FEDERAL RESERVE BANK OF KANSAS CITY | 2Q 2022

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 June 30, 2022, the weighted average supplementary leverage ratio (SLR), also known as the Basel III leverage ratio, for U.S. G-SIBs declined 12 basis points to 5.64 percent since year-end 2021, nearly the lowest level since firms have been subject to this requirement (Chart 1).[1] This decline follows a spike in the SLR in 2020 and into 2021 driven by 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, which expired March 31, 2021. 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, declined over this period and remains lower than that of U.S. GSIBs with the exception of Asian GSIBs (Table 1).[3] Additional analysis on the potential impact to capital, if the banking agencies were to provide permanent exclusions for U.S. Treasury securities and reserves, is included in the Supplement of this document.

Chart 1 shows leverage capital trends over time for U.S. banking organizations. While banks of all size groups entered the pandemic with stronger capital ratios than prior to the 2007-2008 financial crisis, leverage ratios at the largest banks had started flattening and even declining prior to the pandemic. Balance sheet growth stemming from the pandemic policy response put immediate downward pressure on the weighted average tier 1 leverage ratio for all U.S. banking groups, though the ratio stabilized at large banks and slightly increased across community and regional banks since year-end 2021. U.S. G-SIBs' weighted average tier 1 leverage ratio declined an additional 19 basis points from year-end to 6.71 percent as of June 30, 2022. U.S. G-SIBs' leverage ratios remain below leverage capital ratios for large (8.95 percent), regional (9.20 percent) and community (10.07 percent) banking organizations, as shown in Table 1.

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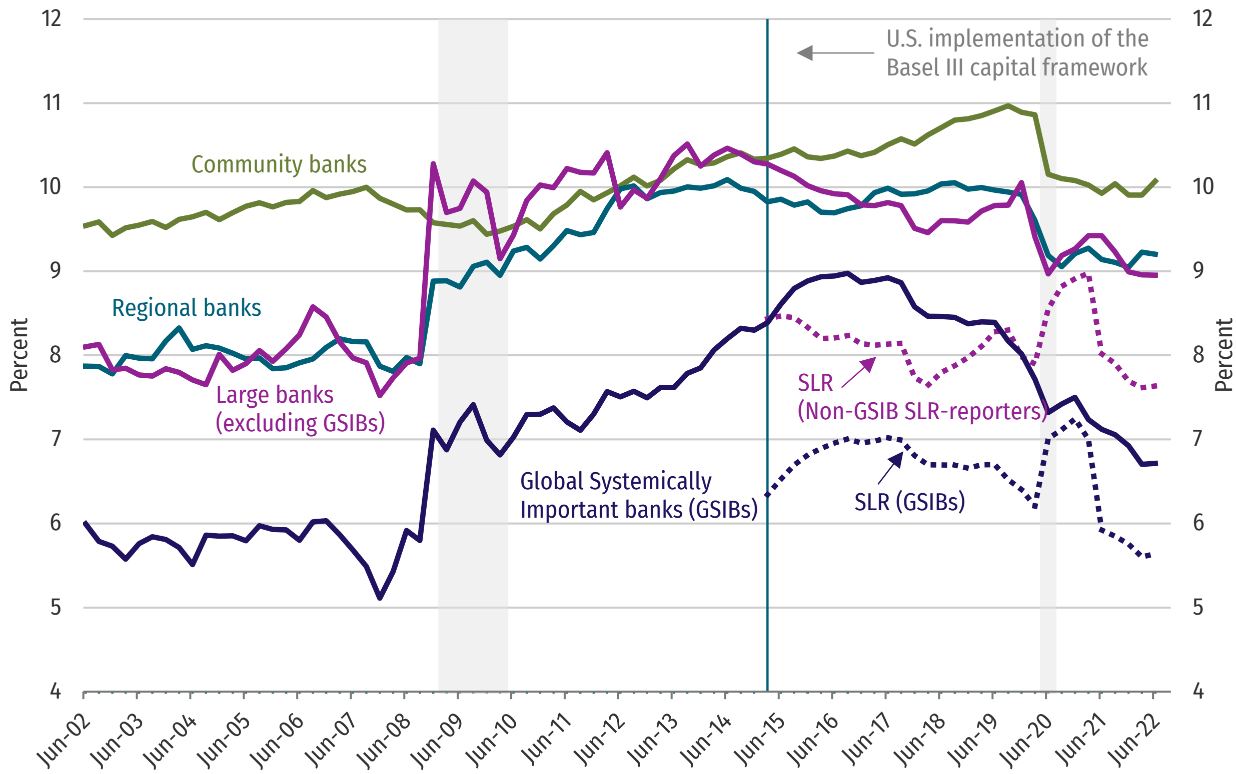
[1] The GSIBs' weighted average SLR was four basis points lower at 5.60 percent as of March 31, 2022.

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

[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 GSIBs 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 9/26/2022.
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[v][ii] ($Billions)	Deferred Tax Assets[viii] ($Billions)	Price-to-Book Ratio[ix]	Price-to-Adjusted Tangible Book Ratio[ix]
U.S. G-SIBs											
Bank of America Corporation	201	3,112	1,638	3,621	12.27	6.52	5.55	71	13	1.04	1.60
Bank of New York Mellon Corporation	22	453	170	352	12.84	5.22	6.21	20	0	0.93	2.14
Citigroup Inc.	165	2,381	1,236	2,935	13.36	7.04	5.63	25	27	0.49	0.70
Goldman Sachs Group, Inc.	109	1,601	692	1,946	15.73	6.99	5.59	8	4	0.95	1.07
JPMorgan Chase & Co.	240	3,841	1,705	4,563	14.06	6.21	5.25	52	3	1.30	1.67
Morgan Stanley	78	1,174	461	1,453	16.87	6.61	5.35	25	1	1.40	1.92
State Street Corporation	17	300	115	255	14.61	5.97	6.62	9	1	0.95	1.66
Wells Fargo & Company	149	1,881	1,254	2,250	11.89	7.96	6.63	28	0	0.94	1.15
U.S. G-SIBs ($ Total, % Weighted Average)	**980**	**14,743**	**7,270**	**17,374**	**13.48**	**6.71**	**5.64**	**238**	**50**	**0.95**	**1.63**
European and Canadian G-SIBs											
Banco Santander (Spain)	87	1,801	632	1,830	13.71		4.67	19	30	0.51	1.09
Barclays (UK)	72	1,931	419	1,399	17.12		5.10	10	7	NA	NA
BNP Paribas (France)	104	3,022	790	2,778	13.18		3.74	9	6	0.52	0.60
Crédit Agricole Group (France)	112	2,504	606	2,138	18.56		5.18	20	9	NA	NA
Credit Suisse (Switzerland)	55	762	287	904	19.22		6.10	3	4	0.31	0.37
Deutsche Bank (Germany)	58	1,450	387	1,338	14.92		4.30	7	8	0.28	0.38
Group BPCE (France)	72	1,551	480	1,417	14.93		5.06	6	5	NA	NA
HSBC (UK)	138	2,985	852	2,484	16.15		5.50	22	7	0.78	0.94
ING Bank (Netherlands)	58	1,066	351	1,146	16.65		5.10	1	2	0.68	0.73
Royal Bank of Canada (Canada)	66	1,442	460	1,436	14.30		4.60	12	6	1.80	2.14
Société Générale (France)	59	1,608	384	1,445	15.24		4.03	7	5	0.30	0.37
Standard Chartered (UK)	41	836	255	894	15.92		4.50	6	1	0.52	0.63
Toronto Dominion (Canada)	63	1,424	387	1,387	16.29		4.30	15	5	1.58	2.17
UBS (Switzerland)	60	1,113	316	1,025	18.98		5.80	6	9	0.92	1.27
UniCredit (Italy)	61	989	331	1,092	18.31		5.36	2	13	0.36	0.49
European and Canadian G-SIBs ($ Total, % Weighted Average)	**1,104**	**24,486**	**6,937**	**22,713**	**15.92**		**4.86**	**146**	**118**	**0.52**	**0.68**
Asian G-SIBs											
Agricultural Bank of China Limited (China)	374	4,840	2,818	5,057	13.28		7.40	4	NA	0.42	NA
Bank of China Limited (China)	338	4,187	2,479	4,459	13.63		7.58	4	9	0.40	0.42
China Construction Bank (China)	395	5,029	2,838	5,252	13.93		7.53	3	16	0.44	0.46
Industrial and Commercial Bank of China (China)	492	5,783	3,302	6,121	14.90		8.04	4	15	0.48	0.50
Mitsubishi UFJ FG (Japan; JPY, Local GAAP)	111	2,847	939	2,321	11.81		4.77	10	2	0.55	0.61
Mizuho FG (Japan; JPY, Local GAAP)	72	1,844	505	1,691	14.16		4.22	4	3	0.44	0.49
Sumitomo Mitsui FG (Japan; JPY, Local GAAP)	84	1,985	563	1,689	15.01		4.99	7	1	0.45	0.49
Asian G-SIBs ($ Total, % Weighted Average)	**1,866**	**26,516**	**13,444**	**26,589**	**13.88**		**7.02**	**37**	**44**	**0.44**	**0.49**
U.S. banking organizations by size group ($ Total, % Weighted Average)											
G-SIBs	980	14,743	7,270	17,374	13.48	6.71	5.64	238	50	0.95	1.63
LBOs[x] (>$100B, excluding GSIBs)	402	4,582	3,475		11.57	8.95	7.64	111	25		
RBOs ($10B - $100B)	247	2,744	2,001		12.33	9.20		68	5		
CBOs (<$10B)	265	2,646	1,495		13.63	10.07		17	12		

[i] G-SIBs: The Financial Stability Board (FSB) publishes the list of Global Systemically Important Banks (G-SIBs) each November. The June 30, 2022 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 September 26, 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 two depository institutions with no holding company included in the LBO group. Data source: FR Y-9C (FFIEC Call Report for LBOs without holding companies). 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 95 bank holding companies and four 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 3,942 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] DDTAs 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 18 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, and 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 and U.S. government took numerous emergency actions to support continued market functioning and provide relief to those affected by the pandemic. As a result of these policies and a flight to quality, deposits surged, and bank balance sheets grew rapidly – predominantly in liquid assets.
- Bank balance sheets remain inflated as of June 30, 2022, having grown 31 percent since year-end 2019, but how banks are deploying excess funds has evolved. In 2020, following the onset of the COVID-19 pandemic, 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 (PPP). In 2021, banks across all portfolio groups grew their securities portfolios as PPP loans were forgiven and loan demand remained weak. Over the 12 months ending June 30, 2022, rising interest rates and higher loan demand have slowed securities growth and resulted in banks using excess cash built up in 2020 to fund loan growth, reversing trends seen early in the pandemic. As of June 30, 2022, CBOs, RBOs and LBOs have experienced the largest percentage of their asset growth since year-end 2019 in loans, followed closely by securities, whereas GSIBs' asset growth has been driven by cash (62 percent of which was in reserves) and securities (64 percent of which was in U.S. Treasuries) (Chart S.1).
- Since year-end 2019, U.S. commercial banks increased securities holdings by $2.0 trillion dollars, increasing the share of securities as a percentage of total assets to 33.7 percent in the second quarter of 2022 from 17.8 percent at year-end 2019. Beyond the significant growth, the increased holdings were in longer-dated maturities, extending portfolio duration and exposing banks to heightened interest rate risk. Rapidly rising interest rates has led to historically high unrealized losses on banks' available-for-sale (AFS) securities portfolios. Unlike most banking organizations, G-SIBs must recognize unrealized gains and losses on AFS securities in regulatory capital (in other comprehensive income, or OCI), which amounted to a combined decline in common equity of $24.4 billion (equivalent to 14.6 percent of annual net income) in 2021 and $48.9 billion (equivalent to 79.1 percent of net income) in the first half of 2022 due to rising rates.[3] To mitigate the impact on regulatory capital, G-SIBs have shifted the composition of their securities portfolio away from AFS and towards held-to-maturity (HTM) securities. As of June 30, 2022, GSIBs collectively increased HTM securities by 18.1 percent year-over-year, while reducing AFS securities by 14.5 percent.

[3] Applies only to Category I and II banks (eight G-SIBs and Northern Trust). All other banks can elect to exclude on an ongoing basis unrealized gains and losses in the calculation of regulatory capital ratios. Unrealized losses on AFS are one among several components impacting OCI but make up a substantial portion of the losses for the majority of banks required to reflect OCI in regulatory capital ratios.

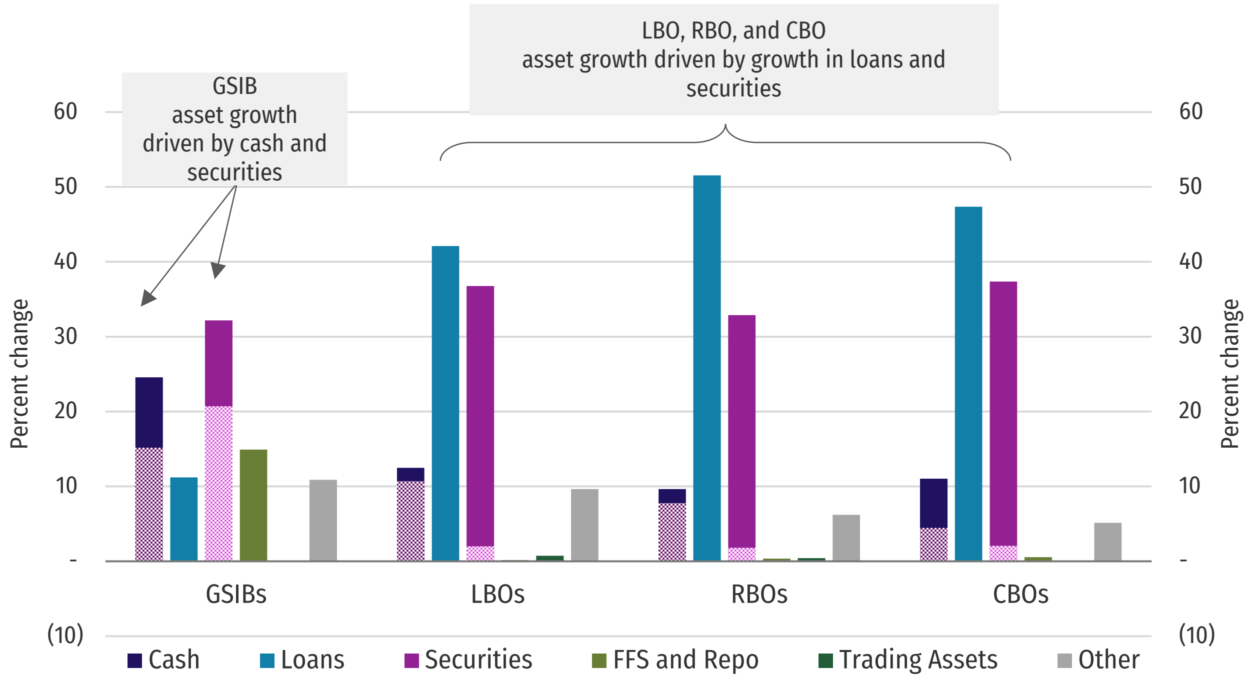
- The temporary exclusion of all U.S. Treasury securities and reserves collectively decreased leverage exposure by $2.4 trillion (18 percent) for U.S. G-SIBs and boosted their SLR to a peak of 7.25 percent as of December 31, 2020.[4] Since the rule expired on March 31, 2021, the SLR continues to trend downward as growth in leverage exposure has outpaced capital formation (Chart S.2). GSIBs helped to moderate the decline in the second quarter of 2022 by reducing shareholder payouts to 71.5 percent of net income from 93.4 percent in the first quarter, driven by a reduction in share repurchases.
- 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.[5] 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 35 basis points to 5.99 percent (Column B) and 95 basis points to 6.60 percent (Column C), respectively, using data as of June 30, 2022.

[4] 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.

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

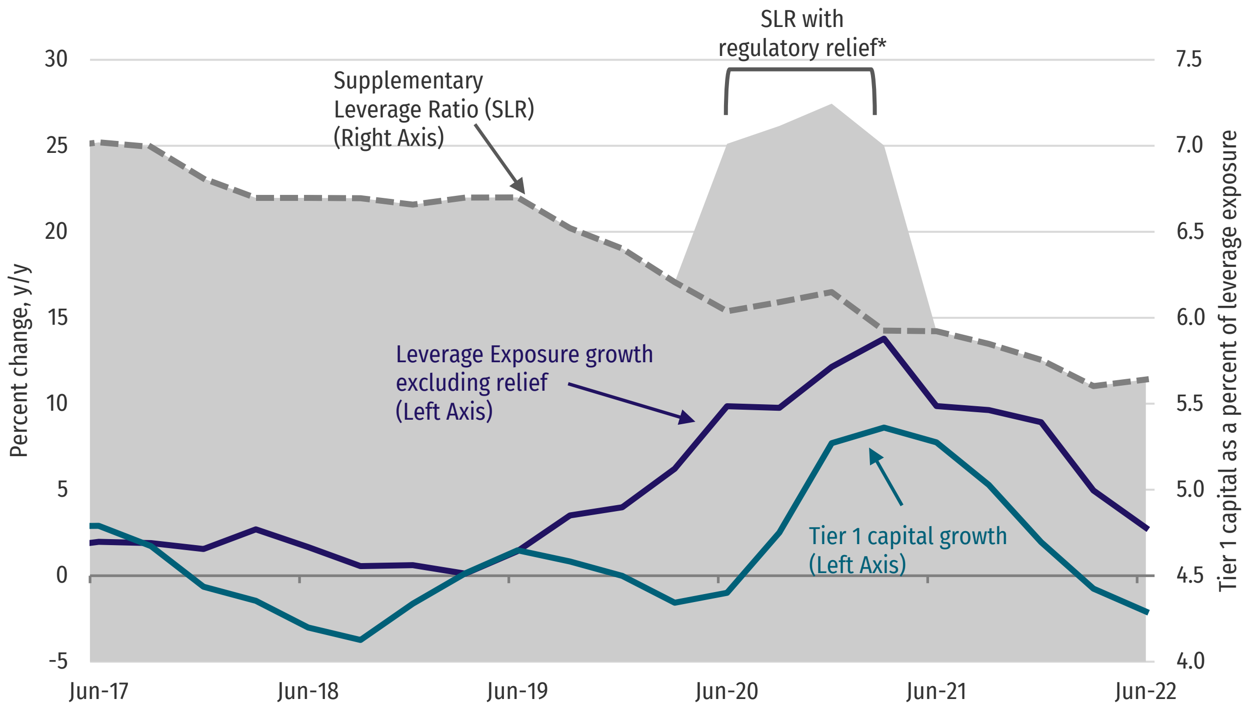
Chart S.1
Asset Utilization by Bank Portfolio Group

Change in balance sheet component as a percentage of the change in assets, December 31, 2019 to June 30, 2022



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: Federal Reserve Y-9C Reports for G-SIBs, LBOs and RBOs and FFIEC Call Reports for 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 June 30, 2022

	As reported			Hypothetical adjustments			
	SLR (as reported)	**Change from 4Q21 (bps)**	**Change from 2Q21 (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	5.55	▲ 10	▼ (32)	5.70	▲ 15	6.36	▲ 81
Bank of New York Mellon Corporation	6.21	▼ (43)	▼ (127)	6.21	— 0	7.12	▲ 91
Citigroup Inc.	5.63	▼ (11)	▼ (22)	5.82	▲ 20	6.49	▲ 86
Goldman Sachs Group, Inc.	5.59	▲ 0	▲ 5	6.08	▲ 49	6.65	▲ 106
JPMorgan Chase & Co.	5.25	▼ (13)	▼ (16)	5.80	▲ 55	6.45	▲ 119
Morgan Stanley	5.35	▼ (29)	▼ (52)	5.42	▲ 7	5.92	▲ 57
State Street Corporation	6.62	▼ (77)	▼ (13)	6.62	— 0	7.22	▲ 60
Wells Fargo & Company	6.63	▼ (27)	▼ (46)	6.95	▲ 32	7.27	▲ 65
U.S. G-SIBs (% Weighted Average)	**5.64**	▼ (11)	▼ (28)	**5.99**	▲ 35	**6.60**	▲ 95

Note: As custodial banking organizations (as defined in the capital rules), 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.
Sources: Federal Reserve Y-9C Reports, FFIEC Call Reports (for reserves) and FFIEC 101 Reports.