Treasury Borrowing Advisory Committee

Charge: What are the implications of the current abundant reserve environment for Treasury issuance? Are there significant differences between the current abundant reserve environment compared to previous periods of abundant reserves that Treasury should consider? How does an abundant reserve environment affect private demand for Treasuries at different maturities?

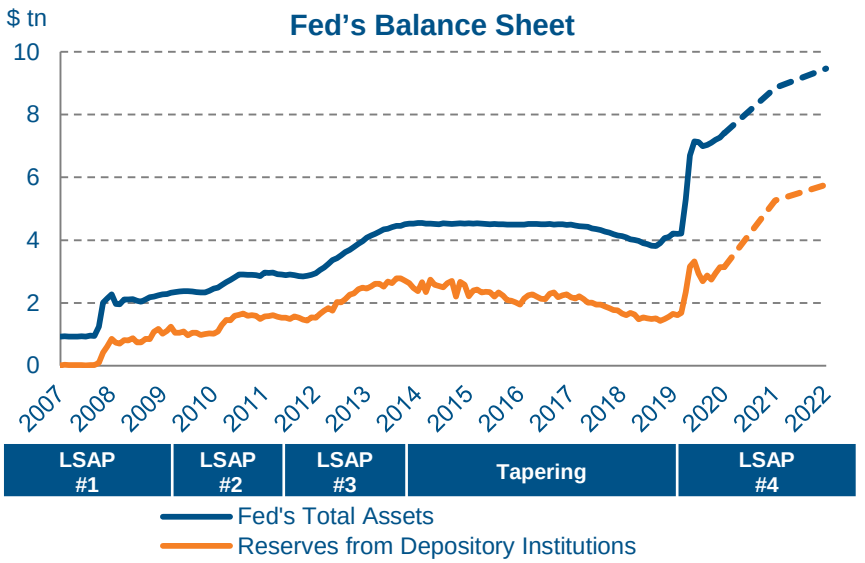
February 2, 2021

Executive Summary

- Large scale asset purchases (LSAPs) by the Fed, and in turn reserve creation, have contributed to a favorable backdrop for Treasury issuance
- Reserves are projected to increase sharply in 2021 driven by the continuation of the LSAPs and reduction in the Treasury General Account (TGA) balance
- Reserve creation leads to deposit growth in the banking system which, in turn, leads to increased bank demand for Treasuries
- The current period of reserve creation is resulting in a build-up of excess liquidity on bank balance sheets; it also coincides with a period of historically low yields and credit spreads
- We project sharp increases in bank securities purchases with a significant portion in short to intermediate Treasuries
- Reserve growth should also be supportive of non-bank private sector demand for Treasuries
- Notably, continued growth in reserves is likely to bolster money market fund balances and lead to increased demand for T-bills
- However, continued growth in reserves negatively impacts Tier 1 Leverage, SLR, and GSIB surcharge calculations and could constrain bank balance sheet capacity for repo and Treasury inventory

Reserve balances at the Fed are set to increase sharply over the next two years

- Continued asset purchases by the Fed will lead to significant additional growth in reserve balances
- The Treasury General Account (TGA) is likely to decline from its current elevated level and will result in an increase in reserve balances
- Historically the TGA balance has been much smaller and we assume that it reverts to $800 bn by the end of 2021 as suggested by previous Treasury borrowing estimate announcements
- LSAPs are projected to continue at current pace in 2021 before tapering in 2022
- Finally, we assume currency grows at the rate of nominal GDP in 2021 and 2022
- **In the median scenario, we project reserve balances to increase by over $2.1 tn in 2021 and by about $500 bn in 2022**



Projected Federal Reserve Balance Sheet

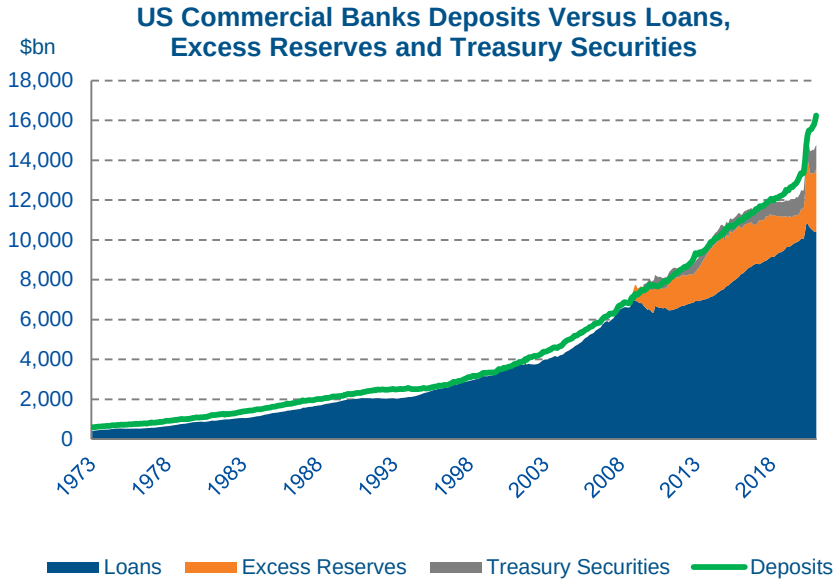
			Year-over-Year Change					
	Actual Levels		Median		25th Percentile		75th Percentile	
$bn	2019	2020	2021	2022	2021	2022	2021	2022
Total Assets	**4,214**	**7,411**	**1,441**	**618**	**1,191**	**203**	**1,442**	**925**
Treasury	2,329	4,689	960	465	823	180	960	623
MBS	1,420	2,039	481	153	368	23	482	302
Other	465	683						
Total Liabilities	**4,214**	**7,411**	**1,441**	**618**	**1,191**	**203**	**1,442**	**925**
Currency	1,802	2,087	129	122	129	122	129	122
TGA	352	1,614	(814)		-814		(814)	
Other	411	568						
Reserve Balance	1,648	3,143	2,125	496	1,875	81	2,126	803

Asset Growth: Based on Federal Reserve Bank of New York's Survey of Primary Dealers
TGA: Shrinks to $800bn per Treasury guidance
Currency growth: Follows Bloomberg Economist Survey Nominal GDP growth of 6.2% in 2021 and 5.5% in 2022

Sources: Federal Reserve (H.4.1), Federal Reserve Bank of New York's Survey of Primary Dealers, Bloomberg Economist Survey (top chart and bottom table)

Reserve creation by the Fed has contributed to a significant increase in deposits in the banking system

- Large scale asset purchases (LSAPs) by the Fed are funded by creating reserves
- When the Fed purchases a security from a non-bank private sector entity it results in the creation of a bank deposit
- When banks make loans or purchase Treasuries it also results in the creation of bank deposits; deploying reserves into loans or Treasuries has a multiplier effect on deposit creation
- Past periods of reserve creation have resulted in large increases in bank deposits
- Until 2007, deposits in the banking system had increased in line with loans. Since the inception of LSAPs, deposit growth has consistently and significantly outpaced the rate of loan growth
- Furthermore, these deposits in recent years have tended to be sticky and have largely stayed in the banking system
- In the median scenario, **we project about $2.6 tn of increases in deposits in the US banking system**



Projected Reserve Increases Lead to Deposit Growth

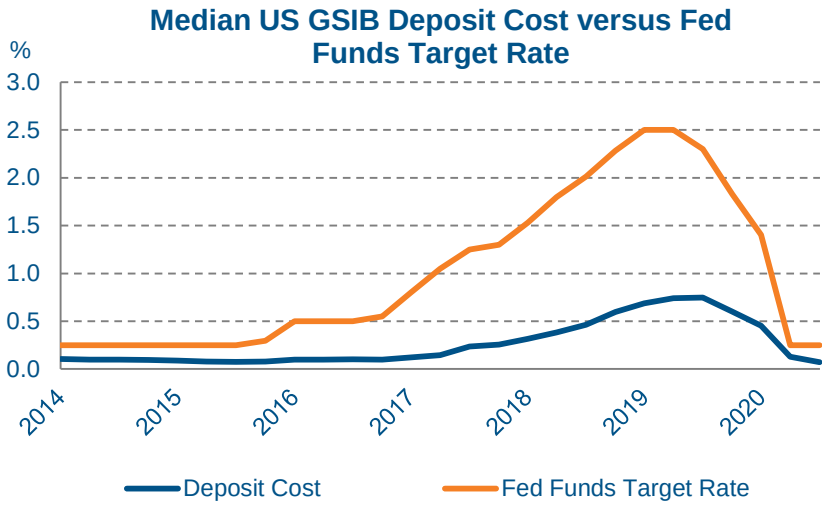
			Year-over-Year Change					
	Actual Levels		Median		25th Percentile		75th Percentile	
$bn	2019	2020	2021	2022	2021	2022	2021	2022
Federal Reserve Balance Sheet								
Reserve Balance	1,648	3,143	2,125	496	1,875	81	2,126	803
US Commercial Bank Balance Sheets								
Deposits	13,350	16,238	2,125	496	1,875	81	2,126	803

* Beta of 1 used. Refer to Appendix for regression analysis supporting relationship

Sources: Federal Reserve (H.3, H.4.1, H.6, H.8) (top chart and bottom table)

Rapid deposit growth in the banking system is likely to create demand for duration

- Bank deposits are liabilities and typically add negative duration to the balance sheet
- Banks typically hedge the duration risk associated with deposits by buying/originating fixed rate assets or via the use of derivatives
- Deposits created in a period of increasing reserves tend to be large institutional deposits ("non-core"); these deposits tend to exhibit higher run-off rates and greater re-pricing sensitivity to rate changes than traditional retail deposits and hence have a shorter duration
- There are significant differences in modeled duration for different deposit cohorts; traditional retail deposits durations range from 3 to 7-years while "non-core" deposit durations are about 2-years
- Estimates of deposit duration vary significantly across banking institutions and therefore we estimate demand under different duration assumptions
- **Using a 2-year duration estimate, we project demand of $1.3 to $2.0 tn in 3-year equivalents**



Projected 3-year Equivalents Demand ($bn)

Deposit Duration	Median (2021 & 2022)	25th Percentile (2021 & 2022)	75th Percentile (2021 & 2022)
1 years	880	656	983
2 years	1,759	1,313	1,965
3 years	2,639	1,969	2,948

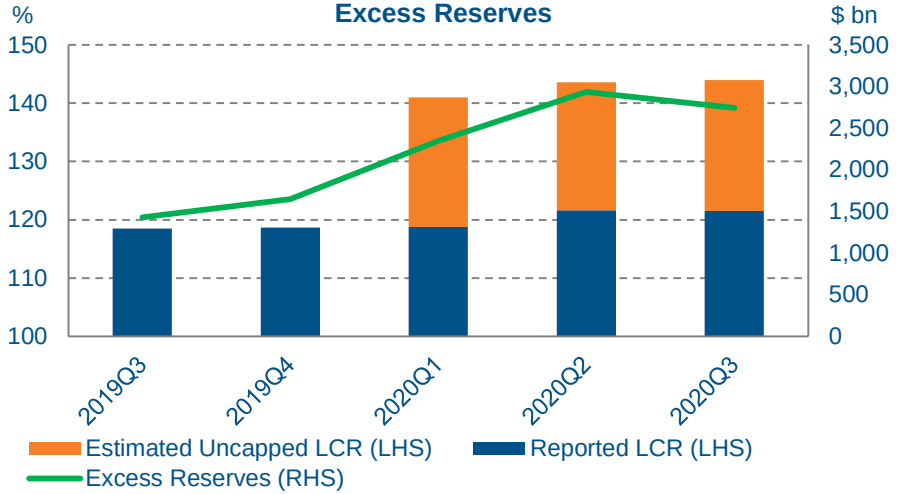
* 3-year duration = 2.98

Sources: SNL and Bloomberg (top chart). US GSIBs include BAC, BK, C, GS, JPM, MS, STT, WFC

Key differences in this current abundant reserve period relative to prior periods

- During past LSAPs, banks were in the process of building HQLA to comply with new liquidity regulations; higher reserves at the Fed played a significant part in banks' ability to meet these requirements
- The current period of reserve creation is resulting in a build-up of excess liquidity providing banks flexibility to deploy the cash reserves into higher yielding assets
- The total amount of excess liquidity is understated in reported holding company LCR due to transferability rules between holding company and bank subsidiaries which caps the LCR benefit of excess liquidity held at the bank
- We estimate that bank HQLA has grown $1.2 tn since 2019Q3 which equates to an "uncapped" LCR of 144% highlighting the amount of liquidity available to banks
- The current period of reserve creation coincides with historically low term and credit risk premiums

Reported and Estimated Uncapped LCR* versus Excess Reserves



* Uncapped LCR is estimated by adding the quarterly change in estimated bank HQLA from call reports to the 2019Q3 BHC Reported HQLA divided by the BHC Reported NCOs. More details can be found in the Appendix

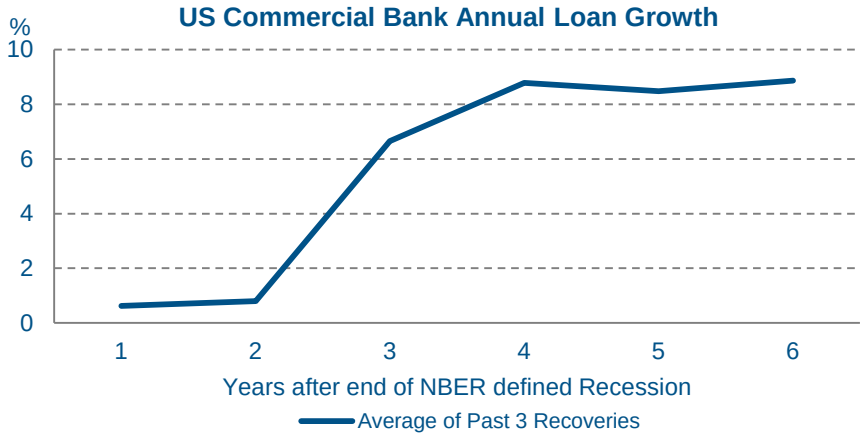
Average Term Premium and JULI Spread in Reserve Periods

	10Y ACM Term Premium (%)	JULI Spread to Treasury (bps)
9/30/2008 – 12/31/2011	2.21	255
1/31/2012 – 8/31/2014	1.14	163
10/31/2019 – 12/31/2020	(0.66)	175

Sources: Bank LCR Disclosures and SNL (top chart), Bloomberg and JP Morgan (bottom table)

Tepid loan growth and asset sensitive balance sheets will likely require banks increase securities portfolios

- Loan growth has historically been slow in the first couple of years of an economic recovery
- We expect loan growth to be tepid in 2021 and loan balances to increase only modestly
- Slow loan growth would further support bank demand for securities given the lack of investment opportunities and amount of excess liquidity
- Record low interest rates combined with strong deposit growth has resulted in bank balance sheets becoming very asset sensitive and creating demand for duration
- Banks have historically owned Treasuries in the short-to-intermediate part of the curve; aggregated US GSIB Treasury holdings show that over 75% have a maturity of less than 5 years



US GSIB Weighted Average NII Sensitivity: % Change over the Next 12 Months

	2020Q3	2017Q4	2007Q4	2006Q4	2005Q4
Instantaneous +100 bps	13.4	5.7	-1.7	-2.8	-0.8
Gradual +100 bps	12.2	3.3	-1.0	-1.2	-0.4
Gradual +200 bps	16.1	2.9	3.6	NA	NA

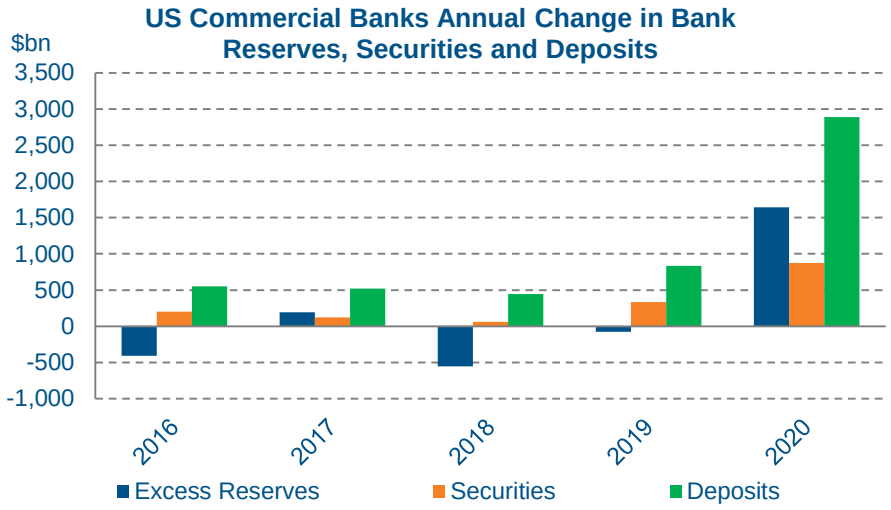
US GSIB Holdings of US Treasury & Government Agencies: Contractual Maturity Distribution (% of Carrying Value)

As of: 9/30/2020	<= 1 Year	>1 Year; <= 5 Years	>5 Years; <= 10 Years	> 10 Years	Estimated WAL (years)
Estimated Total WAL (years)	0.5	3.0	7.5	12.0	3.6
Total (%)	21.9	55.6	19.5	3.1	100.0
Total ($bn)	155.4	394.7	138.6	21.7	710.3

Sources: Federal Reserve (H.8) and National Bureau of Economic Research (top chart), US GSIB 10Ks/10Qs (tables)

We expect banks to increase securities purchases in 2021 which could be an important source of demand for Treasuries

- Banks have accelerated the pace at which they added securities in 2020, but cash reserves are still at record levels and expected to grow sharply in 2021 and 2022
- We expect steady growth in banks' securities portfolios with accelerated purchases if rates rise
- Overall, we project incremental bank demand for fixed income assets to increase by about $1.8 tn over the next two years
- Given historically tight credit spreads, we expect private label securities to remain a small portion of these securities purchases
- With low term premiums and yield levels, and given banks' preferred habitat, **we expect most of the incremental bank demand for duration to materialize in short and intermediate Treasuries**
- Balance sheet flexibility may also provide increased demand for short-dated Treasuries and Treasury asset swaps which will help keep swap spreads stable despite significant expected increases in net issuance



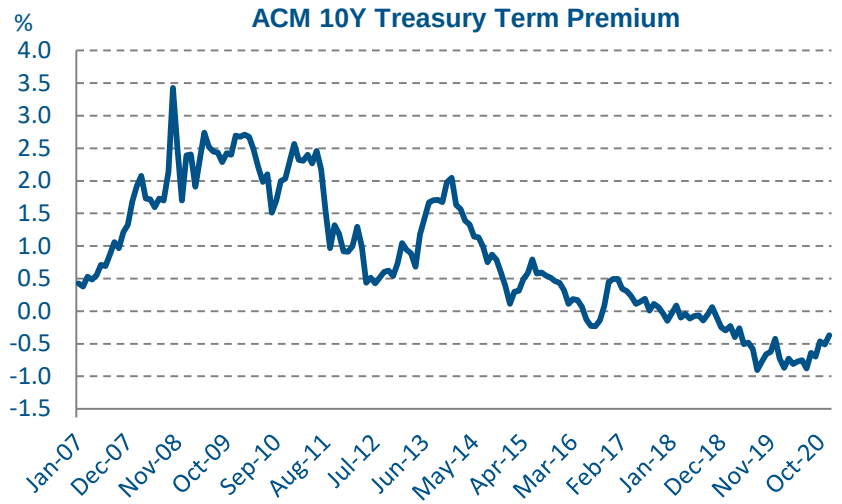
Bank HQLA/Securities Matrix

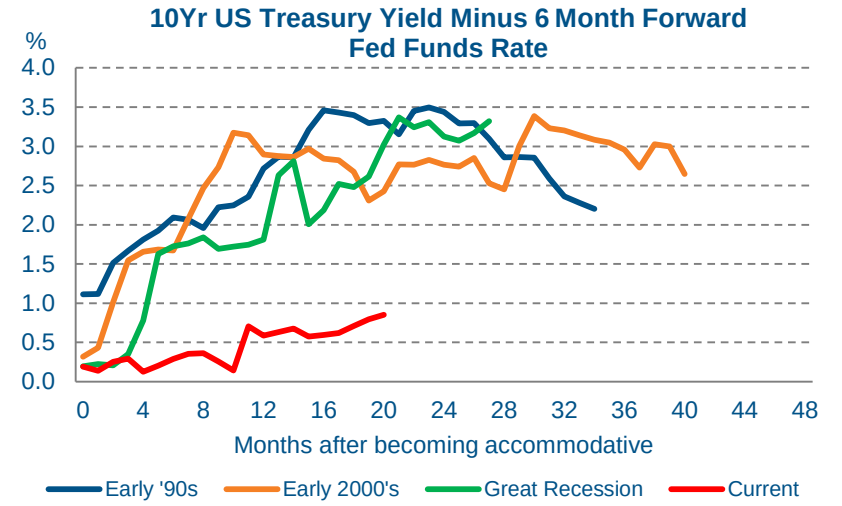
Asset Type	Liquidity/ HQLA	Duration	Yield/Income
Central Bank Balances	Highest	Zero	Low
T-bills/Reverse Repos	Very High	Very Low	Low
Treasury asset swaps	High	Zero	Low/Medium
T-notes	High	Low/Medium/High	Low/Medium
Agency MBS	High	Medium	Medium
Private Label	Low	Medium	Medium

Sources: Federal Reserve (H.3, H.6, H.8) (top chart)

Reserve growth is also consistent with increased non-bank private demand

- Non-bank private demand for Treasuries is affected by LSAPs, which are the mechanism that drives reserve creation. Money manager portfolios are liquefied by selling Treasury holdings to the Fed, and they may seek to redeploy those available funds into Treasuries or other fixed income sectors
- While multi-asset managers can reallocate LSAP proceeds to a wider range of assets, government bond portfolio managers, including passive index funds, will likely reinvest across the Treasury curve due to their investment criteria
- This persistent demand, and the increased interest in purchasing Treasuries if yields move higher, could be contributing to the low level of the term premium. The term premium often increases during a recession and early into an economic recovery, but it has remained well below historical norms despite heavy increases in the issuance calendar
- **The abundant reserves environment may be helping to keep term premiums low despite heavy issuance**

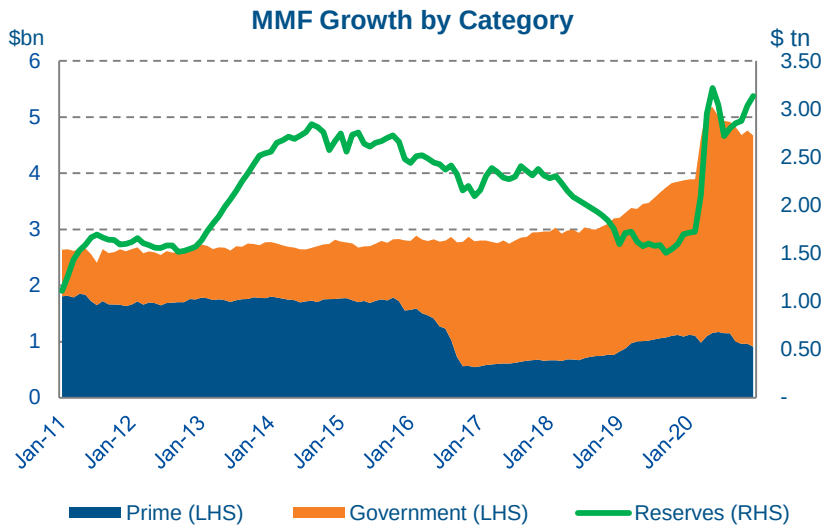


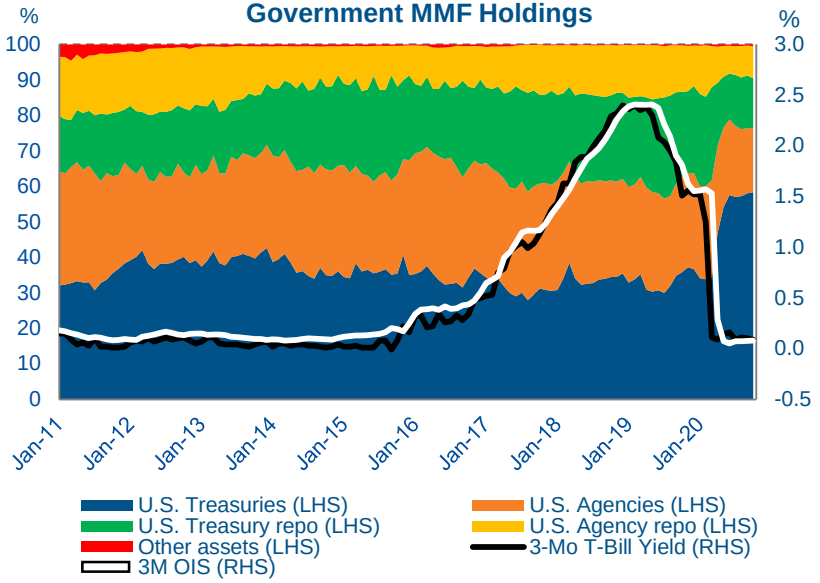


Sources: Federal Reserve Bank of New York (top chart), Bloomberg, JP Morgan, Federal Reserve Bank of New York (bottom chart). Policy is defined as accommodative when the 6M Forward Fed Funds Rate minus Core PCE Inflation is less than the Laubach-Williams One-sided Estimate of the Natural Rate of Interest

A rising reserve environment bolsters growth in money market funds, leading to increased T-bill demand

- In a period of rapid reserve growth, some of the banking system liquidity is likely to migrate to money market fund (MMF) balances as depositors / cash managers diversify their short-term liquidity portfolios
- Money market fund investments must remain on the short end of the curve, and in recent years most of the asset growth has come in T-bills
- Government and Prime MMF's allocation to T-bills has increased to more than 50%. MMFs now own ~40% of T-bills outstanding, up from 15% a few years ago
- Increased flows to MMFs and their increased allocation to T-bills has driven T-bill yields lower
- Potential negative T-bill yields driven by an increase in demand could create challenges for MMFs from a business model perspective

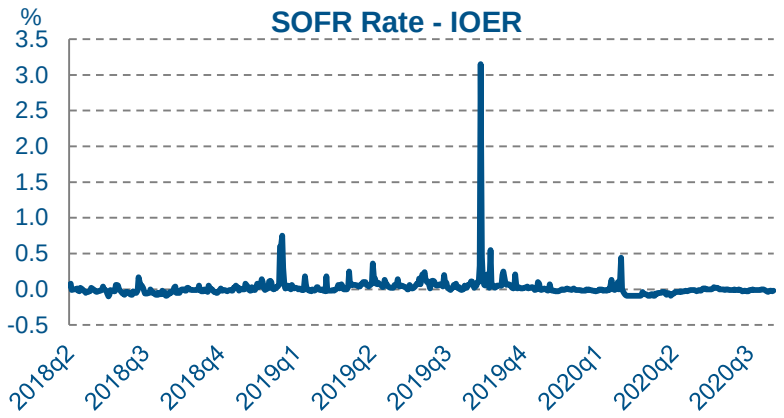


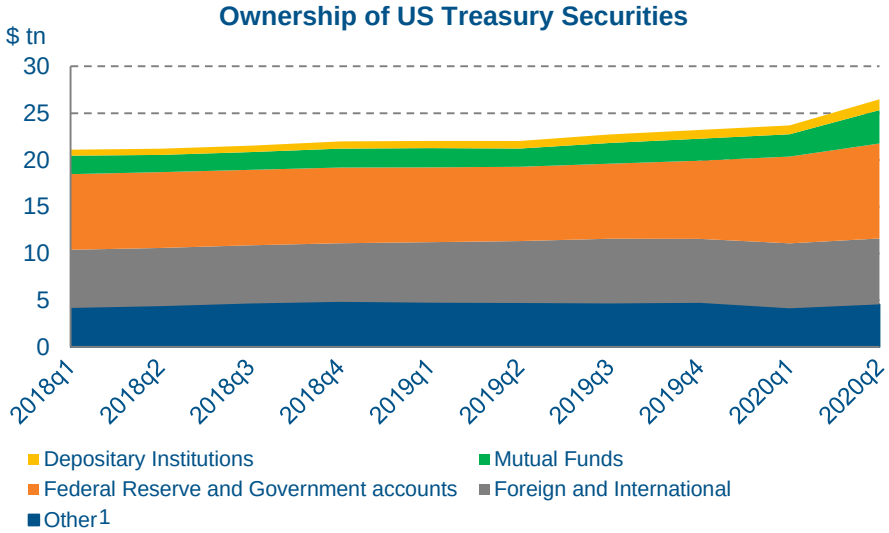


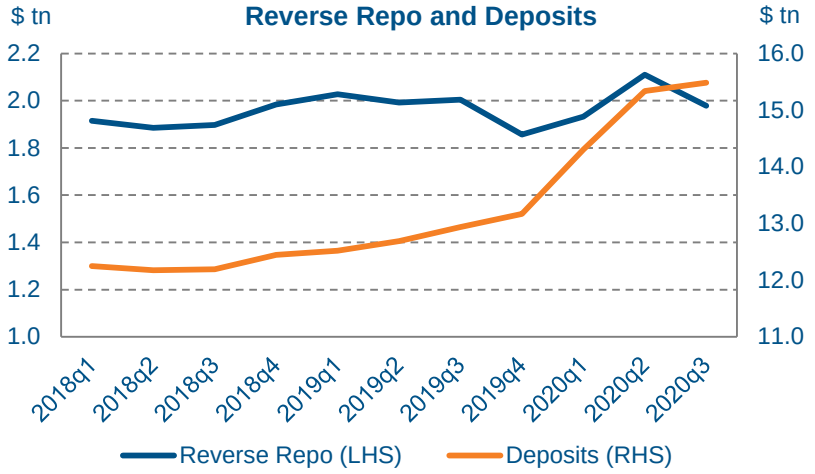
Sources: Office of Financial Research and Factors Affecting Reserve Balances - H.4.1 (left chart), Federal Reserve Money Market Funds: Investment Holdings Detail and Bloomberg (right chart)

Abundant reserves and deposits support repo financing of growing Treasury supply, given current bank balance sheet capacity

- Current deposit and repo market capacity reliably supports financing needs across US Treasury ownership sectors
- Short-term disruption in repo market was initially supported by the Federal Reserve's 3/12/20 announcement of asset purchases and term repo operations to address temporary market disruptions. The subsequent LSAPs ultimately increased bank liquidity creating capacity for repo and Treasury purchases



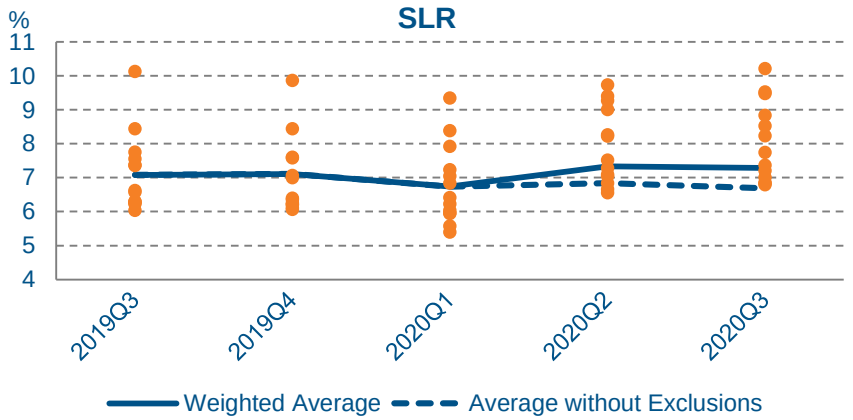




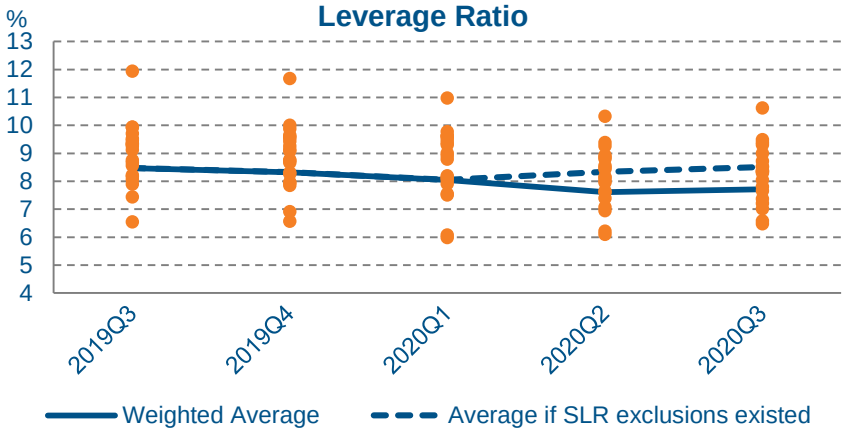
1) Other Includes individuals, GSE, brokers and dealers, bank personal trusts and estates, businesses, pension funds, insurance companies, US saving bonds, state and local governments and other investors.
Sources: Bloomberg (top right), Federal Reserve Bank of New York, Research and Statistics Group, "Quarterly Trends for Consolidated U.S. Banking Organizations" (bottom right). Treasury Bulletin (bottom left)

Increased reserves are putting pressure on bank capital ratios which could reduce capacity for deposits and repos in the future

- Temporary exclusion of US Treasuries and deposits at Federal Reserve Banks from SLR calculations is scheduled to expire on March 31st
- Without this, SLR ratios are expected to drop by ~ 60 bps in Q3 2020 despite capital growth from curtailment of buybacks



- Excluding US Treasuries and deposits at Federal Reserve Banks would have improved the Leverage ratio by approx. ~ 80 bps in Q3 2020



- **G-SIB Surcharge impact driven by reserve and related deposit growth**

G-SIB Bank	Q3 2020	Potential to increase in 2022
JP Morgan Chase	3.50%	✓
Citigroup	3.00%	✓
BNY Mellon	1.50%	✓
Morgan Stanley	3.00%	×
Goldman Sachs	2.50%	✓
Bank of America	2.50%	✓
Wells Fargo	2.00%	×
State Street	1.00%	✓

- Reserves were significantly lower when capital rules and surcharges were calibrated.
- If SLR, Tier 1 Leverage, and CET1 capital ratio requirements become binding driven by reserve growth, banks will be required to issue debt and/or retain higher equity to maintain regulatory compliance.
- As a result, balance sheet availability for deposit growth and repo financing becomes increasingly expensive
- We expect these costs would be passed on to depositors and repo counterparts

Sources: SNL- sample includes 5 largest Money Centers, 3 largest Custody Banks and 12 Regional Banks (top right and left charts), Barclays Research (bottom left table)

Conclusions

- Reserve balances at the Fed, which are already historically high, are likely to grow sharply over the next two years
- The abundant reserves contribute to a favorable environment to absorb Treasury issuance
- Reserve creation is likely to drive strong bank demand for Treasuries
- We expect most of the bank demand to materialize in the short and intermediate part of the curve
- Abundant reserve balances have led to growth in money market funds and in turn increased demand for T-bills
- A sharp reduction in TGA balances accompanied by a reduction in T-bill issuance may result in lower T-bill yields
- Continued growth in reserves may constrain bank balance sheet capacity as leverage and capital ratios approach regulatory minima

Appendix

Bank guidance and commentary indicates caution on incremental investment risk

- In the Sep 2020, Senior Financial Officer Survey[1], which aggregates responses of 80 banks representing 75% of total reserve balances. Referring to the elevated levels of reserves during Q2 2020, Bank officials noted:
  - Banks hold high reserve balances to be prepared for potential drawdowns on committed credit lines or a desire to conduct asset/liability matching, given a large inflow of deposits with potentially high runoff rates or both
  - Second most important driver of reserve accumulation is a lack of attractive alternative investment opportunities
  - Domestic survey respondents expect a decrease in their reserve levels relative to August 2020 citing: Concerns over Net Interest Margin, increase in the expected return on alternative HQLA vs IOER
  - Actions cited to reduce reserves: On the asset side, increase securities portfolio, both non-HQLA and HQLA. On the liabilities side, allow wholesale funding to mature without replacing it.

- During Q4 2020 Earnings[2] Bank executives commented on how they expect to deploy liquidity:
  - Referring to excess liquidity, JP Morgan said “the theme is we're being opportunistic but patient […] And as we think about managing the balance sheet, it's not just about NII. Of course, it's about capital. And so, there is risk in adding duration at these levels in a further sell-off. So, we're being very patient.”
  - Citigroup said “We intend to continue to grow as it relates to increasing those deposits. And we've been smart about how we've been managing our liquidity, keeping some liquidity obviously there for lending needs [..] but also paying down wholesale debt. We did that through the year and also investing”
  - State Street said “We will be opportunistic from here, regarding the deployment of cash and the expansion of our investment portfolio, but we also need to be mindful of currently tight credit spreads and the potential for OCI risk from interest rate changes”
  - Bank of America said “the balance sheet expanded $81 billion versus Q3 to $2.8 trillion in total assets. The main point is that deposits are driving and funding substantially all of this growth. Deposits grew $93 billion in the quarter and are up $361 billion from Q4 '19. On the other hand, loans declined from Q3, with deposits up loans down excess liquidity is piling up in our cash and securities portfolios”

1) https://www.federalreserve.gov/data/sfos/files/senior-financial-officer-survey-202009.pdf
2) Transcripts sourced from Bloomberg

Balance Sheet of Commercial Banks in the United States

Federal Reserve Balance Sheet ($bn)	2000	2005	2007	2009	2012	2014	2017	2018	2019	2020	13yr chg	1yr chg
Excess Reserves	**1**	**2**	**2**	**1,075**	**1,459**	**2,524**	**2,121**	**1,568**	**1,491**	**3,135**	**3,133**	**1,644**
Assets and Liabilities of Commercial Banks in the United States ($bn)												
Total Assets	**6,136**	**8,814**	**10,883**	**11,776**	**13,140**	**15,050**	**16,789**	**17,050**	**17,856**	**20,648**	**9,765**	**2,793**
Cash incl. Central Bank Balances	306	336	325	1,233	1,696	2,797	2,407	1,916	1,784	3,228	2,903	1,443
Securities	1,183	1,840	2,090	2,324	2,743	2,944	3,447	3,509	3,842	4,715	2,625	873
Treasury & Agency Securities	790	1,144	1,128	1,448	1,879	2,050	2,535	2,677	3,014	3,750	2,622	736
MBS				1,006	1,347	1,403	1,822	1,878	2,084	2,529	2,529	446
Non-MBS				442	532	647	713	799	930	1,220	1,220	290
Other Securities	393	695	962	876	864	894	912	832	828	965	3	137
Loans	3,710	5,232	6,493	6,482	6,932	7,644	9,150	9,623	10,080	10,417	3,924	338
Other Assets	938	1,406	1,975	1,737	1,769	1,664	1,785	2,002	2,150	2,289	313	138
Total Liabilities	**5,613**	**7,929**	**9,753**	**10,465**	**11,638**	**13,428**	**14,941**	**15,159**	**15,879**	**18,665**	**8,912**	**2,786**
Deposits	3,764	5,625	6,720	7,758	9,335	10,550	12,074	12,517	13,350	16,238	9,517	2,888
Borrowings	1,186	1,635	2,122	1,893	1,535	1,757	2,081	1,946	1,967	1,688	(435)	(279)
Other Liabilities	664	669	910	814	767	1,121	787	697	562	739	(171)	178
Equity	**523**	**884**	**1,130**	**1,311**	**1,502**	**1,621**	**1,848**	**1,890**	**1,977**	**1,984**	**853**	**7**
HQLA Eligible Assets*	1,096	1,480	1,453	2,680	3,575	4,847	4,943	4,593	4,798	6,977	5,524	2,179
Deposits – Loans	54	393	227	1,275	2,403	2,905	2,924	2,894	3,271	5,820	5,593	2,550
Deposits – Loans – Treasury**				833	1,871	2,258	2,211	2,095	2,341	4,600		2,259
Nominal GDP***	10,439	13,332	14,682	14,628	16,359	17,850	19,938	20,910	21,747	21,157	6,476	(590)
Ratios (%)												
Loans/Deposits	98.6%	93.0%	96.6%	83.6%	74.3%	72.5%	75.8%	76.9%	75.5%	64.2%	-32.5%	-11.3%
Cash/Total Assets	5.0%	3.8%	3.0%	10.5%	12.9%	18.6%	14.3%	11.2%	10.0%	15.6%	12.6%	5.6%
Treasury+Agency/Total Assets	12.9%	13.0%	10.4%	12.3%	14.3%	13.6%	15.1%	15.7%	16.9%	18.2%	7.8%	1.3%
Treasury/Total Assets				3.8%	4.0%	4.3%	4.2%	4.7%	5.2%	5.9%	5.9%	0.7%
Treasury+Agency/Total Securities	66.8%	62.2%	54.0%	62.3%	68.5%	69.6%	73.6%	76.3%	78.5%	79.5%	25.6%	1.1%
Treasury/Total Securities				19.0%	19.4%	22.0%	20.7%	22.8%	24.2%	25.9%	25.9%	1.7%

* HQLA Eligible Assets include Cash and Treasury and Agency Securities

** Non-MBS Treasury and Agency Securities used as proxy for Treasury Securities

*** GDP is only updated through 2020Q3

Sources: Federal Reserve (H.3, H.6, H.8)

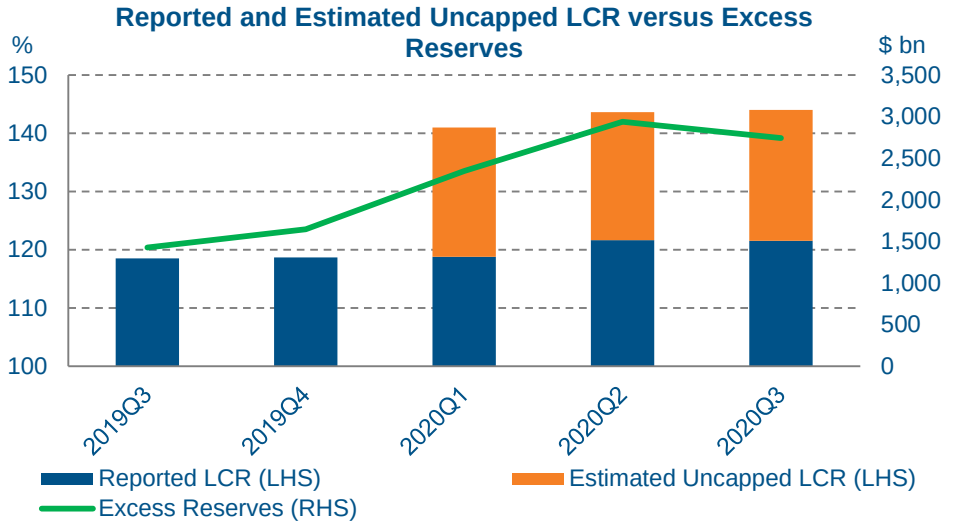
Structural liquidity increased with reserves despite stable reported LCR

- Reported holding company HQLA has increased significantly less than reserves due to transferability rules between holding company and bank subsidiaries
  - Excess liquidity in bank subsidiaries above their standalone LCR requirement are excluded from the holding company HQLA per LCR rules
- This has resulted in a large amount of "capped" liquidity in bank subsidiaries leading to the reported LCR understating the total amount of liquidity
- HQLA eligible assets on bank subsidiary balance sheets are estimated to have grown by $1.2 tn between 2019Q3 and 2020Q3, in line with the growth in reserves
- We estimate that the "uncapped" HQLA has grown in line with bank HQLA eligible assets and reserves. The "uncapped" LCR is estimated at 144% highlighting the total amount of liquidity available to banks

($bn)	2019Q3	2019Q4	2020Q1	2020Q2	2020Q3	Change
Federal Reserves	**1,427**	**1,648**	**2,348**	**2,938**	**2,743**	**1,316**
Reported BHC HQLA	**2,582**	**2,648**	**2,711**	**3,068**	**3,157**	**575**
Reported BHC NCO	2,179	2,231	2,282	2,522	2,598	419
Reported BHC LCR (%)	**118.5**	**118.7**	**118.8**	**121.6**	**121.5**	**3.0**
Reported BHC Liquidity Surplus	403	417	429	546	559	156
Estimated Bank HQLA*	**2,492**	**2,555**	**3,128**	**3,531**	**3,651**	**1,159**
QoQ Change		64	572	403	119	
Estimated Uncapped HQLA**	**2,582**	**2,646**	**3,218**	**3,621**	**3,741**	**1,159**
Reported BHC NCO	2,179	2,231	2,282	2,522	2,598	419
Estimated Uncapped LCR (%)	**118.5**	**118.6**	**141.0**	**143.6**	**144.0**	**25.5**
Uncapped Liquidity Surplus	403	414	936	1,100	1,143	740

* Estimated using Federal Reserve Balance, Balance due from Foreign Banks, US Treasury and Agency MBS from Call Report. Does not include Foreign Gov't securities or impact of pledges

** Estimated by applying quarterly change in Estimated Bank HQLA to 2019Q3 Reported HQLA



Sources: SNL, Federal Reserve (H.3, H.6). Banks include BAC, BK, COF, C, GS, JPM, MS, NTRS, PNC, STT, USB, WFC

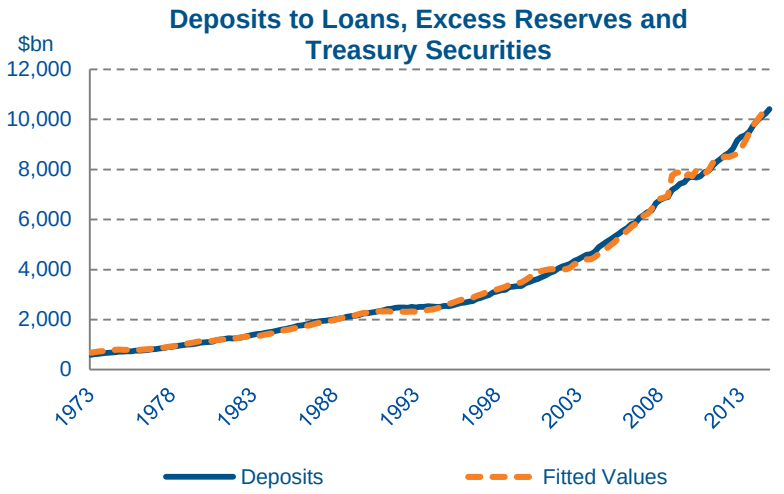
Details on regression statistics for drivers of total Commercial Bank deposits

- **Dependent variable**: Total commercial bank deposits in the US (*Deposits*)
- **Independent variables**: Total loans and leases at commercial banks in the US (*Loans*) and total reserves had at the Federal Reserve (*FRB Reserves*)
- Regression fitted on level values over the time horizon of 1973 to 2014 to capture the impact of reserve growth on deposit growth during periods where the Fed's balance sheet was increasing
- Coefficients robust to changes in sample horizon
- Data in the regression is quarterly and the units are billions. Quarterly series derived by taking the average of the underlying monthly values within each quarter

Regression Statistics

Dependent Variable: Deposits	
Intercept	238.731***
Loans	0.996***
FRB Reserves	0.986***
R^2	0.997
Freq.	Quarterly
Sample	1973Q1-2014Q4
*** p-value<0.01; ** p-value<0.05	

Dependent variable is total commercial bank deposits held by commercial banks. Regressors include total commercial bank loans and total FRB reserves. All data in billions



Sources: Federal Reserve (H.3, H.6, H.8)

Federal Reserve Bank of New York's Survey of Primary Dealers: LSAP Projections

Net Purchases of U.S. Treasury securities ($bn)												
	Dec 2020	Jan 2021	Feb 2021	Mar 2021	Apr 2021	May 2021	June 2021	2021 H2	2022 H1	2022 H2	2023 H1	2023 H2
25th Percentile	80	80	80	80	80	80	80	343	175	5	0	0
Median	80	80	80	80	80	80	80	480	285	180	10	0
75th Percentile	80	80	80	80	80	80	80	480	383	240	120	100

Net Purchases of agency MBS ($bn)												
	Dec 2020	Jan 2021	Feb 2021	Mar 2021	Apr 2021	May 2021	June 2021	2021 H2	2022 H1	2022 H2	2023 H1	2023 H2
25th Percentile	40	40	40	40	40	40	40	128	23	0	0	0
Median	40	40	40	40	40	40	40	240	128	25	0	0
75th Percentile	40	40	40	40	40	40	40	240	191	110	50	0

Net Purchases of agency CMBS ($ millions)												
	Dec 2020	Jan 2021	Feb 2021	Mar 2021	Apr 2021	May 2021	June 2021	2021 H2	2022 H1	2022 H2	2023 H1	2023 H2
25th Percentile	26	0	0	0	0	0	0	0	0	0	0	0
Median	100	80	75	75	75	50	50	240	50	0	0	0
75th Percentile	150	125	125	125	125	125	125	750	450	225	1	0

Sources: Federal Reserve Bank of New York

US GSIBs: Cost of Deposits

Rate Paid on Interest-bearing Deposits							
	Dec-14	Dec-15	Dec-16	Dec-17	Dec-18	Dec-19	Sep-20
BAC	0.13	0.11	0.14	0.32	0.67	0.61	0.08
BK	0.03	0.01	-0.01	0.17	0.86	0.73	-0.05
C	0.58	0.54	0.58	0.77	1.27	1.20	0.34
GS	0.40	0.53	0.81	1.24	2.08	1.93	0.77
JPM	0.18	0.13	0.16	0.35	0.73	0.67	0.07
MS	0.17	0.07	0.09	0.26	1.00	0.94	0.30
STT	0.10	0.10	0.04	0.22	0.41	0.32	-0.16
WFC	0.13	0.11	0.18	0.39	0.77	0.85	0.13
Median	**0.15**	**0.11**	**0.15**	**0.34**	**0.82**	**0.79**	**0.11**

Rate Paid on Total Deposits							
	Dec-14	Dec-15	Dec-16	Dec-17	Dec-18	Dec-19	Sep-20
BAC	0.08	0.07	0.09	0.21	0.46	0.44	0.05
BK	0.02	0.01	-0.01	0.12	0.63	0.58	-0.04
C	0.46	0.42	0.44	0.61	1.04	1.01	0.29
GS	0.39	0.51	0.81	1.20	2.02	1.87	0.76
JPM	0.12	0.09	0.11	0.25	0.53	0.50	0.05
MS	-	-	0.09	0.26	1.00	0.94	0.30
STT	0.07	0.07	0.03	0.17	0.32	0.27	-0.13
WFC	0.09	0.08	0.12	0.28	0.56	0.63	0.09
Median	**0.09**	**0.08**	**0.10**	**0.26**	**0.60**	**0.60**	**0.07**

Sources: SNL and Bloomberg