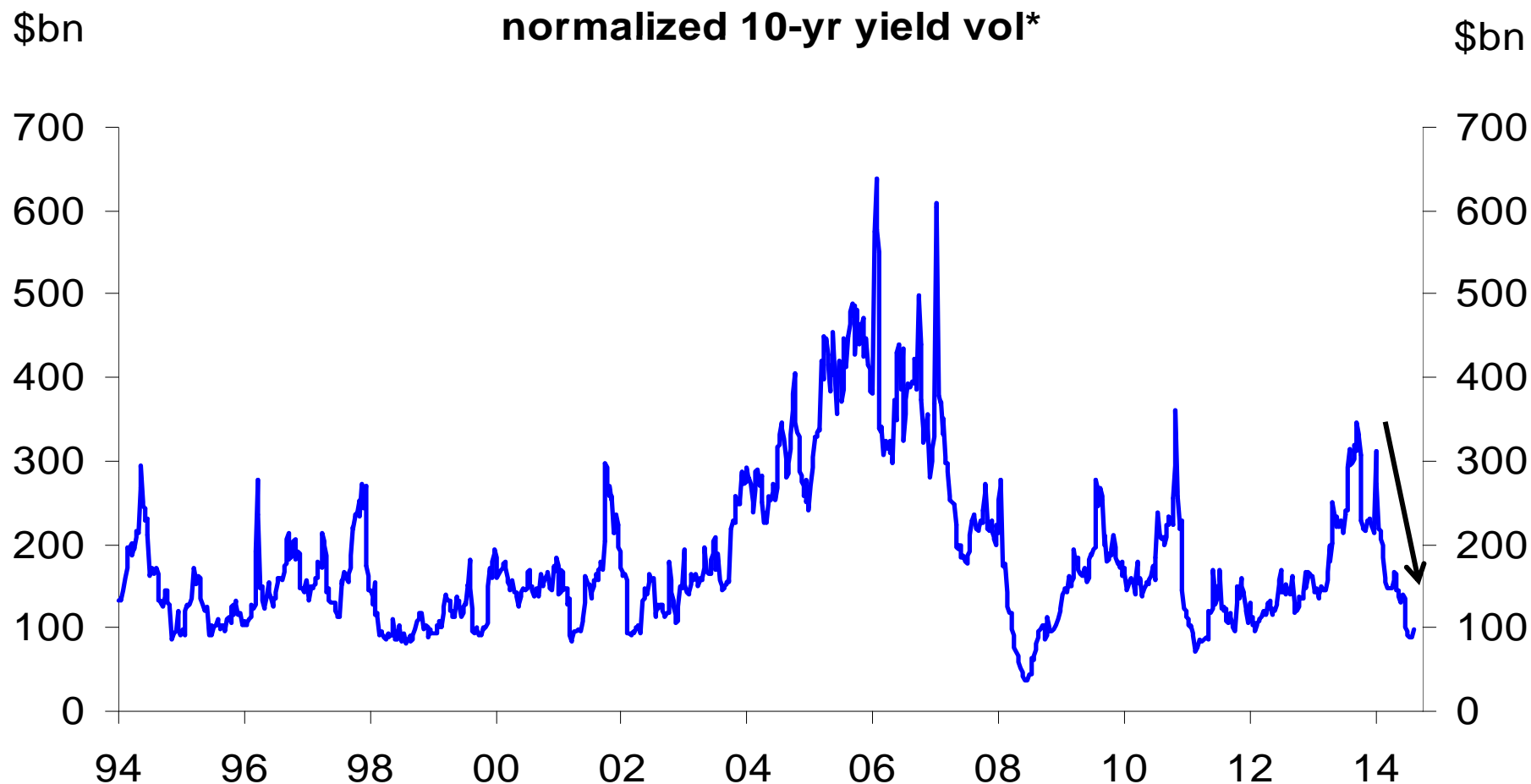


Source: FRBNY, BoA ML, Haver Analytics, DB Global Markets Research



Reduced liquidity in 10-year Treasury market

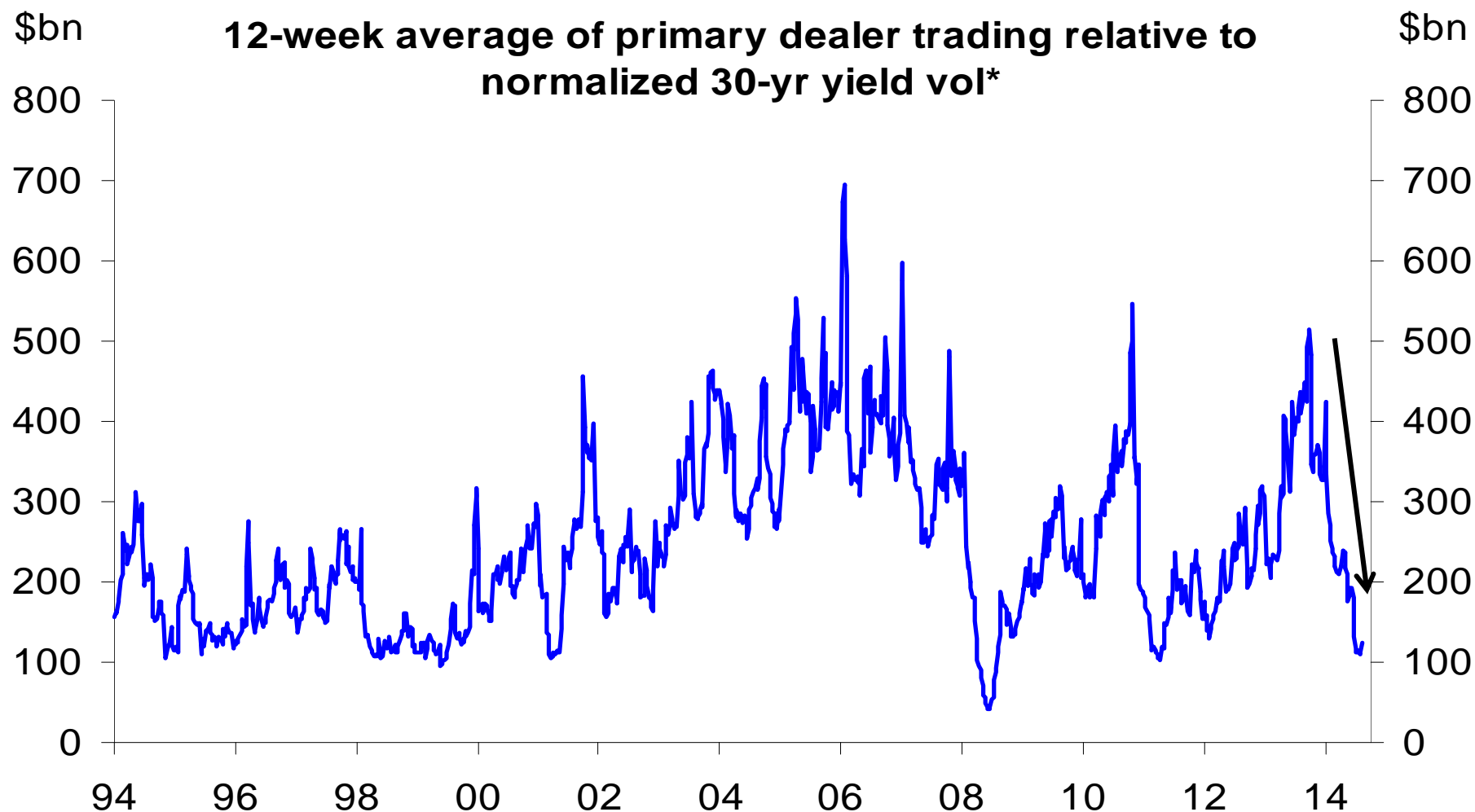
12-week average of primary dealer trading relative to normalized 10-yr yield vol*



* Computed as the 12-week moving average of primary dealer trading volume in US Treasuries divided by the 12-week standard deviation of weekly changes in the 10-year Treasury yield, adjusted for the level of rates.

Source: FRB, Haver Analytics, DB Global Markets Research

Reduced liquidity in 30-year Treasury market

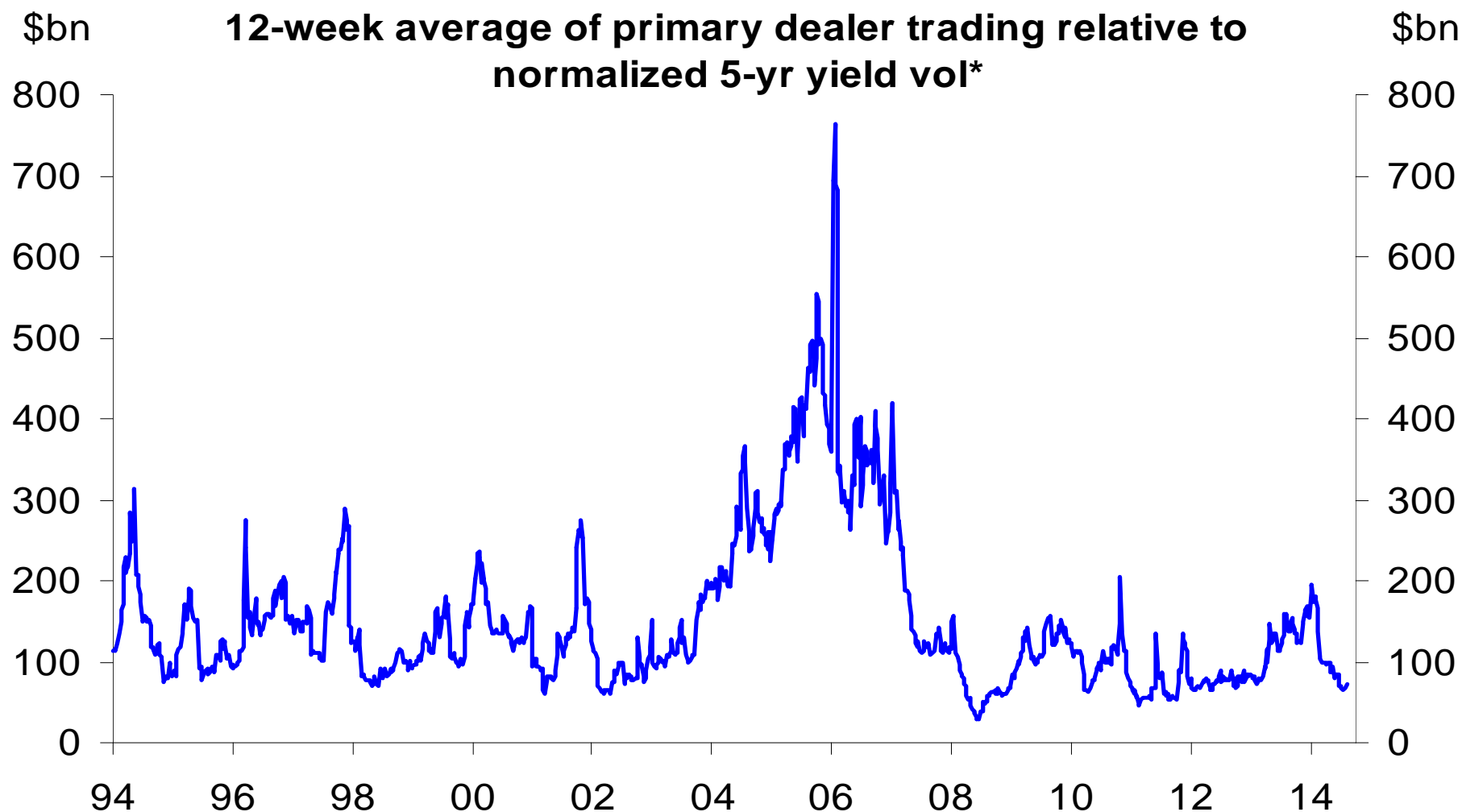


* Computed as the 12-week moving average of primary dealer trading volume in US Treasuries divided by the 12-week standard deviation of weekly changes in the 30-year Treasury yield, adjusted for the level of rates.

Source: FRB, Haver Analytics, DB Global Markets Research



Reduced liquidity in 5-year Treasury market



* Computed as the 12-week moving average of primary dealer trading volume in US Treasuries divided by the 12-week standard deviation of weekly changes in the 5-year Treasury yield, adjusted for the level of rates.

Source: FRB, Haver Analytics, DB Global Markets Research

Little change in liquidity in 2-year Treasury market

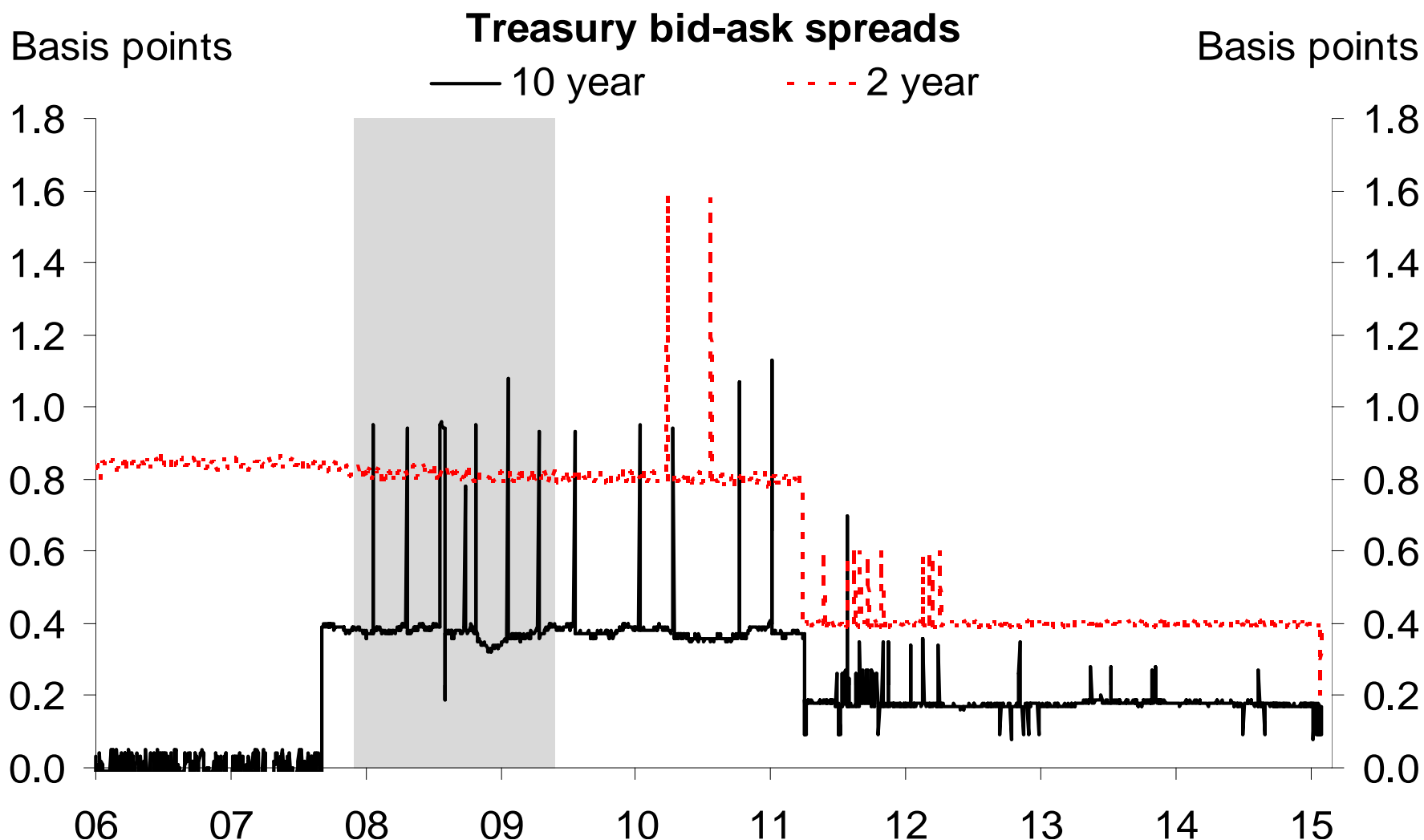


* Computed as the 12-week moving average of primary dealer trading volume in US Treasuries divided by the 12-week standard deviation of weekly changes in the 2-year Treasury yield, adjusted for the level of rates.

Source: FRB, Haver Analytics, DB Global Markets Research

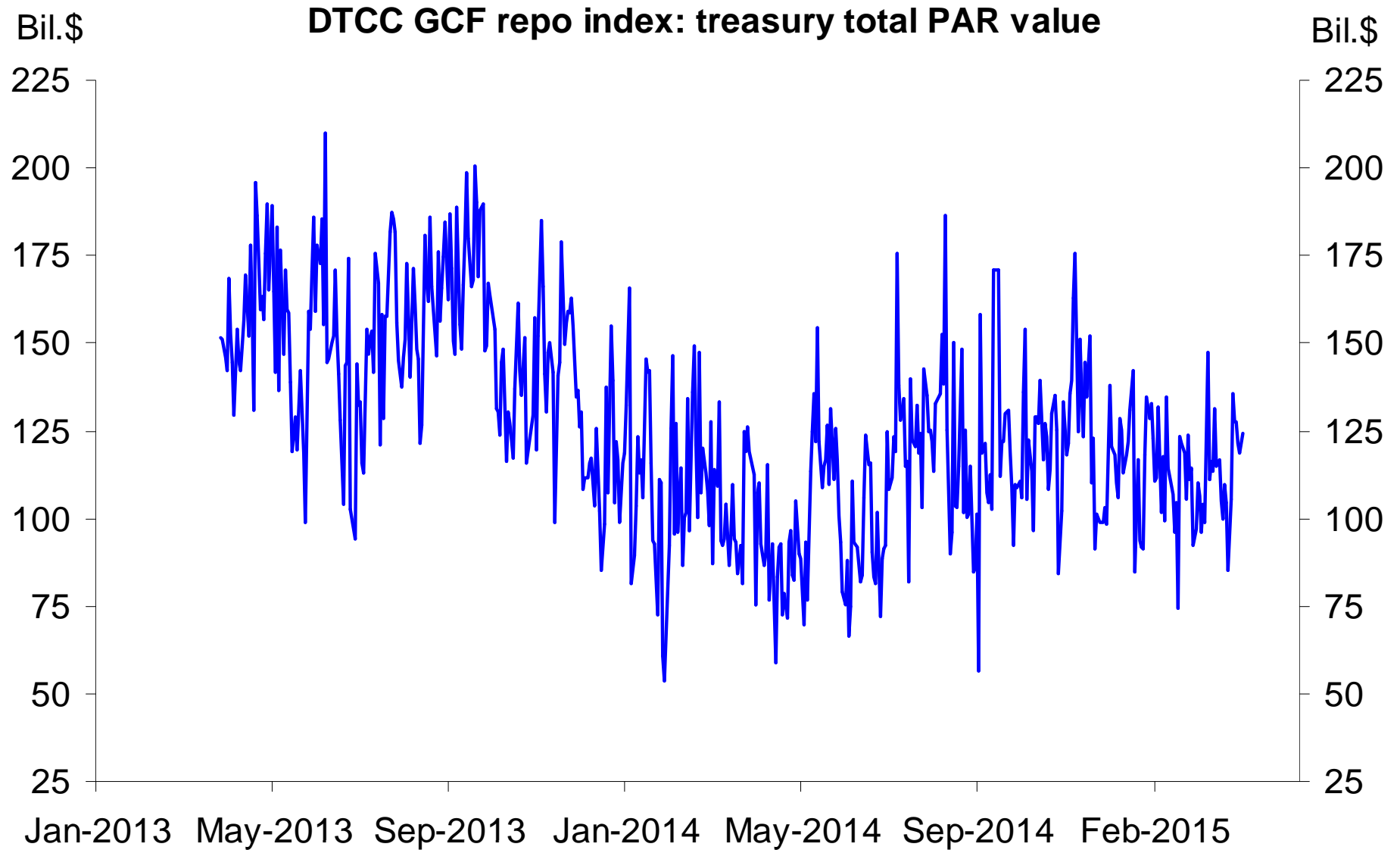


No signs of concern with bid-ask spread, but this does not capture the depth and breadth of the market



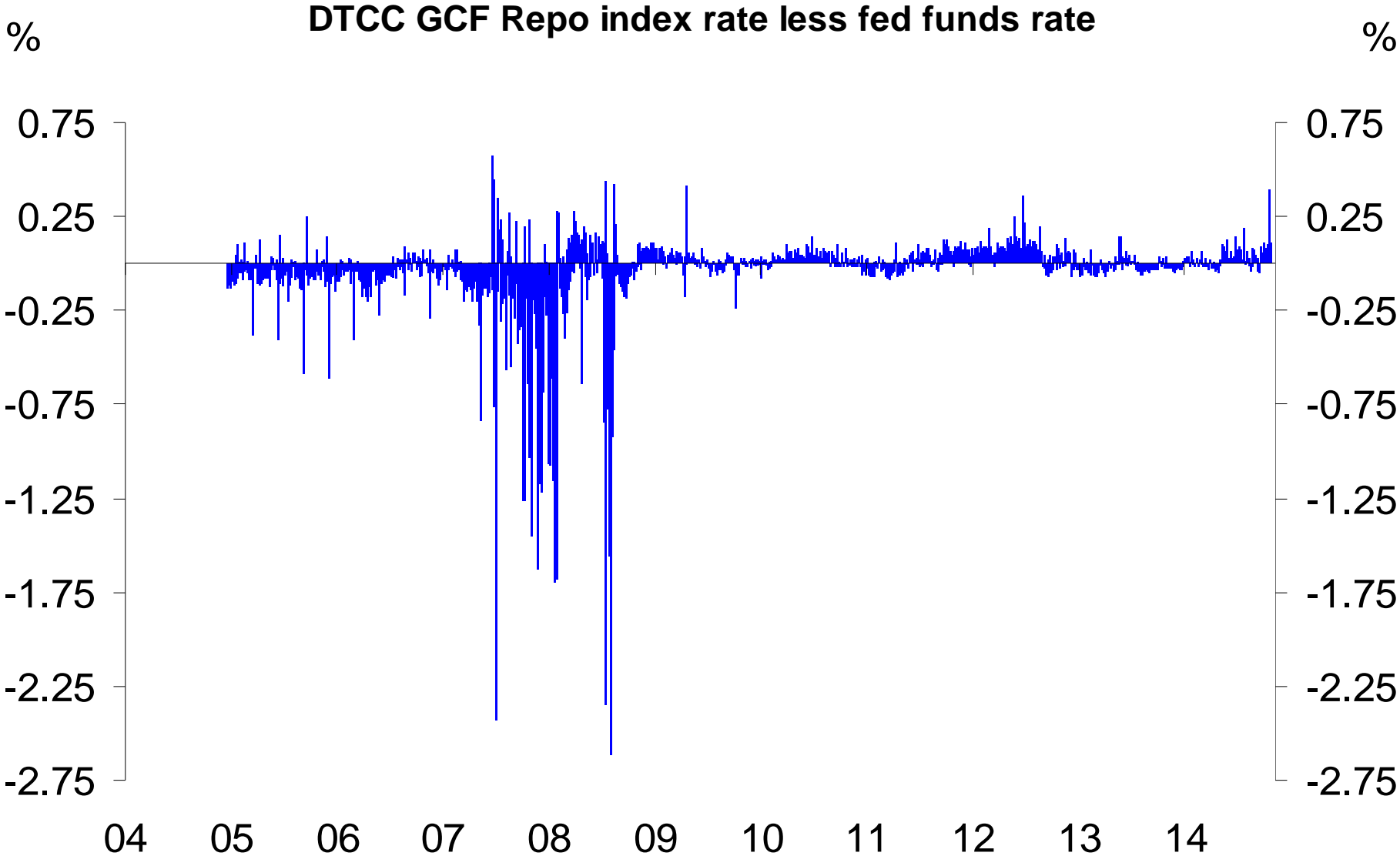
Source: FRB, Bloomberg Financial LP, DB Global Markets Research

Nothing unusual in repo volumes



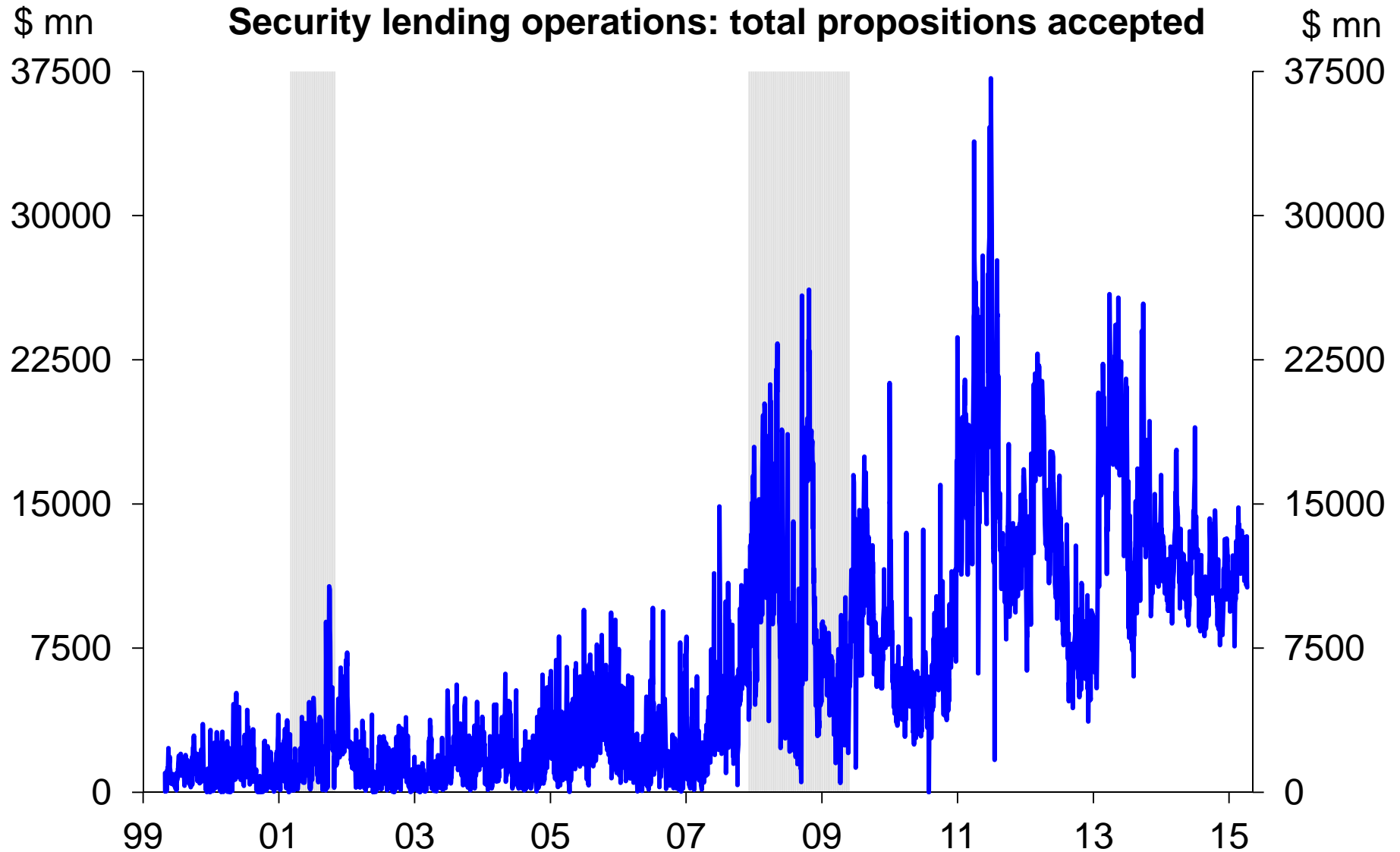
Source: WSJ, Haver Analytics, DB Global Markets Research

Repo rates not indicating unusual shortage of Treasuries



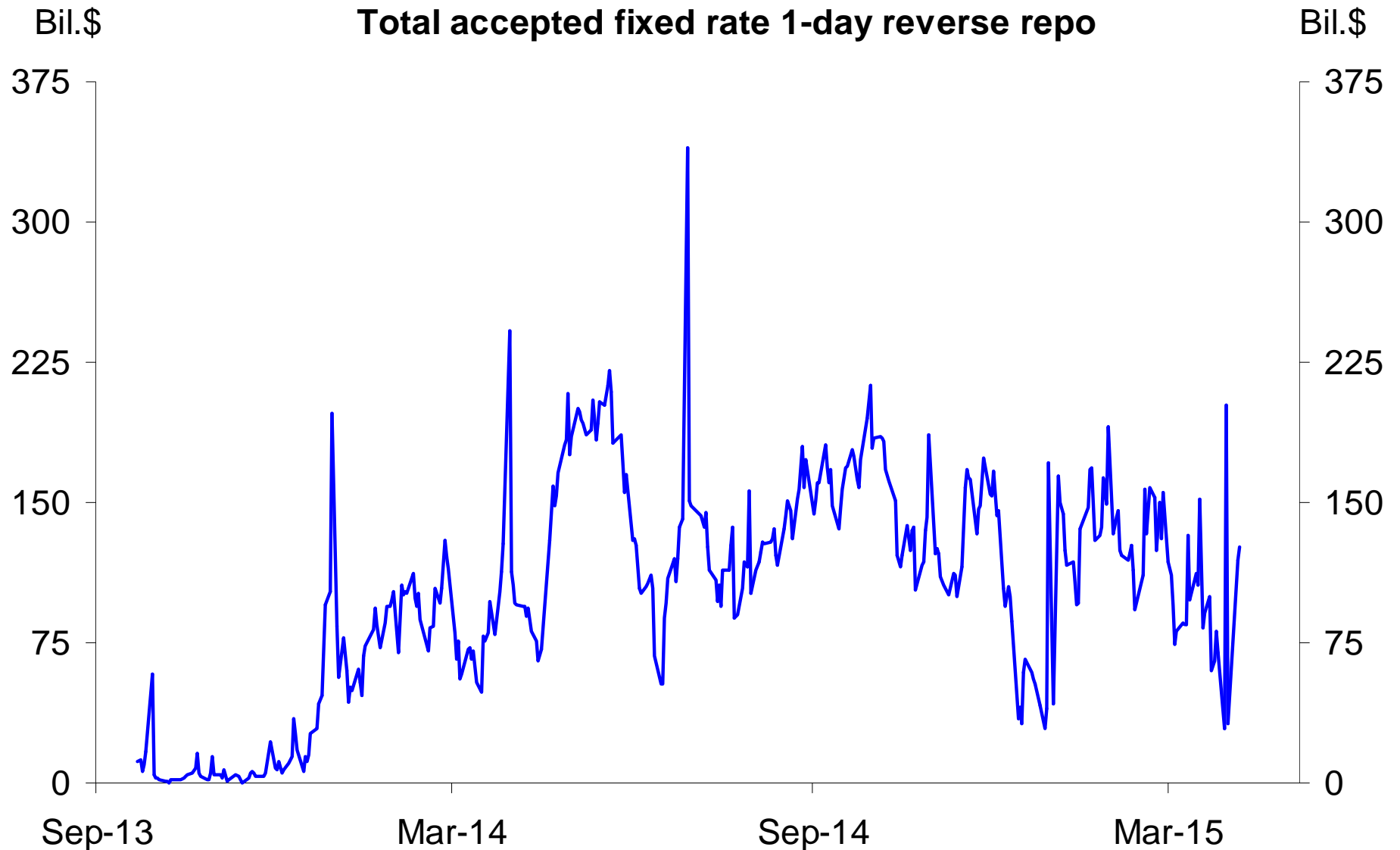
Source: FRB, WSJ, Haver Analytics, DB Global Markets Research

Fed securities lending doesn't look unusual



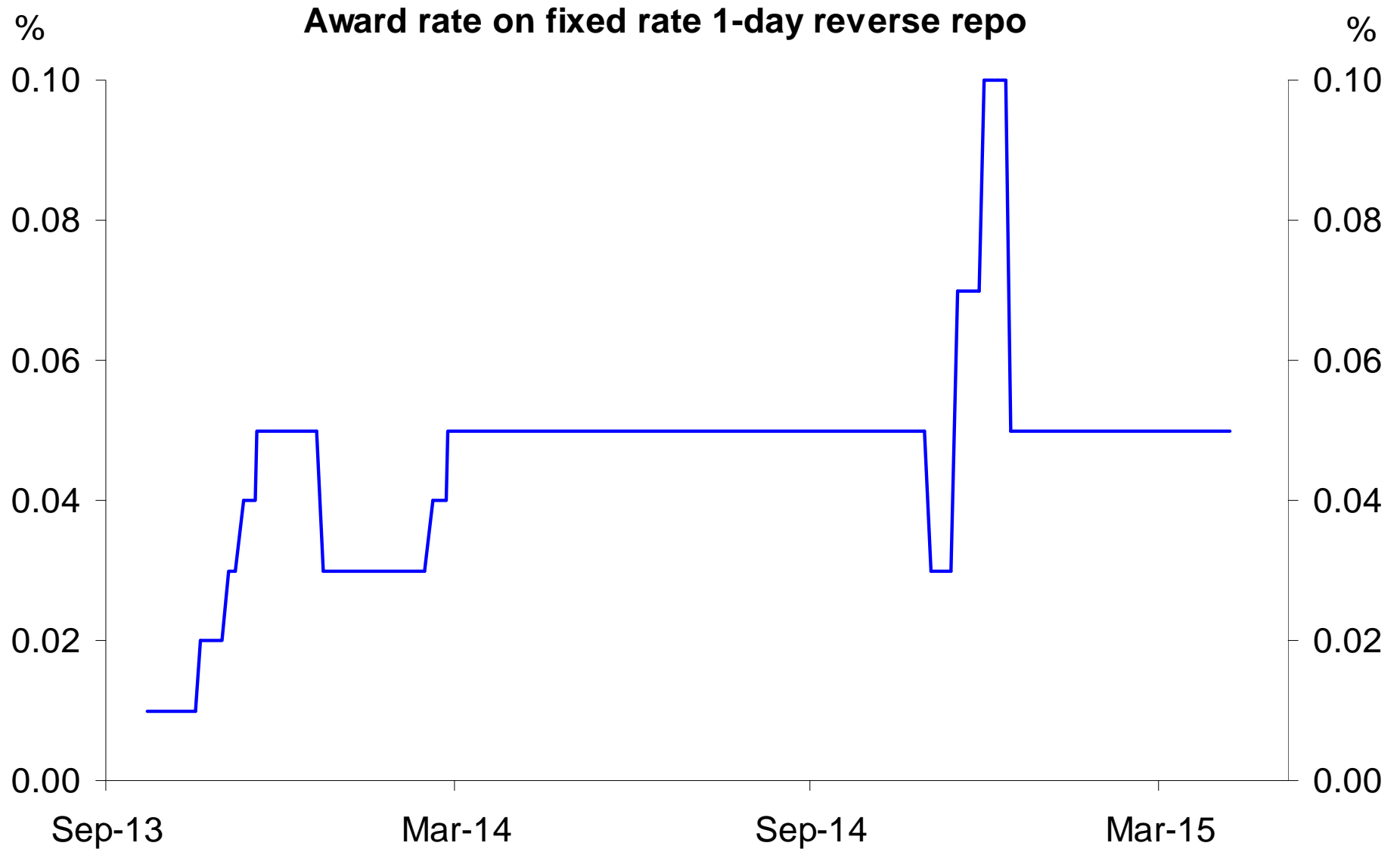
Source: FRBNY, Haver Analytics, DB Global Markets Research

Reverse repo volume well below Fed's \$300bn ceiling



Source: FRBNY, Haver Analytics, DB Global Markets Research

Reverse repo rate stable

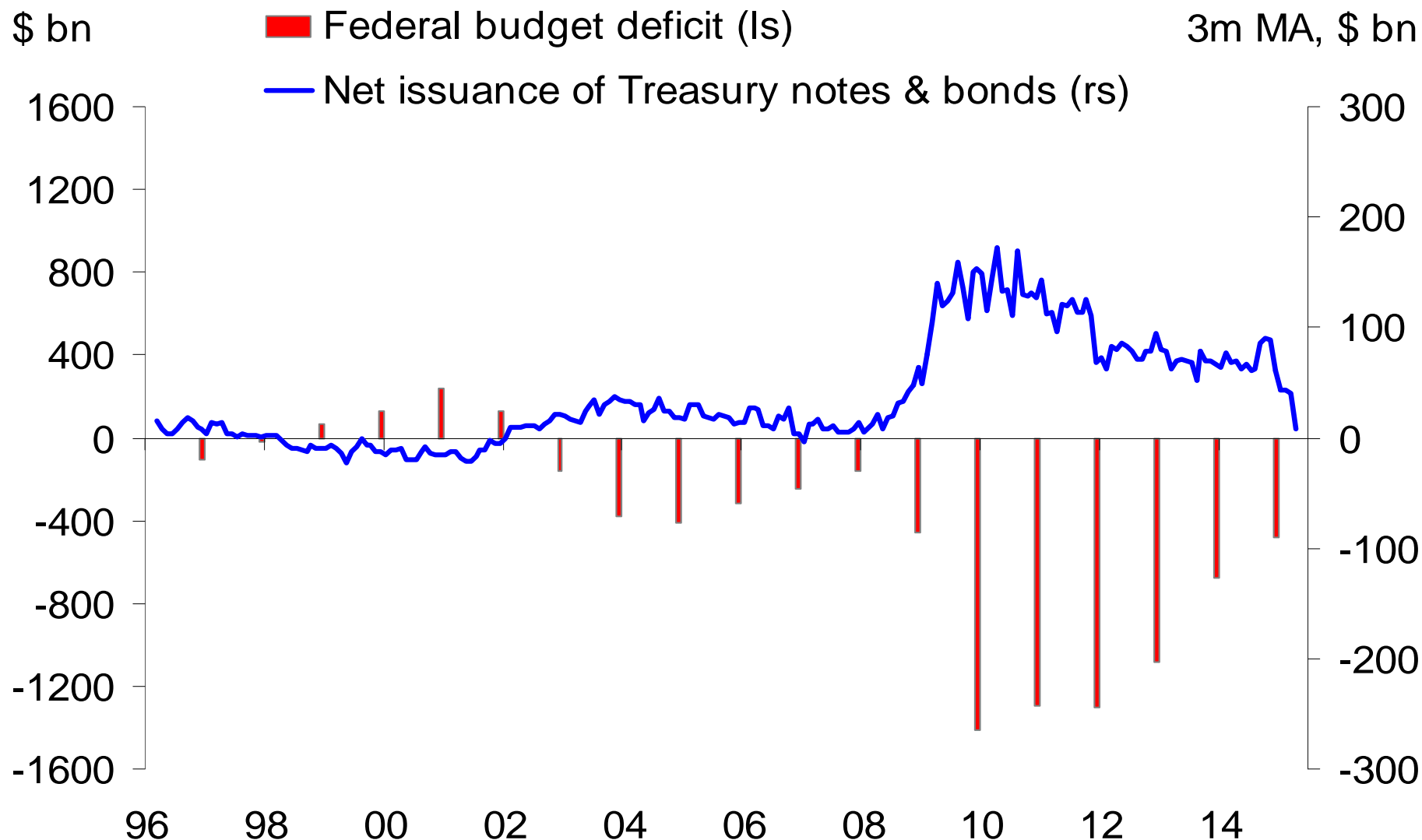


Source: FRBNY, Haver Analytics, DB Global Markets Research



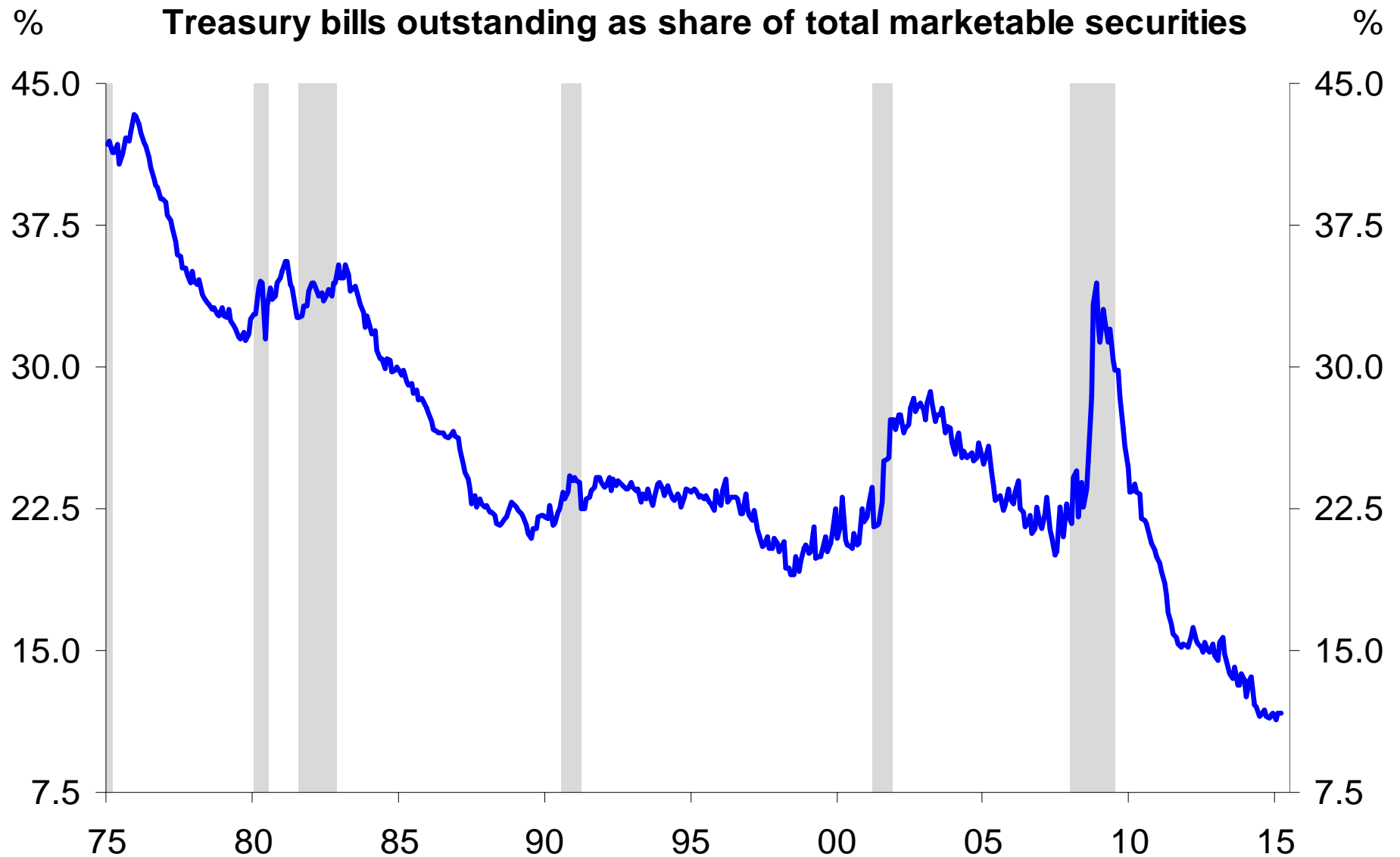
Underlying Supply and Demand factors in the Treasury market

Supply: Treasury net issuance dropped as Federal budget deficit narrowed



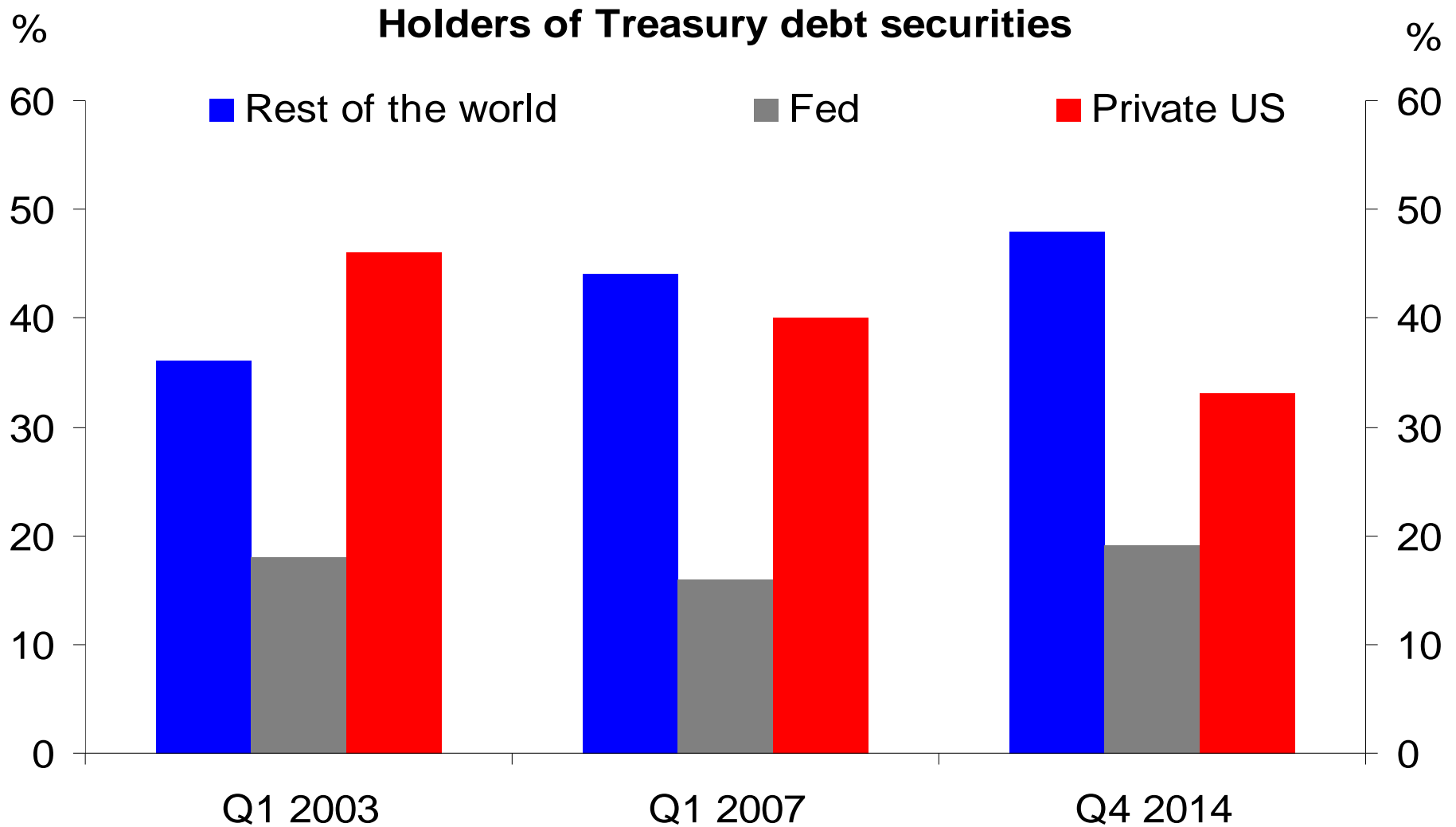
Source: CBO, BPD, Haver Analytics, DB Global Markets Research

Less supply of Treasuries at the front end



Source: Treasury, Haver Analytics, DB Global Markets Research

Demand: Central banks and other foreign investors have increased their holdings of Treasuries

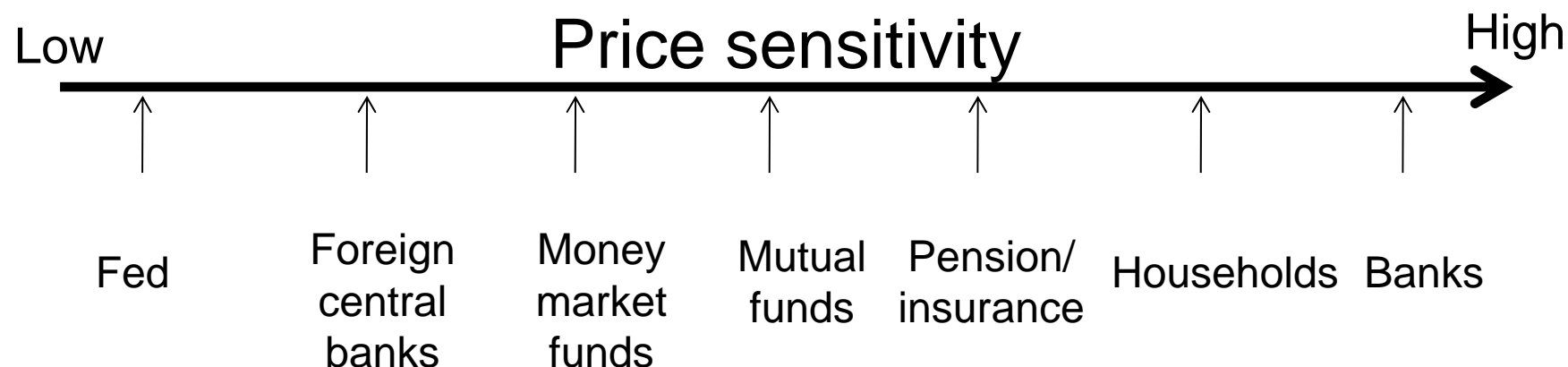


Source: FRB, Haver Analytics, DB Global Markets Research

Framework for thinking about demand for fixed income



The key driver of rates is the economy. But different buyers have different price sensitivities:



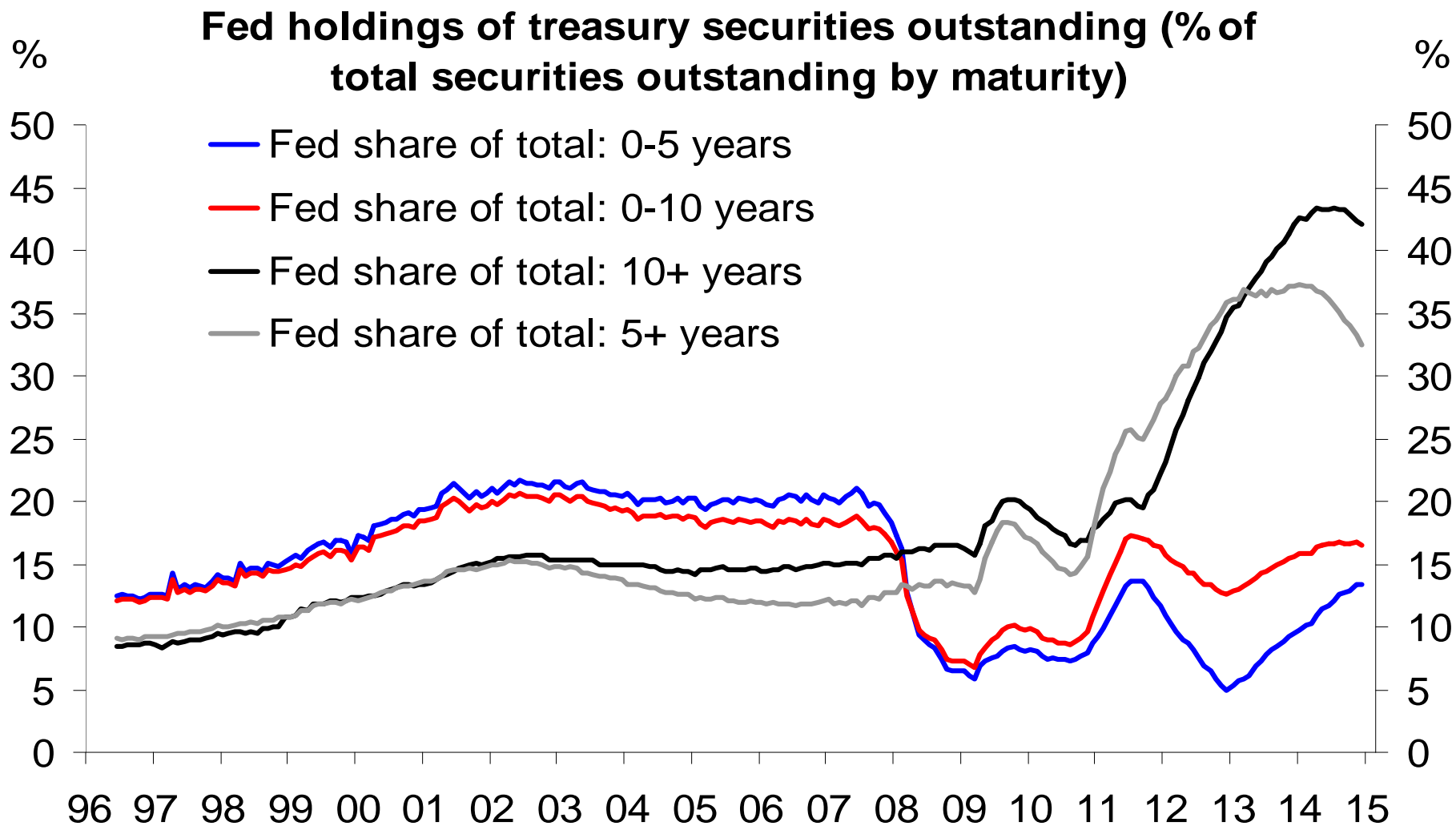
Foreigners, Fed, and mutual funds have increased their holdings of Treasuries



 Holders of Treasury debt securities	 Q4 2014 (%)	 Q1 2007 (%)	 Q1 2003 (%)
 Rest of world	 48	 44	 36
 Fed	 19	 16	 18
 Money Market funds	 8.8	 5.2	 7.6
 Households/Hedge funds	 5.4	 6.0	 8.3
 Government retirement funds	 3.6	 4.8	 6.0
 Private pension funds	 2.6	 2.7	 3.0
 Commercial banks	 3.8	 2.2	 4.0
 Insurance companies	 2.2	 3.7	 4.5
 Investment banks	 0.5	 -0.8	 0.5
 GSEs	 0.5	 0.3	 0.7
 ABS issuers	 0.2	 1.3	 0.0
 Others	 6.1	 14.6	 12.0

Source: FRB, Haver Analytics, DB Global Markets Research

The Fed now holds +40% of long Treasuries

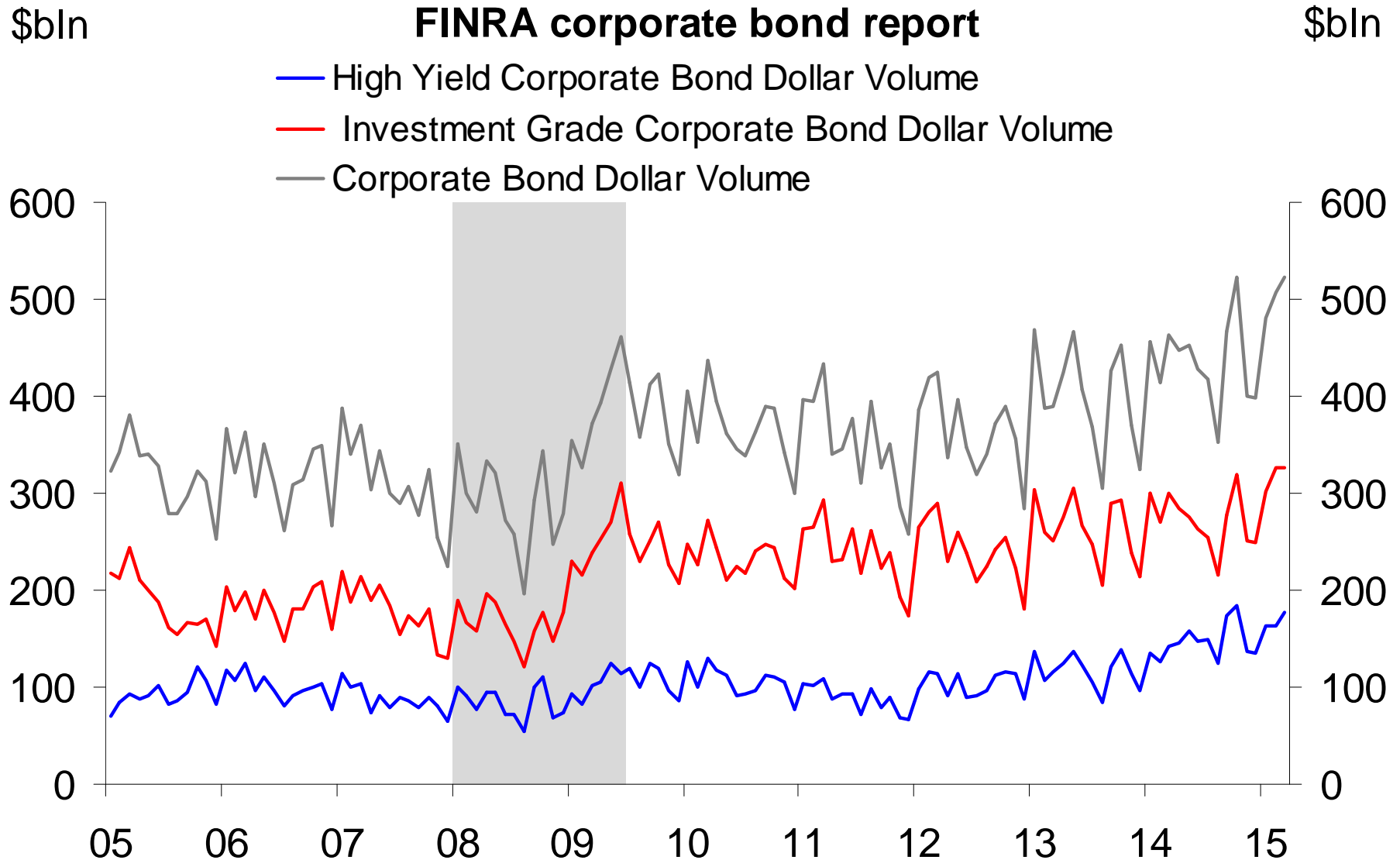


Source: FRB, Haver Analytics, DB Global Markets Research



Liquidity in corporate bond markets

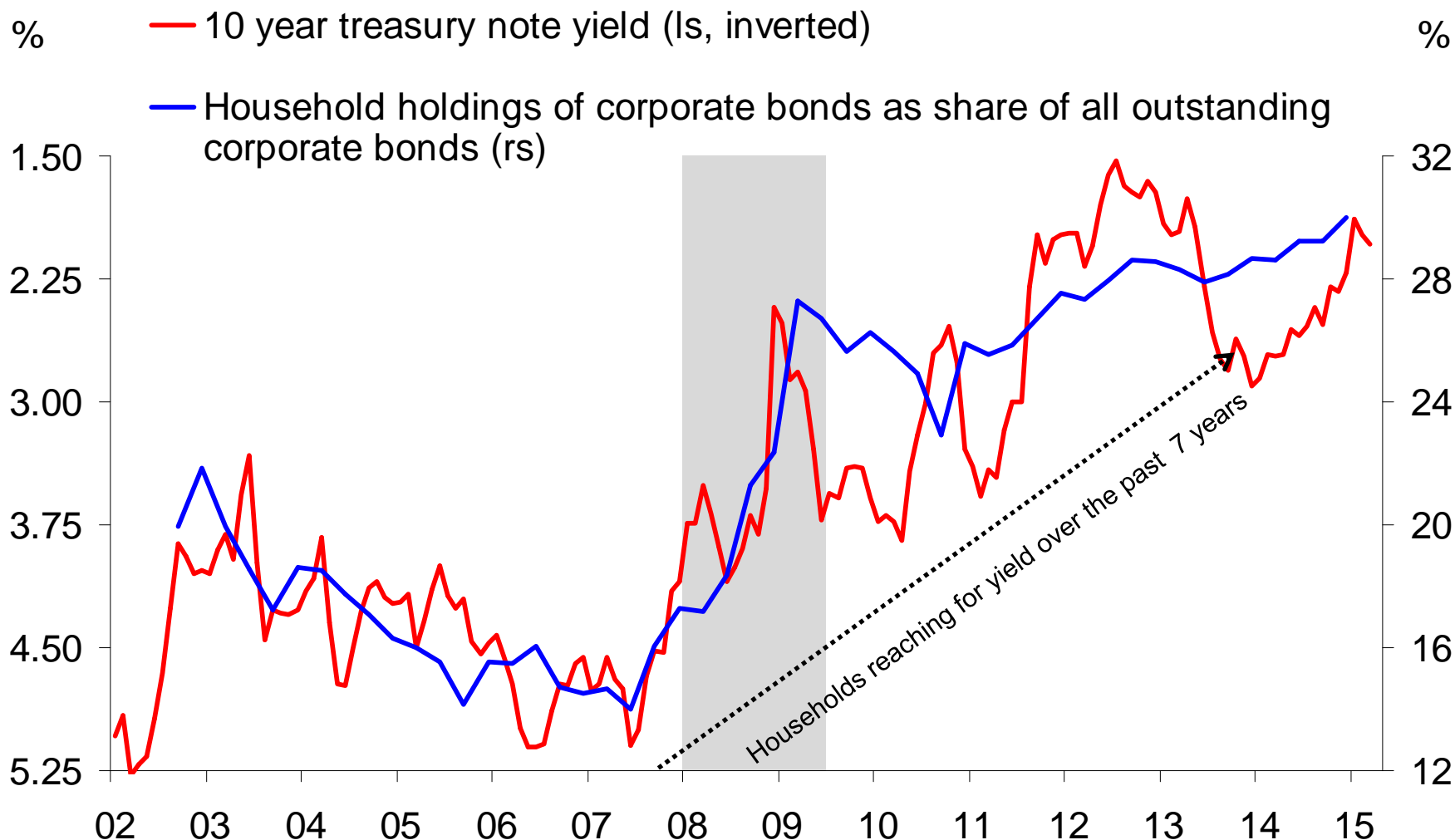
Total corporate bond trading volume trending upward



Source: FINRA, Haver Analytics, DB Global Markets Research



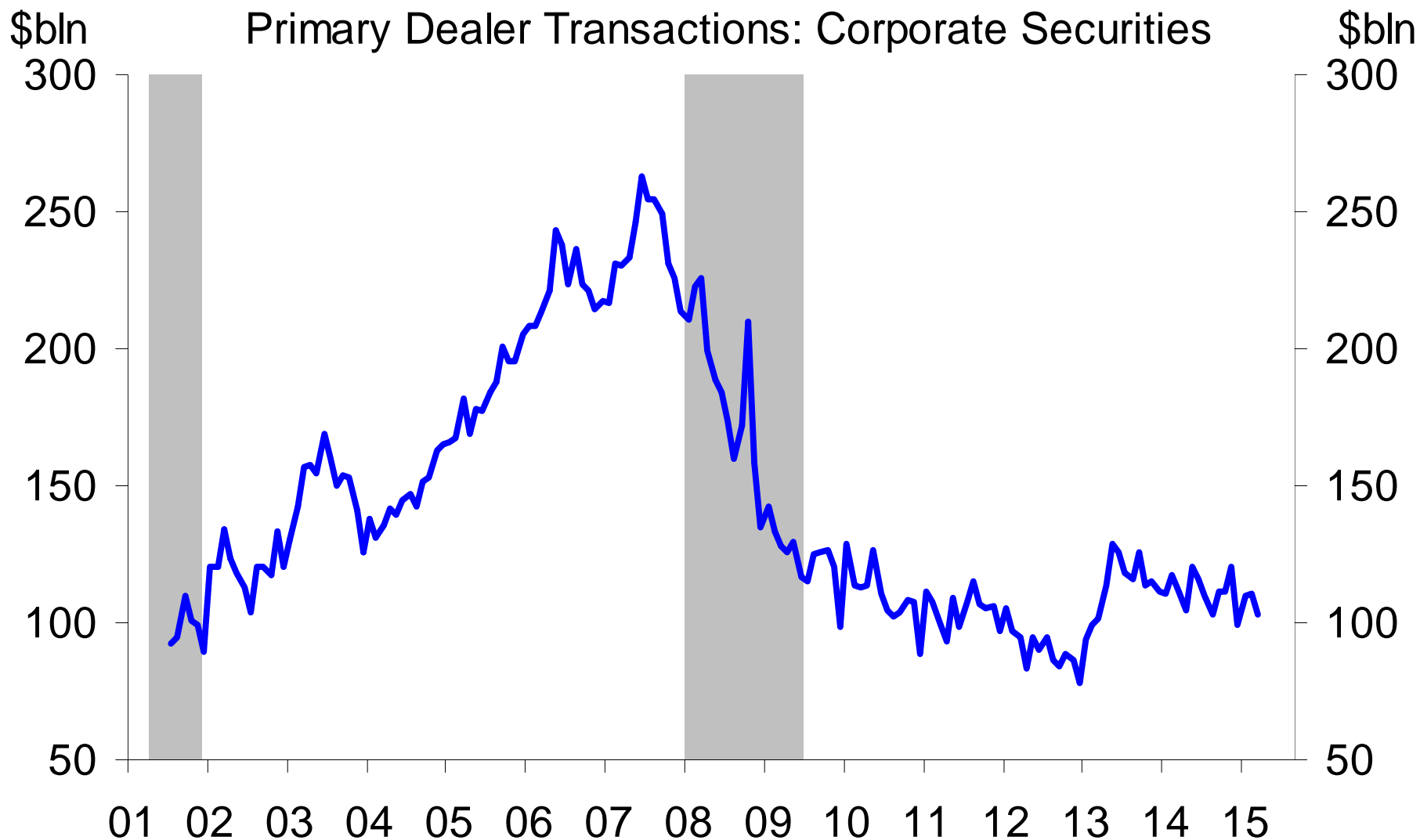
Fed funds at zero sent households on a hunt for yield



Note: Flow of funds data; household holdings is the sum of household direct holdings + ETF + Mutual funds

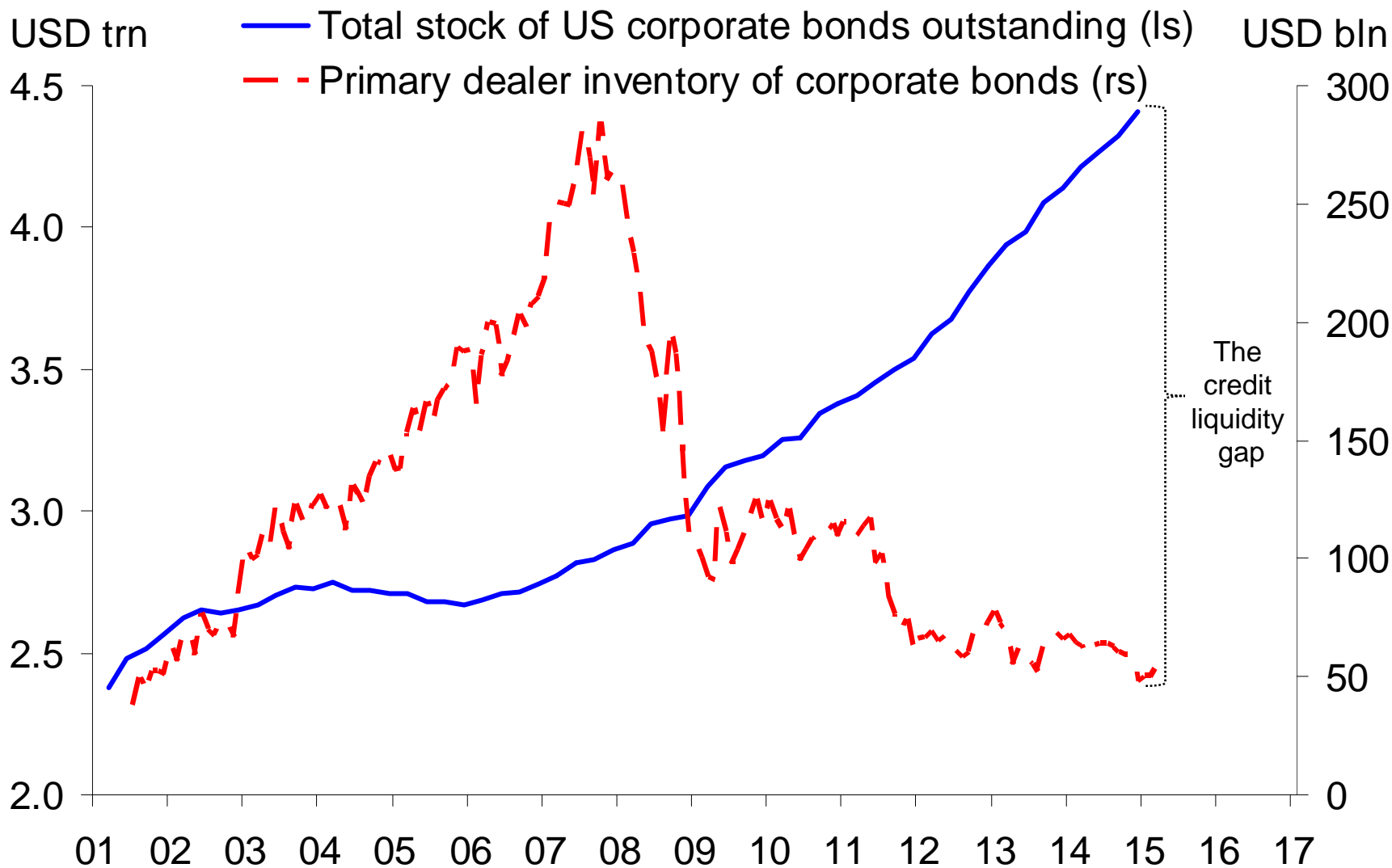
Source: FRB, Haver Analytics, DB Global Markets Research

But primary dealer corporate bond trading volumes have receded



Source: FRBNY, Haver Analytics, DB Global Markets Research

Primary dealer inventories of corporate bonds have dropped as bond market volume has risen

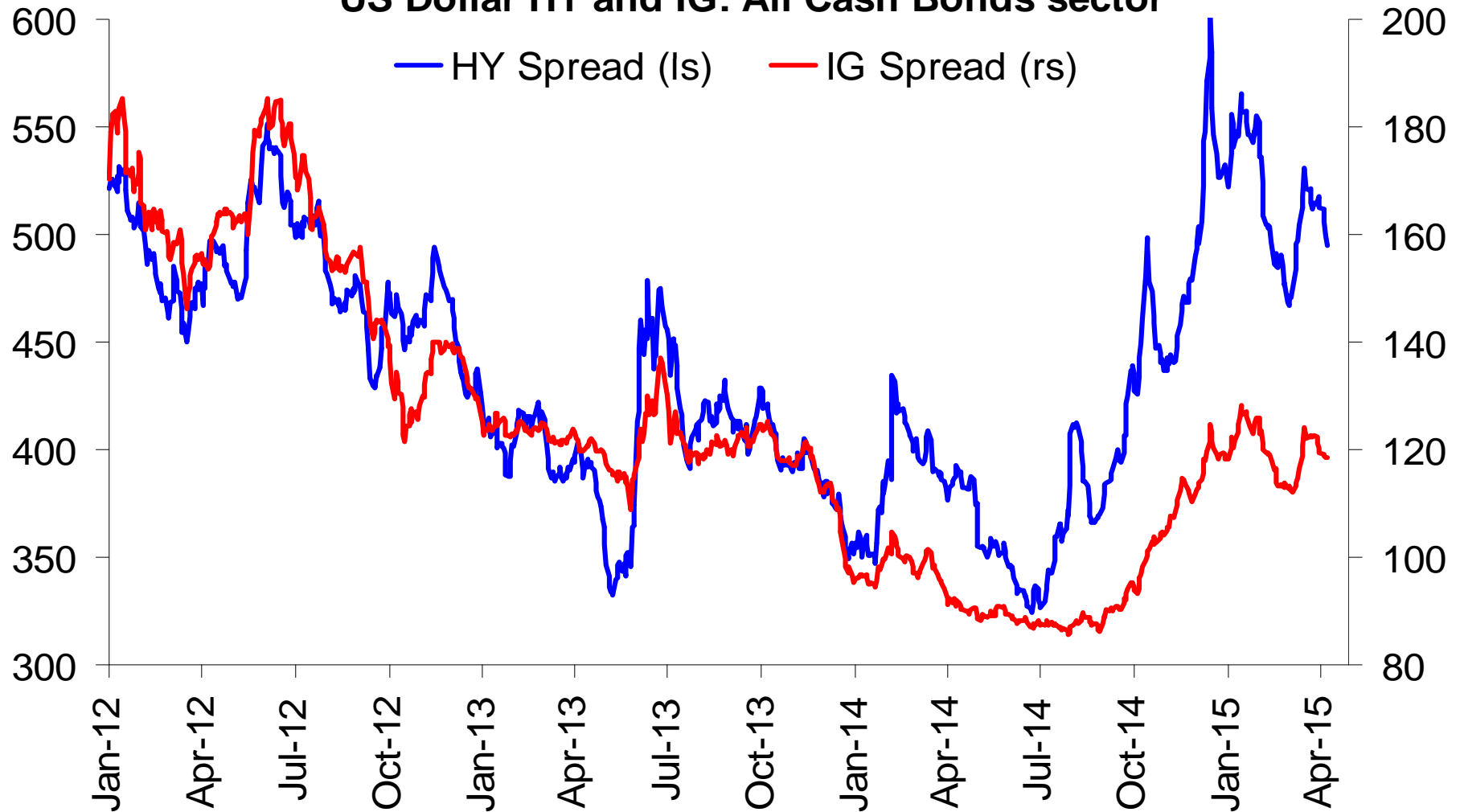


Source: FRB, Haver Analytics, DB Global Markets Research

Credit spreads have widened



Option Adjusted Spread (weighted by market value) of the US Dollar HY and IG: All Cash Bonds sector



Source: Bloomberg Finance LP, DB Global Markets Research

Fails trending higher for both Treasuries and corporate bonds



12 week MA,
\$ bn

12 week MA,
\$ bn



Source: FRBNY, Haver Analytics, DB Global Markets Research



Peter Hooper

Managing Director, Chief Economist

Deutsche Bank Securities, Inc.

+1 (212) 250-7352

peter.hooper@db.com

- **Peter Hooper** joined Deutsche Bank Securities in 1999 as Chief US Economist. He became Chief Economist and co-head of global economics in 2006. Prior to joining Deutsche Bank, Hooper enjoyed a distinguished 26-year career at the Federal Reserve Board in Washington, D.C. While rising to senior levels of the Fed staff, he held numerous positions, including as an economist on the FOMC. Hooper and his team produce weekly and quarterly publications for Deutsche Bank with a focus on US and global economic developments and Fed policy; he also comments on US and global economic and financial developments in the news media.
- Hooper currently serves as a member of the Economic Advisory Panel of the Federal Reserve Bank of New York, a member and former chairman of the Economic Advisory Committee of the American Bankers Association, a founding member of the US Monetary Policy Forum, a member of the Economic Leadership Council for the University of Michigan, and a member of the Forecasters' Club of New York. Hooper earned a BA in Economics (cum laude) from Princeton University and an MA and Ph.D. in Economics from University of Michigan. He has published numerous books, journal articles, and reviews on economics and policy analysis.



Matthew Luzzetti
212-250-6161
matthew.luzzetti@db.com

Matthew Luzzetti joined Deutsche Bank in September 2012 and is part of DB's top Institutional Investor-ranked economics team. He regularly contributes to Deutsche Bank's Global Economics publications, focusing on the US economy and Fed policy.

Matthew holds a Ph.D. in Economics from the University of California, Los Angeles. Prior to UCLA, he worked as a research analyst in the macroeconomics department at the Federal Reserve Bank of Philadelphia. While at UCLA, Matthew worked at the US Department of the Treasury in the Office of Financial Research.



Torsten Slok, Ph.D.

- **Chief International Economist, Managing Director**
- **Deutsche Bank Securities, Inc.**
- Torsten Slok joined Deutsche Bank Securities in the fall of 2005.
- Mr. Slok's Economics team has been top-ranked by Institutional Investor in fixed income and equities for the past five years. Slok currently serves as a member of the Economic Club of New York
- Prior to joining the firm, Mr. Slok worked at the OECD in Paris in the Money and Finance Division and the Structural Policy Analysis Division. Before joining the OECD he worked for four years at the IMF in the Division responsible for writing the World Economic Outlook and the Division responsible for China, Hong Kong, and Mongolia.
- Mr. Slok studied at University of Copenhagen and Princeton University. He has published numerous journal articles and reviews on economics and policy analysis, including in Journal of International Economics, Journal of International Money and Finance, and The Econometric Journal.



Appendix 1

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