
Treasury Supply, Liquidity, and Bank Demand for Reserves

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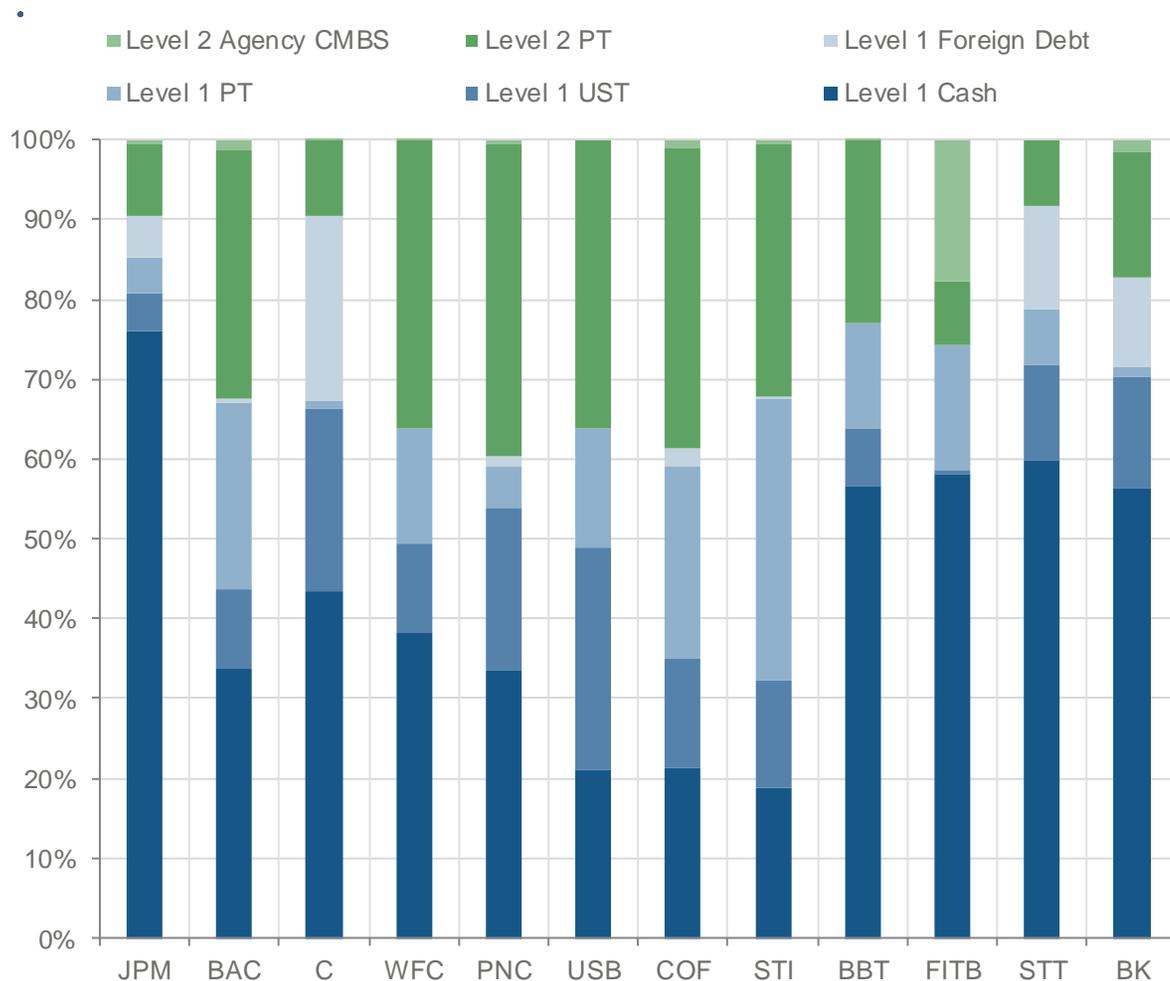
J.P.Morgan

Preview of conclusions

- Reserves are more abundant than the market thinks; large increases in Treasury supply will increasingly make reserves unattractive for banks as a source of HQLA
- The upward drift in the federal funds rate is currently primarily a Treasury bill supply story rather than the result of reserve draining; this drift is poised to slow/stop as bill yields rise above IOER
- Contrary to conventional wisdom, LCR and other end-of-day regulatory liquidity requirements are not the primary driver of bank demand for reserves; instead intraday liquidity needs and Treasury supply/demand dynamics will ultimately determine the desired level of reserves in the system

Executive summary

HQLA composition at US banks (%)



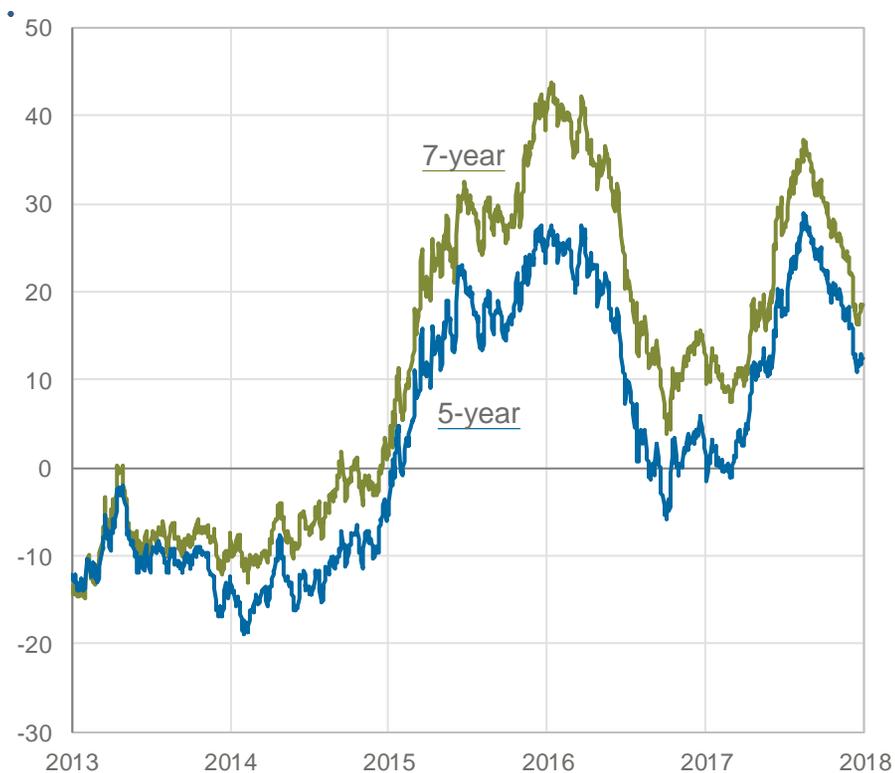
Key drivers of HQLA mix

- Intra-day liquidity needs driven by payment activities
- Interest rate risk management considerations including risk preferences around
 - Duration
 - Convexity
 - AOCI volatility
- Relative pricing of HQLA
- Small differences in liquidity treatment of Treasuries and reserves for certain regulatory requirements including
 - NSFR: Treasuries have 5% required stable funding while reserves have zero
 - Testing of monetization assumptions for Treasuries

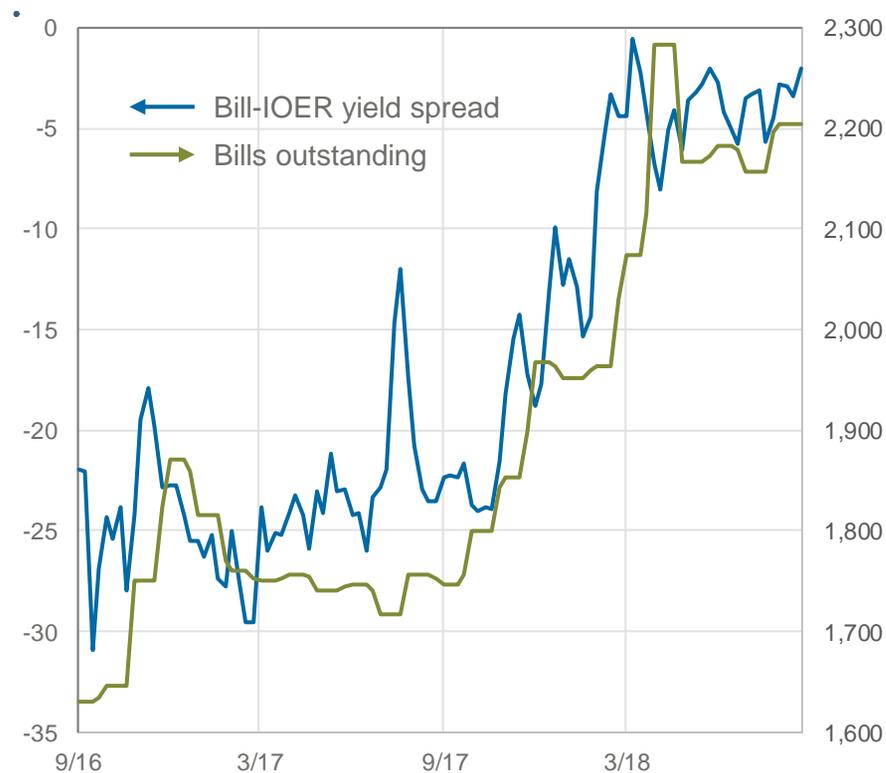
Treasury asset swaps and bills are close substitutes to reserves for LCR and have cheapened with Treasury supply

- Treasury asset swaps (buy Treasury note; pay fixed in swaps) have similar (~zero) duration to reserves but higher yields; their one downside is they have AOCI volatility when held in bank AFS portfolios
- Treasury bills yield modestly lower than IOR but the gap has narrowed with supply; further cuts in IOR and/or increases in bill supply may push bill yields above IOR

Yield pickup on 5 & 7-year US Treasury asset swaps vs. IOER (bp)



3M bill - 3M IOER* spread (bp) vs. Treasury bills outstanding (\$bn)



Conclusion: Reserves are more abundant than the market thinks

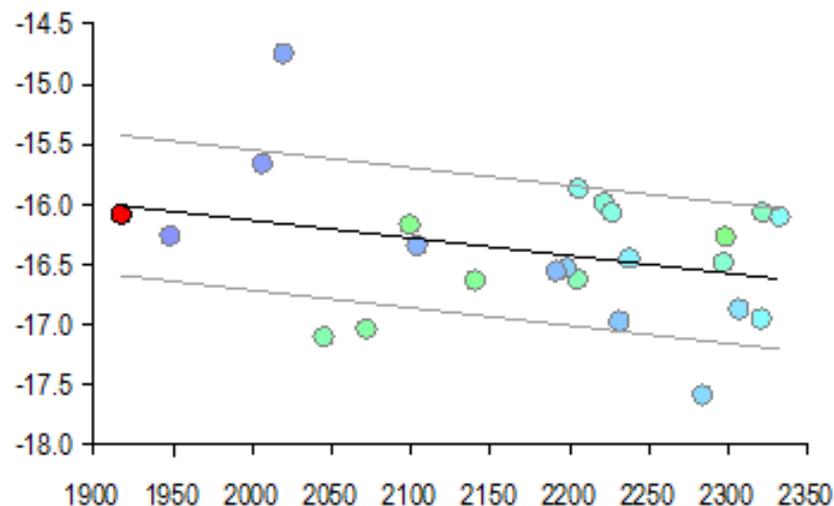
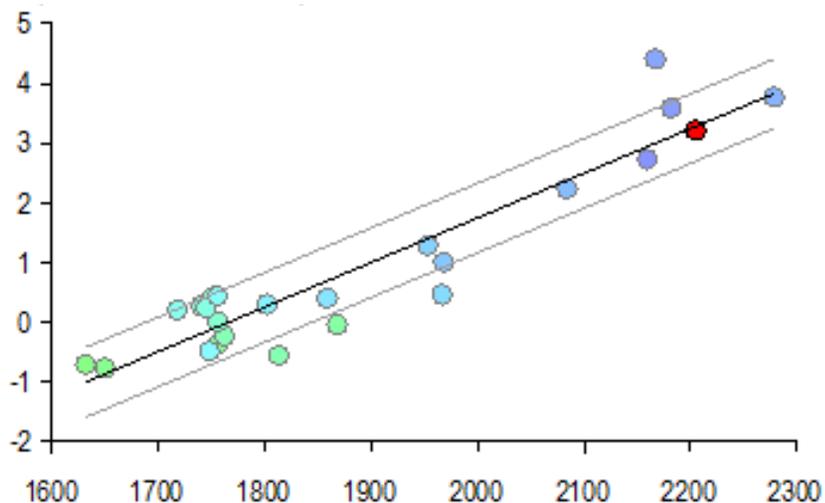
* Expected 3M IOER derived from OIS forwards

Thus far, the increase in Fed funds effective relative to IOER appears almost exclusively a bill supply story with limited impact from reserve draining

- FF-IOER spread well correlated with bill supply but largely uncorrelated with reserves

Adjusted* FF-IOER spread (bp) vs. Treasury bills outstanding (\$bn); monthly average, 9/16-9/18

Adjusted* FF-IOER spread (bp) vs. level of excess reserves (\$bn); monthly average, 9/16-9/18



* Partial regression plot where adjusted FF-IOER spread defined as $FF-IOER + 0.0015 * \text{Excess reserves} + 51.5 * \text{IOER-target midpoint}$

* Partial regression plot where adjusted FF-IOER spread defined as $FF-IOER - 0.008 * \text{Bills outstanding} + 51.5 * \text{IOER Target} - \text{midpoint}$

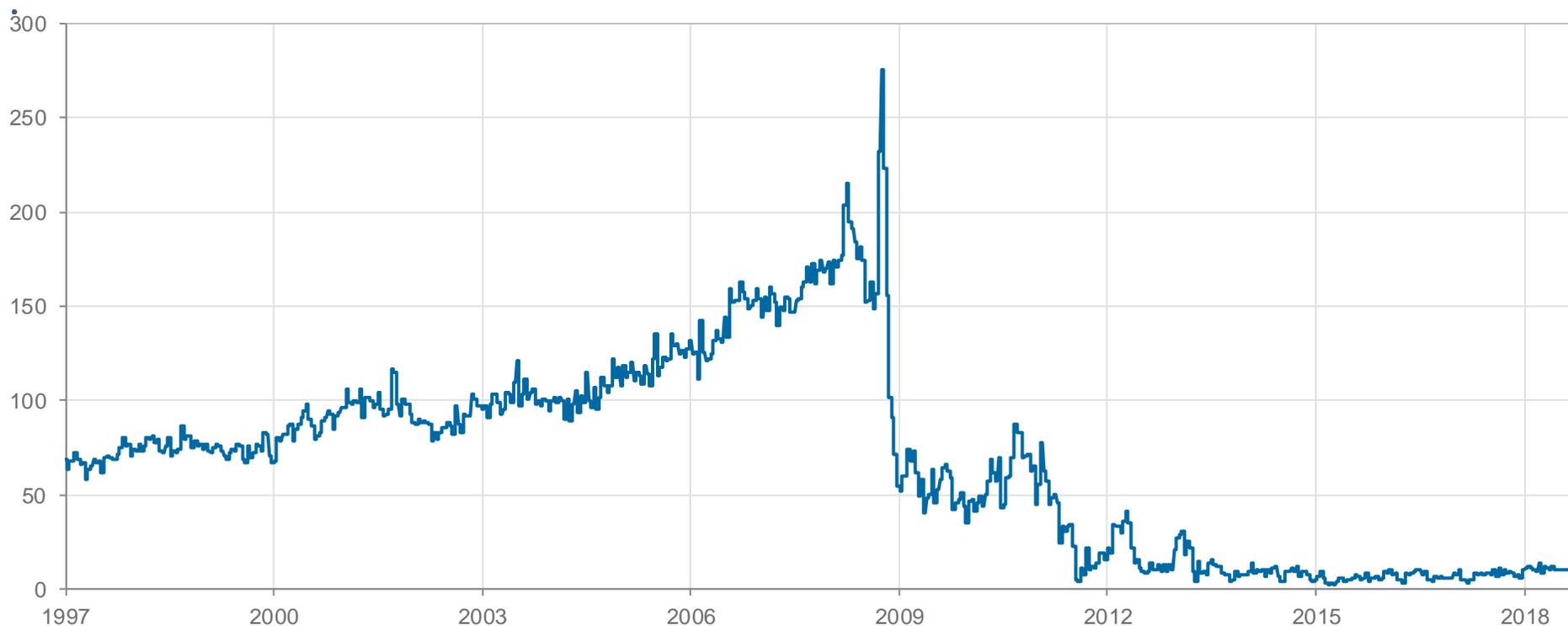
FF-IOER regression model; 9/16-9/18

Variable	Coefficient	T-stat
Intercept	-13.19	-3.32
Treasury bills outstanding	0.0075	8.88
Excess reserves	-0.0015	-0.99
IOER-target midpoint	-51.45	-4.47
R ² : 0.939		SER: 0.583

Intra-day liquidity requirements rather than LCR will determine the need for reserves

- Larger start-of-day reserve balances have reduced the volume of peak overdrafts
- Reduced risk of overdrafts has also reduced payment delays (throttling) by participants resulting in shorter timeframes during which participants carry a net debit intra-day

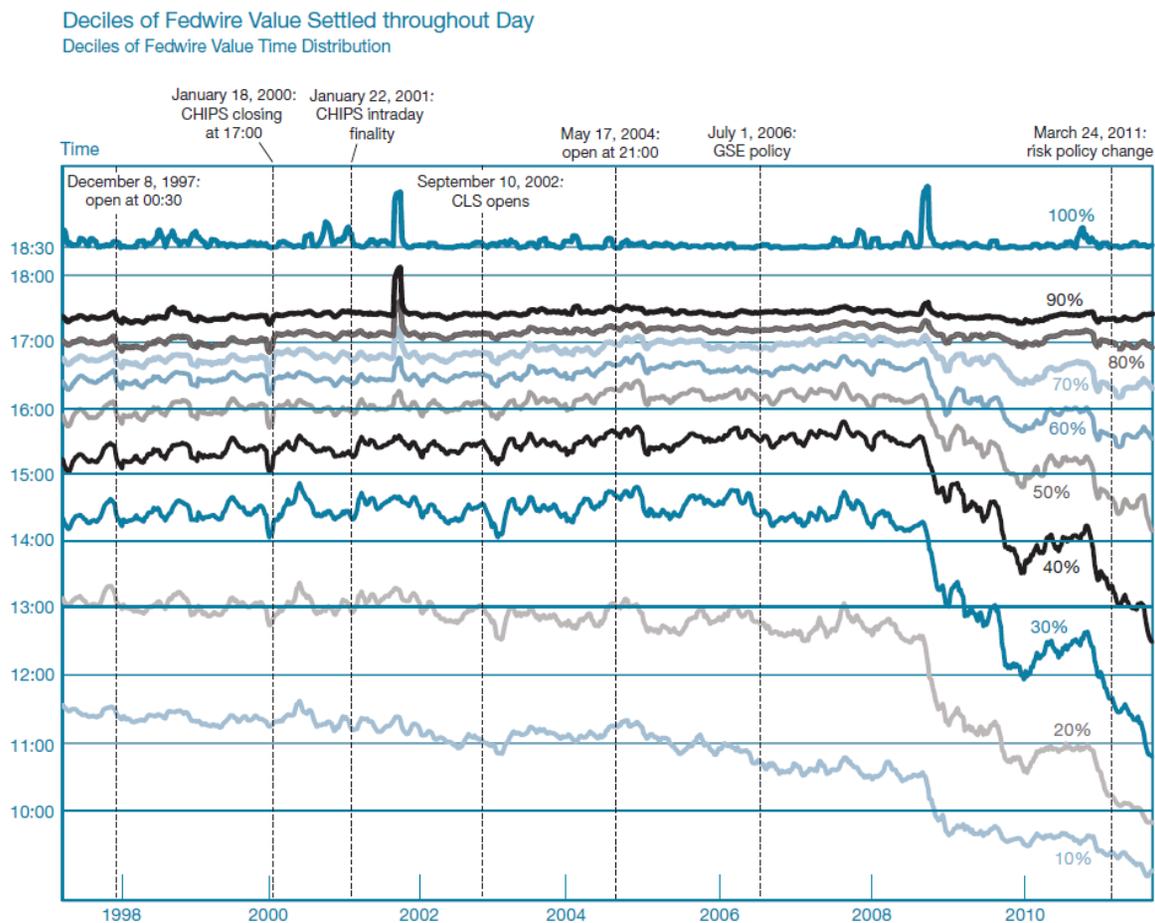
Peak daylight overdrafts (\$bn)



Source: Federal Reserve

The abundance of reserves is evident in the high fraction of payments made early in the day

- Research by Bech, Martin, and McAndrews highlights reduced throttling of payments and improved payments liquidity from more abundant reserves
- One sign that reserves are becoming scarce is an increase in the fraction of payments made late in the day



Source: Bech, Martin, and McAndrews, Settlement Liquidity and Monetary Policy Implementation – Lessons from the Financial Crisis, FRBNY Economic Policy Review, Vol. 18, No.1, 2012

When will reserves become scarce? Three stages still ahead of us

■ **Excess collateral dominates excess reserves**

- Rising Treasury supply places upward pressure on Treasury bill yields, fed funds effective, and other short term rates relative to the target range

■ **Reserves become more abundant**

- As bill yields exceed IOER, banks are incented to replace reserves with non-reserve HQLA
- This flattens the distribution of reserves in the banking system effectively making reserves more abundant
- Increased opportunity costs of reserves also creates incentives for banks to become more efficient in the management of reserves
- Bank demand for non-reserve HQLA should cause money market rates to stabilize relative to the target range despite ongoing Treasury supply increases and reserve declines

■ **Reserves become scarce driven by intra-day liquidity needs**

- Scarcity of reserves shifts the distribution of payments to later in the day making the payment system less efficient
- Daylight overdrafts increase
- Fed funds volumes increase driven by domestic banks borrowing above IOER
- Difficult to predict what level this will occur at, but we expect reserves can fall well below \$1 tn before reaching the steep segment of the reserve demand curve