Bank Capital ANALYSIS

A horizontal comparison of capital adequacy

Bank Capital Analysis Semiannual Update

By Sabrina Pellerin

The Bank Capital Analysis provides a horizontal comparison of capital adequacy among banking organizations of varying size and complexity.

As of December 31, 2021, the weighted average Supplementary Leverage Ratio (SLR), also known as the Basel III leverage ratio, for U.S. G-SIBs declined 17 basis points from June 30, 2021, to 5.76 percent, reaching the lowest level since firms have been subject to this requirement (Chart 1). While U.S. G-SIBs experienced a spike in the SLR in the latter half of 2020 and early 2021, this was primarily attributed to the Federal Reserve's temporary capital relief that permitted firms to exclude U.S. Treasury securities and deposits held at Federal Reserve Banks ("reserves") from the leverage exposure measure of the SLR.[1] This relief was designed to allow for continued financial market intermediation as balance sheets expanded due to COVID-19 relief efforts.[2] The weighted average Basel III leverage ratio across foreign G-SIBs, some of which are still reporting an exclusion of central bank deposits, increased over the period, though the ratio across European and Canadian G-SIBs remains lower than that of U.S. G-SIBs.[3] Additional analysis on the potential impact to capital if the U.S. banking agencies were to provide permanent exclusions for U.S. Treasury securities and reserves is included in the Supplement of this document.

As shown in Chart 1, U.S. banking organizations across all portfolio size groups entered the pandemic with stronger leverage capital ratios than prior to the 2007-2008 financial crisis but the upward trend reversed for the largest banks in the years leading up to the pandemic. Balance sheet growth stemming from the pandemic policy response put immediate downward pressure on leverage capital ratios for all U.S. banking groups. U.S. G-SIBs' weighted average Tier 1 Leverage Ratio declined an additional 20 basis points since June 30, 2021, to 6.92 percent as of December 31, 2021. U.S. G-SIBs' leverage ratios remain below leverage capital ratios for large (9.04 percent), regional (8.88 percent) and community (9.91 percent) banking organizations, as shown in Table 1.

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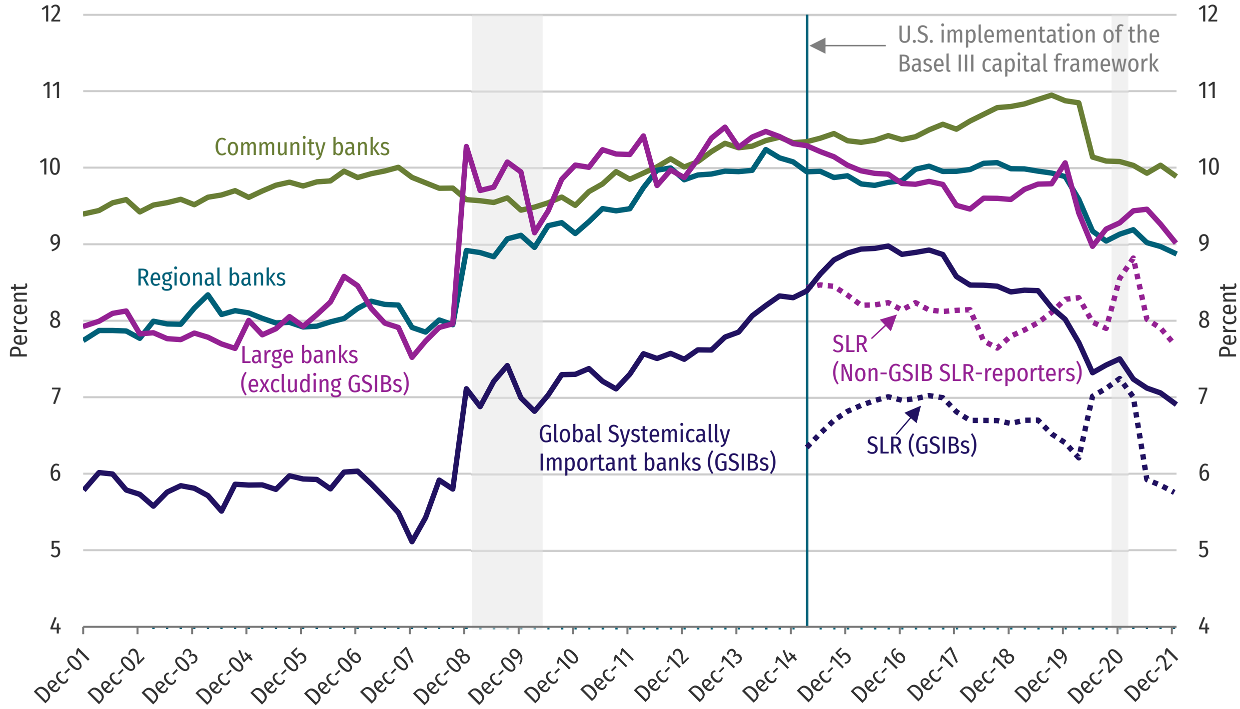
[1] Total leverage exposure, the denominator of the SLR, includes certain off-balance sheet exposures in addition to on-balance sheet assets.

[2] The temporary exclusion expired on March 31, 2021. Expiration of this temporary relief resulted in total leverage exposure across the U.S. G-SIBs increasing $2.8 trillion dollars, or 17 percent, between March 31, 2021, and June 30, 2021, when firms could no longer report the exclusion. From June 30, 2021, to December 31, 2021, leverage exposure increased an additional $530.8 billion, or 4 percent.

[3] Jurisdictions in other countries have also temporarily permitted the exclusion of central bank deposits from the Basel III leverage ratio, but the exclusion is not reported similarly across foreign G-SIBs and the effective dates differ.

Chart 1
SLR and Tier 1 Leverage Ratio
U.S. banking organizations by supervisory portfolio group (% weighted average)



Notes: Tier 1 capital as a percent of total leverage exposure (for SLR) and as a percent of average total assets (for Tier 1 Leverage Ratio). SLR reported only by banking organizations that generally have assets greater than $250 billion or on-balance sheet foreign exposures above $10 billion. Portfolio groups are established by the federal banking agencies and reflect the group banking organizations were in as of 4/5/2022.
Sources: Federal Reserve Y-9C Reports, FFIEC Call Reports, and S&P Global Market Intelligence LLC.

Table 1
Capitalization Ratios
Global Systemically Important Banks (G-SIBs) and U.S. Large, Regional, and Community Banking Organizations[i]

G-SIBs	Tier 1 Capital[ii] ($Billions)	Total Assets[iii] ($Billions)	Risk-Weighted Assets[iv] ($Billions)	Leverage Exposure[v] ($Billions)	Tier 1 Risk-Based Capital Ratio[vi] (Percent)	Tier 1 Leverage Ratio[v] (Percent)	SLR[v] (Percent)	Goodwill and Other Intangibles[vii] ($Billions)	Deferred Tax Assets[viii] ($Billions)	Price-to-Book Ratio[ix]	Price-to-Adjusted Tangible Book Ratio[ix]
U.S. G-SIBs											
Bank of America Corporation	196	3,169	1,618	3,604	12.14	6.36	5.45	71	10	1.46	2.19
Bank of New York Mellon Corporation	23	444	168	354	14.01	5.46	6.63	21	0	1.22	2.64
Citigroup Inc.	170	2,291	1,219	2,958	13.91	7.21	5.73	26	26	0.65	0.91
Goldman Sachs Group, Inc.	107	1,464	677	1,911	15.77	7.30	5.59	5	3	1.29	1.39
JPMorgan Chase & Co.	246	3,744	1,639	4,572	15.02	6.51	5.38	51	1	1.80	2.25
Morgan Stanley	83	1,188	472	1,477	17.66	7.12	5.64	25	0	1.78	2.42
State Street Corporation	18	315	112	242	16.05	6.11	7.39	9	0	1.34	2.17
Wells Fargo & Company	160	1,948	1,239	2,316	12.89	8.34	6.89	28	0	1.11	1.34
U.S. G-SIBs ($ Total, % Weighted Average)	**1,003**	**14,564**	**7,143**	**17,433**	**14.05**	**6.92**	**5.76**	**236**	**41**	**1.31**	**2.18**
European and Canadian G-SIBs											
Banco Santander (Spain)	91	1,815	658	1,747	13.81		5.21	19	29	0.58	1.13
Barclays (UK)	79	1,874	425	1,834	18.61		4.30	11	7	0.55	0.71
BNP Paribas (France)	113	2,996	812	2,778	13.97		4.08	10	7	0.69	0.80
Crédit Agricole Group (France)	118	2,643	666	2,008	17.71		6.10	22	9	NA	NA
Credit Suisse (Switzerland)	60	829	294	975	20.30		6.10	4	4	0.52	0.61
Deutsche Bank (Germany)	62	1,506	400	1,279	15.58		4.90	8	8	0.39	0.52
Group BPCE (France)	79	1,724	502	1,379	15.81		5.75	6	5	NA	NA
HSBC (UK)	156	2,958	838	2,963	18.55		5.20	21	6	0.70	0.82
ING Bank (Netherlands)	64	1,082	356	1,084	18.09		5.94	1	2	0.86	0.90
Royal Bank of Canada (Canada)	66	1,376	447	1,383	14.84		4.80	12	6	2.17	2.60
Société Générale (France)	65	1,665	413	1,352	15.77		4.82	7	5	0.42	0.53
Standard Chartered (UK)	45	828	271	975	16.55		4.60	5	2	0.42	0.50
Toronto Dominion (Canada)	60	1,394	370	1,387	16.32		4.40	15	5	1.92	2.59
UBS (Switzerland)	60	1,117	302	1,069	20.01		5.66	6	9	1.01	1.35
UniCredit (Italy)	63	1,043	366	1,150	17.13		5.47	3	15	0.54	0.76
European and Canadian G-SIBs ($ Total, % Weighted Average)	**1,183**	**24,850**	**7,121**	**23,364**	**16.61**		**5.06**	**150**	**117**	**0.58**	**0.80**
Asian G-SIBs											
Agricultural Bank of China Limited (China)	378	4,576	2,810	4,829	13.46		7.83	4	23	0.37	0.41
Bank of China Limited (China)	342	4,207	2,570	4,475	13.32		7.65	4	8	0.35	0.37
China Construction Bank (China)	405	4,762	2,867	4,986	14.14		8.13	3	15	0.44	0.46
Industrial and Commercial Bank of China (China)	510	5,537	3,414	5,870	14.94		8.69	5	12	0.44	0.46
Mitsubishi UFJ FG (Japan; JPY, Local GAAP)	147	3,177	1,017	2,548	14.43		5.76	12	1	0.45	0.49
Mizuho FG (Japan; JPY, Local GAAP)	86	1,958	576	1,765	14.88		4.85	5	0	0.40	0.43
Sumitomo Mitsui FG (Japan; JPY, Local GAAP)	100	2,177	613	1,824	16.25		5.45	8	0	0.44	0.48
Asian G-SIBs ($ Total, % Weighted Average)	**1,968**	**26,393**	**13,868**	**26,297**	**14.19**		**7.48**	**42**	**60**	**0.44**	**0.46**
U.S. banking organizations by size group ($ Total, % Weighted Average)											
G-SIBs	1,003	14,564	7,143	17,433	14.05	6.92	5.76	236	41	1.31	2.18
LBOs[x] (>$100B, excluding GSIBs)	376	4,299	3,094		12.16	9.04	7.69	105	9		
RBOs ($10B - $100B)	237	2,765	1,871		12.65	8.88		66	5		
CBOs (<$10B)	257	2,654	1,397		14.00	9.91		18	4		

[i] G-SIBs: The Financial Stability Board (FSB) publishes the list of Global Systemically Important Banks (G-SIBs) each November. The December 31, 2021 Bank Capital Analysis uses the list of G-SIBs released on November 23, 2021. The list included eight U.S. banking organizations and 22 non-U.S. organizations and is available on the FSB's website: www.fsb.org. Note that the other groups of U.S. banks reflect the supervisory portfolios of the federal banking agencies as of April 5, 2022. Data sources: FR Y-9C and S&P Global Market Intelligence LLC for U.S. G-SIBs and S&P Global Market Intelligence LLC for foreign G-SIBs. Large Banking Organizations (LBO): Banking organizations greater than $100 billion, excluding G-SIBs and subsidiaries of G-SIBs and non-U.S. banks. There are 16 bank holding companies and one depository institution with no holding company included in the LBO group. Data source: FR Y-9C (FFIEC Call Report for LBO without holding company). Regional Banking Organizations (RBO): Generally, banking organizations between $10 and $100 billion, excluding subsidiaries of G-SIBs, non-U.S. banks and LBOs. There are 90 bank holding companies and five depository institutions with no holding company included in the RBO group. Data source: FR Y-9C (FFIEC Call Report for RBOs without holding companies). Community Banking Organizations (CBO): Banking organizations less than $10 billion, excluding subsidiaries of G-SIBs, non-U.S. banks, LBOs and RBOs. There are 3,983 depository institutions included in the CBO group. Data source: FFIEC Call Report, as banking organizations less than $3 billion in assets do not report the FR Y-9C.

[ii] Tier 1 capital is common equity capital less goodwill, certain other intangible assets, disallowed deferred tax assets (DTAs), plus additional qualifying tier 1 capital components. Advanced approaches banking organizations, generally those above $250 billion in assets, must include most effects of accumulated other comprehensive income (AOCI), such as unrealized gains and losses on available-for-sale securities, in tier 1 capital, while non-advanced approaches organizations may neutralize the effects of most components of AOCI in tier 1 capital. Tier 1 capital is the numerator of the Tier 1 Risk-Based Capital Ratio, which uses risk-weighted assets (RWA) in the denominator, and of the Tier 1 Leverage and SLR. Note that regulatory capital measures are based on principles agreed to by the Basel Committee on Banking Supervision (BCBS) and implemented by regulators in member countries. In the U.S., capital requirements are established by the three Federal banking agencies. U.S. regulations include standardized approaches and advanced approaches. The requirements for Board-regulated institutions are in 12 CFR 217. The general phase-in period for the capital rules in the U.S. was 2014-2018, but outstanding proposals may result in future changes. The phase-in period may differ for non-U.S. G-SIBs. The regulatory capital data for non-U.S. G-SIBs may be transitional or fully phased-in, depending upon data availability.

[iii] Total Assets as reported in regulatory financial statements, which are subject to jurisdictional accounting standards.

[iv] In the U.S., advanced approaches banks calculate RWA and risk-based ratios using the standardized and advanced approaches and use the lower of the two ratios (the higher RWA amount).

[v] Leverage Ratios and Leverage Exposure: In the U.S., but not in other BCBS member countries, all banking organizations must report the Tier 1 Leverage Ratio (tier 1 capital/average assets for the leverage ratio). U.S. Category I, II and III banking organizations must also calculate the SLR, known outside the U.S. as the Basel III Leverage Ratio. The minimum required Basel III Leverage Ratio is 3 percent for G-SIBs and Category I-III organizations, and the BCBS leverage framework requires a buffer above the minimum Basel III Leverage Ratio for G-SIBs. In the U.S., the buffer, referred to as the enhanced SLR, is 2 percentage points for the holding company and 3 percentage points for the insured depository institution. The denominator of the SLR, called total leverage exposure, is a broader measure than the denominator for the Tier 1 Leverage Ratio. Total leverage exposure adjusts regulatory balance sheet assets for derivatives exposure, securities financing exposure and commitments. All G-SIBs report total leverage exposure using the same reporting form (Pillar 3 Report). U.S. G-SIBs report the SLR ratio in the FR Y-9C and the SLR details in the FFIEC 101 report. S&P Global Market Intelligence LLC reports the fully phased-in Basel III leverage ratio. In response to the COVID-19 pandemic, SLR-reporting U.S. banking organizations were temporarily permitted to exclude on-balance sheet amounts of U.S. Treasury securities and deposits at Federal Reserve Banks from the calculation of leverage exposure, the denominator of the SLR, starting with June 30, 2020 financials through March 31, 2021 (see Board of Governors' April 14, 2020 Interim Final Rule available here). Jurisdictions in other countries also temporarily permitted the exclusion of central bank deposits from the Basel III leverage ratio, but the exclusion is not reported similarly across foreign G-SIBs and the effective dates differ. More detail is available here.

[vi] This ratio measures tier 1 capital to RWA.

[vii] Goodwill and other intangibles, such as deposit intangibles, purchased credit card relationships and nonmortgage servicing assets.

[viii] Deferred tax assets (DTAs) are the amounts by which taxes payable in future periods may be decreased due to temporary timing differences. DTAs may also include carryforwards of unused tax losses and carryforward of unused tax credits and are net of any valuation allowance.

[ix] Median price-to-book ratios and price-to-adjusted book ratios are used instead of averages for subgroups and for U.S. comparative groups. The price-to-book ratio is price as a percent of book value per share. Book value is calculated using financial period end common equity and common shares outstanding values. The price-to-adjusted tangible book ratio is calculated using financial period end tangible common equity (common equity is adjusted for goodwill, other intangibles and DTAs) and common shares outstanding values. Price-to-book ratios for the Chinese G-SIBs reflect H-shares. Data are not available for the Credit Agricole Group and Group BPCE.

[x] The SLR reported for the LBO group is the weighted average SLR for five of the 17 LBOs (U.S. Bancorp, The PNC Financial Services Group, Inc., Capital One Financial Corporation, Truist Financial Corporation, and Northern Trust Corporation) that are required to report the SLR.

Sources: Federal Reserve Y-9C Reports, FFIEC Call Reports, FFIEC 101 Reports, S&P Global Market Intelligence LLC.

Bank Capital Analysis: *Supplemental*

A horizontal comparison of capital adequacy

This supplement to the Bank Capital Analysis Report provides additional data and insights on factors influencing capital adequacy, such as changes to regulatory requirements and shareholder distributions.

- In the first half of 2020, as the impact of the COVID-19 pandemic drove unemployment rates to record highs and created widespread economic instability, the Federal Reserve took numerous emergency actions to support continued market functioning. As a result of these policies and a flight to quality, deposits surged, and bank balance sheets grew rapidly – predominantly in liquid assets.
- From year-end 2019 to 2021, assets across the banking system grew by 27 percent. In 2020, the largest banks experienced the highest percentage of their asset growth in cash held as reserves and in U.S. Treasury securities; while community and regional banking organizations' largest growth went to small business loans tied to the Paycheck Protection Program, followed by reserves. In 2021, securities accounted for most of the asset growth across all portfolio groups, exposing banks to heightened interest rate risk. In the two years ending December 31, 2021, securities growth can be attributed to 37 percent, 45 percent, 40 percent, and 35 percent of total asset growth at G-SIBs, LBOs, RBOs, and CBOs, respectively (Chart S.1).
- This unprecedented asset growth pressured capital ratios, leading federal banking agencies to implement measures intended to support financial market intermediation and the flow of credit in the economy. One such measure was to temporarily exclude U.S. Treasury securities and reserves from the leverage exposure measure (the denominator) of the SLR.[4]
- The temporary exclusion of all U.S. Treasury securities and reserves collectively decreased leverage exposure by $2.4 trillion (18 percent) for U.S. G-SIBs and boosted their SLR to a peak of 7.25 percent as of December 31, 2020.[5] Since the rule expired on March 31, 2021, the SLR continues to trend downward as growth in leverage exposure has outpaced capital formation (Chart S.2). In 2021, leverage exposure growth moderated while tier 1 capital growth began declining – widening the gap – and bringing the weighted average SLR to 5.76 percent at year-end 2021.
- Strong growth in G-SIBs' securities portfolio as a percent of total assets (17.3 percent at year-end 2019 to 21.4 percent at year-end 2021), coupled with rising rates has increased interest rate risk and led to the depletion of capital in recent periods. Unlike most banking organizations, G-SIBs must recognize unrealized gains and losses on available-for-sale securities in regulatory capital, which amounted to a combined decline in common equity of $24.4 billion (equivalent to 14.6 percent of annual net income) in 2021 due to rising rates in the latter half of the year.[6] Additionally, G-SIBs' collectively paid out $131

[4] This relief applied to 13 banking organizations (U.S. G-SIBs and five non-G-SIB Category III or higher firms subject to the SLR). See Board of Governors' April 14, 2020 Interim Final Rule available here: https://www.govinfo.gov/content/pkg/FR-2020-04-14/pdf/2020-07345.pdf.

[5] As of December 31, 2020, U.S. G-SIBs' cash held as reserves and U.S. Treasury securities had increased by $885 billion in aggregate from a 2017-2019 average starting point.

[6] Applies only to Category I and II banks (eight G-SIBs and Northern Trust). All other banks can add back unrealized gains and losses in the calculation of regulatory capital ratios.

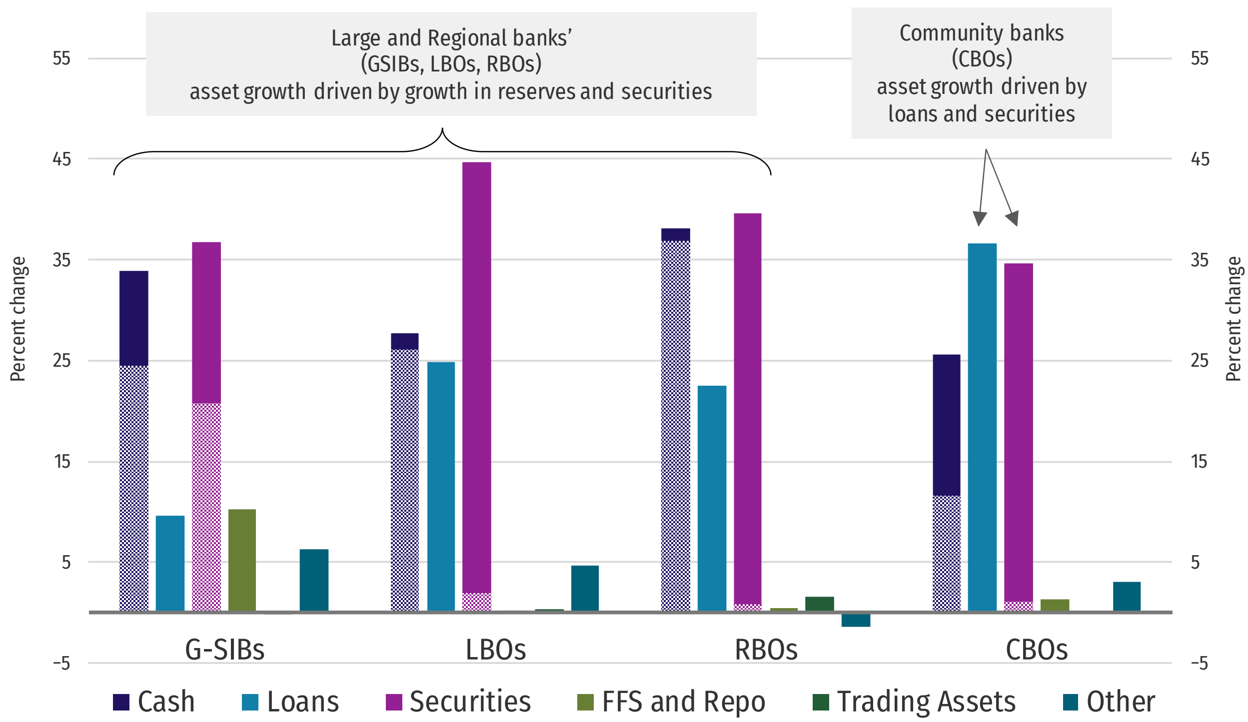
billion (78.5 percent of net income) in shareholder payouts in 2021, following the expiration of the Federal Reserve's temporary payout restrictions that capped dividends and prohibited share repurchases.[7]

- With levels of both reserves and Treasuries remaining elevated, the Federal Reserve announced plans to invite public comment on possible longer-term modifications to the SLR.[8] Table S.1 includes adjusted SLRs for U.S. G-SIBs based on two possible scenarios: excluding only reserves (Column B) and excluding both reserves and U.S. Treasury securities (Column C) from the leverage exposure measure of the SLR. Excluding only reserves and excluding both reserves and U.S. Treasuries from the SLR requirement would raise the weighted average SLR for U.S. G-SIBs by 45 basis points to 6.21 percent (Column B) and 107 basis points to 6.83 percent (Column C), respectively, using data as of December 31, 2021.

[7] See: https://www.federalreserve.gov/newsevents/pressreleases/bcreg20200930b.htm; https://www.federalreserve.gov/newsevents/pressreleases/bcreg20210325a.htm

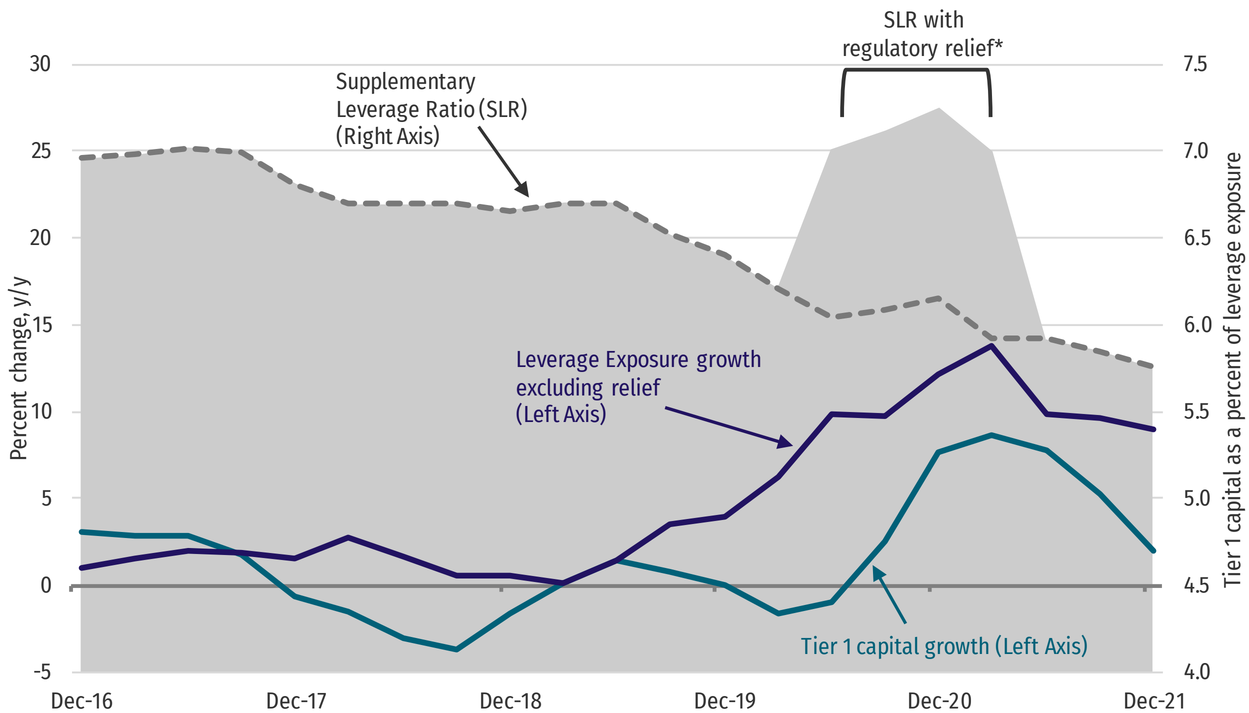
[8] See Board of Governors' March 19, 2021 Press Release available here: https://www.federalreserve.gov/newsevents/pressreleases/bcreg20210319a.htm.

Chart S.1
Asset Utilization by Bank Portfolio Group
Change in balance sheet component as a percentage of the change in assets, December 31, 2019 to December 31, 2021



Notes: The shaded portion of Cash represents the increase in cash held as reserves. The shaded portion of Securities represents the increase in U.S. Treasury Securities.
Sources: Y-9C for Global Systemically Important Banks (G-SIBs), large banking organizations (LBOs) and regional banking organizations (RBOs) and Reports of Condition and Income (call reports) for community banking organizations (CBOs).

Chart S.2
SLR Component Year-Over-Year Growth (U.S. G-SIBs)



*The Federal Reserve's temporary rule to exclude reserves and U.S. Treasury securities from the leverage exposure measure of the SLR applied from 2Q 2020 to 1Q 2021.
Sources: Federal Reserve Y-9C Reports and FFIEC Call Reports.

Table S.1
SLR Scenario Analysis
As of December 31, 2021

	As reported			Hypothetical adjustments			
	SLR (as reported)	Change from 2Q21 (bps)	Change from 4Q20 (bps)	SLR (excludes reserves only)	Diff (bps)	SLR (excludes reserves and U.S. Treasuries)	Diff (bps)
U.S. G-SIBs	(Column A)			(Column B)		(Column C)	
Bank of America Corporation	5.45	▼ (42)	▼ (173)	5.84	▲ 39	6.53	▲ 108
Bank of New York Mellon Corporation	6.63	▼ (84)	▼ (200)	6.63	— 0	7.53	▲ 90
Citigroup Inc.	5.73	▼ (11)	▼ (128)	5.92	▲ 19	6.56	▲ 83
Goldman Sachs Group, Inc.	5.59	▲ 5	▼ (137)	5.97	▲ 38	6.38	▲ 79
JPMorgan Chase & Co.	5.38	▼ (3)	▼ (152)	6.05	▲ 66	6.78	▲ 140
Morgan Stanley	5.64	▼ (23)	▼ (174)	5.76	▲ 12	6.34	▲ 70
State Street Corporation	7.39	▲ 65	▼ (72)	7.39	— 0	8.07	▲ 68
Wells Fargo & Company	6.89	▼ (19)	▼ (116)	7.52	▲ 62	7.83	▲ 93
U.S. G-SIBs (% Weighted Average)	**5.76**	▼ (17)	▼ (150)	**6.21**		**6.83**	

Notes: As custodial banking organizations, Bank of New York Mellon Corporation and State Street Corporation are permitted to permanently exclude deposits held with qualifying central banks from the leverage exposure measure of the SLR; therefore, reserves are not excluded in the hypothetical adjustments.
Source: Federal Reserve Y-9C Reports, FFIEC Call Reports (for reserves) and FFIEC 101 Reports.