Bank Capital Analysis Semiannual Update

By Sabrina Pellerin

April 19, 2023

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

As of December 31, 2022, the weighted average supplementary leverage ratio (SLR), also known as the Basel III leverage ratio, for U.S. G-SIBs increased 30 basis points to 5.94 percent since June 30, 2022 (Table 1). The increasing trend, driven by a reduction in total leverage exposure, represents the first period in which the SLR has risen since the onset of the COVID-19 pandemic when excluding the impact of the Federal Reserve's temporary capital relief measures (Chart 1).[1] The capital relief measures permitted the largest banking organizations to exclude U.S. Treasuries and deposits held at Federal Reserve Banks ("reserves") from the leverage exposure measure of the SLR and was designed to allow for continued financial market intermediation as balance sheets expanded due to COVID-19 pandemic 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] For additional analysis on the factors driving changes in the SLR, and the potential impact to capital ratios if the banking agencies were to provide permanent exclusions for U.S. Treasury securities and reserves, see the Supplement to 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, the trend in leverage ratios at the largest banks had started flattening and even declining prior to the pandemic. Balance sheet growth stemming from pandemic policy responses put immediate downward pressure on the weighted average tier 1 leverage ratio for all U.S. banking groups, though the ratio has begun to increase across community and regional banks in recent periods. U.S. G-SIBs' weighted average tier 1 leverage ratio increased by 31 basis points from June 30, 2022, to 7.01 percent as of year-end 2022, but remains below leverage capital ratios for large (8.89 percent), regional (9.49 percent) and community (10.31 percent) banking organizations, as shown in Table 1.

Sabrina Pellerin is a senior risk specialist in the Division of Supervision and Risk Management at the Federal Reserve Bank of Kansas City.

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

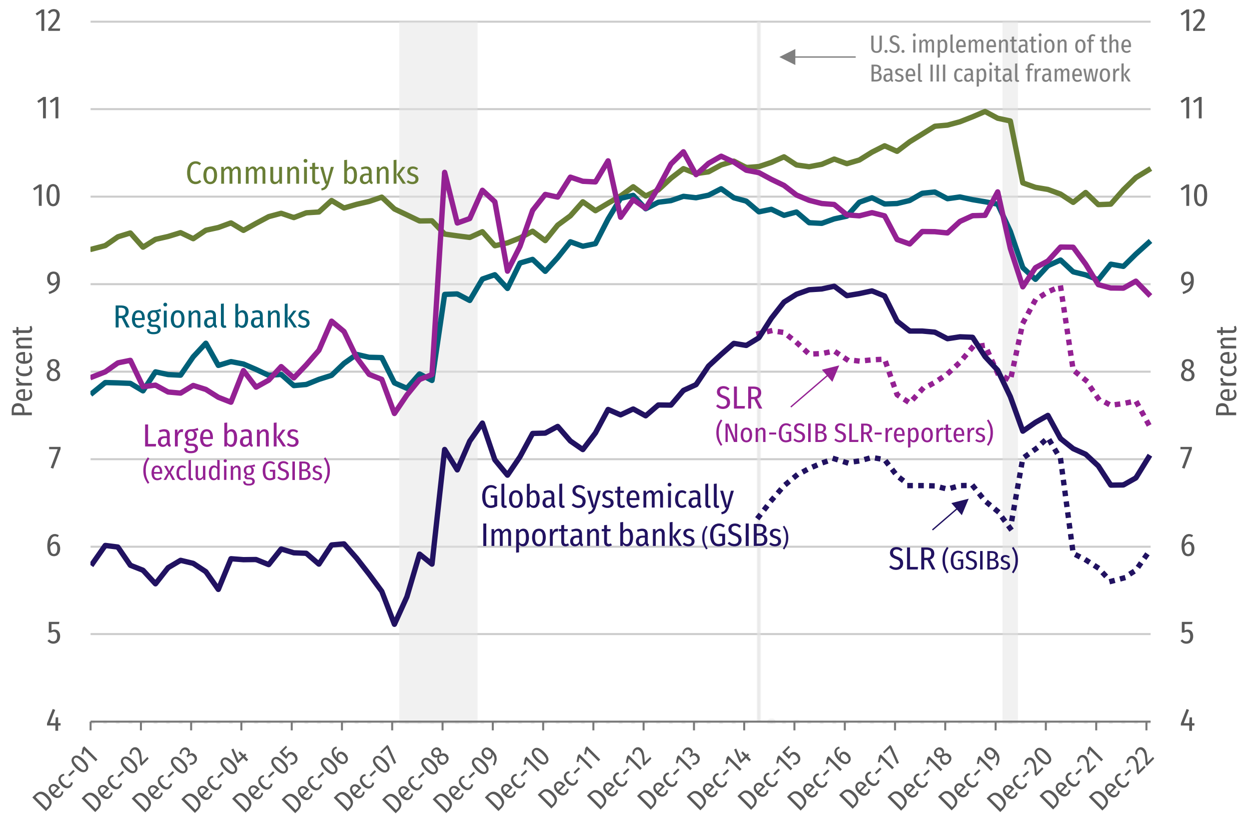
[2] The relief applied to Category I, II and III firms - those required to report the SLR – and was effective from June 30, 2020, to March 31, 2021.

[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 March 1, 2023.

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

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

	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	208	3,051	1,605	3,523	12.99	6.95	5.92	71	14	1.08	1.66
Bank of New York Mellon Corporation	23	406	162	336	14.14	5.76	6.80	19	0	1.03	2.22
Citigroup Inc.	169	2,417	1,222	2,907	13.85	7.06	5.82	24	29	0.48	0.68
Goldman Sachs Group, Inc.	109	1,442	679	1,867	15.98	7.28	5.81	8	6	1.08	1.25
JPMorgan Chase & Co.	246	3,666	1,654	4,367	14.85	6.63	5.62	53	6	1.49	1.91
Morgan Stanley	77	1,180	448	1,399	17.24	6.71	5.52	24	2	1.56	2.20
State Street Corporation	17	301	107	237	15.41	5.99	6.96	9	1	1.17	2.07
Wells Fargo & Company	153	1,881	1,260	2,225	12.11	8.26	6.86	28	0	0.98	1.19
U.S. G-SIBs ($ Total, % Weighted Average)	**1,001**	**14,344**	**7,136**	**16,862**	**14.03**	**7.02**	**5.94**	**237**	**58**	**1.08**	**1.78**
European and Canadian G-SIBs											
Banco Santander (Spain)	89	1,854	651	1,871	13.63		4.70	20	32	0.53	1.17
Barclays (UK)	72	1,824	405	1,361	17.86		5.30	10	9	0.46	0.64
BNP Paribas (France)	111	2,850	796	2,537	13.89		4.34	10	6	0.60	0.69
Crédit Agricole Group (France)	114	2,543	614	2,142	18.63		5.26	21	11	NA	NA
Credit Suisse (Switzerland)	54	575	271	704	19.97		7.70	4	0	0.24	0.26
Deutsche Bank (Germany)	61	1,429	385	1,326	15.73		4.60	8	9	0.35	0.47
Group BPCE (France)	74	1,636	493	1,484	15.12		5.02	6	6	NA	NA
HSBC (UK)	139	2,967	840	2,417	16.56		5.74	21	9	0.74	0.90
ING Bank (Netherlands)	58	1,034	354	1,137	16.38		5.11	1	2	0.83	0.88
Royal Bank of Canada (Canada)	64	1,406	461	1,441	13.90		4.40	14	6	1.88	2.29
Société Générale (France)	63	1,589	385	1,437	16.29		4.32	7	5	0.31	0.38
Standard Chartered (UK)	41	820	245	854	16.61		4.80	6	1	0.52	0.62
Toronto Dominion (Canada)	70	1,406	399	1,387	17.51		4.80	15	5	1.67	2.27
UBS (Switzerland)	58	1,104	320	1,028	18.25		5.67	6	9	1.02	1.40
UniCredit (Italy)	61	917	330	1,012	18.65		5.87	3	14	0.45	0.61
European and Canadian G-SIBs ($ Total, % Weighted Average)	**1,129**	**23,952**	**6,947**	**22,138**	**16.26**		**5.10**	**150**	**126**	**0.53**	**0.69**
Asian G-SIBs											
Agricultural Bank of China Limited (China)	385	4,919	2,880	5,122	13.37		7.52	4	NA	0.37	NA
Bank of China Limited (China)	344	4,192	2,438	4,495	14.11		7.65	4	10	0.36	0.38
China Construction Bank (China)	413	5,017	2,866	5,259	14.40		7.85	3	16	0.40	0.42
Industrial and Commercial Bank of China (China)	504	5,743	3,222	6,058	15.64		8.32	5	15	0.40	0.42
Mitsubishi UFJ FG (Japan; JPY, Local GAAP)	110	2,968	977	2,475	11.30		4.46	11	4	0.65	0.73
Mizuho FG (Japan; JPY, Local GAAP)	74	1,909	538	1,680	13.80		4.41	5	3	0.53	0.59
Sumitomo Mitsui FG (Japan; JPY, Local GAAP)	86	2,007	584	1,733	14.79		4.98	7	1	0.58	0.63
Asian G-SIBs ($ Total, % Weighted Average)	**1,917**	**26,755**	**13,506**	**26,822**	**14.19**		**7.15**	**38**	**49**	**0.40**	**0.51**
U.S. banking organizations by size group ($ Total, % Weighted Average)											
G-SIBs	1,001	14,344	7,136	16,862	14.03	7.02	5.94	237	58	1.08	1.78
LBOs[x] (>$100B, excluding GSIBs)	412	4,757	3,656		11.27	8.89	7.40	117	35		
RBOs ($10B - $100B)	259	2,791	2,118		12.24	9.49		69	5		
CBOs (<$10B)	278	2,713	1,604		13.35	10.31		18	15		

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

[i] G-SIBs: The Financial Stability Board (FSB) publishes the list of Global Systemically Important Banks (G-SIBs) each November. The December 31, 2022 Bank Capital Analysis uses the list of G-SIBs released on November 21, 2022. 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 March 1, 2023. 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 (including Silicon Valley Bank and Signature Bank, which have since failed). 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 99 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 with no holding company). Community Banking Organizations (CBO): Banking organizations less than $10 billion, excluding subsidiaries of G-SIBs, non-U.S. banks, LBOs and RBOs. There are 3,894 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 (Category I and II) banking organizations, generally those above $700 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. 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] 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 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.

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.
- Asset growth slowed to 2.1 percent year-over-year (YoY) in 2022 across all banking organizations, with GSIBs experiencing a 1.5 percent YoY decline in assets and non-GSIBs increasing assets by 7.7 percent YoY. Bank balance sheets remain inflated, collectively having grown 31 percent since year-end 2019, but bank deployment of excess funds has evolved.
    - In 2020, following the onset of the COVID-19 pandemic, the largest banks experienced most of their asset growth in cash held as reserves and in U.S. Treasury securities; while community and regional banking organizations had most of their growth in 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.
    - In 2022, rising interest rates and stronger loan demand slowed securities growth (1.7 percent YoY) and resulted in banks using excess cash built up in 2020 to fund loan growth, reversing trends seen early in the pandemic. Community, regional and large banking organizations (CBOs, RBOs and LBOs, respectively) have experienced the largest percentage of their asset growth since year-end 2019 in loans (17.5 percent YoY increase in 2022), followed by securities. GSIBs' asset growth since year-end 2019 continues to be in cash (63 percent of which is held as reserves) and securities (68 percent of which was in U.S. Treasuries), though cash started to decline in 2022, decreasing 14.1 percent YoY, but still 61.7 percent higher than year-end 2019 (Chart S.1).
- While securities growth slowed for CBOs and RBOs, and even declined across LBOs and GSIBs in 2022, U.S. commercial banks collectively increased securities holdings by $1.8 trillion dollars in the three years ending December 31, 2022 (54.2 percent). Beyond the significant growth, the increased holdings were primarily in longer-dated maturities, extending portfolio duration and exposing banks to heightened interest rate risk. Rapidly rising interest rates have led to historically high unrealized losses in 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 accumulated other comprehensive income, or AOCI). The change in AOCI in 2022 amounted to a combined decline in common equity of approximately $63.7 billion (6.4 percent of

tier 1 capital).[4] Unrealized losses on AFS securities are one among several components impacting GSIB AOCI but make up a considerable portion of the changes to AOCI in recent periods.[5]

- 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 December 31, 2022, GSIBs collectively increased HTM securities by 9.4 percent YoY, while reducing AFS securities by 25.0 percent. GSIBs collectively hold 64.0 percent of their securities in HTM securities – *up from 31.3 percent at year-end 2019* – compared to 37.7 percent, 25.0 percent, and 16.2 percent for LBOs, RBOs, and CBOs, respectively (Chart S.2). Unrealized losses on U.S. GSIBs' HTM securities portfolio were $237.2 billion, which would represent 23.7 percent of tier 1 capital, at year-end 2022.[6]
- 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.[7] Since the rule expired on March 31, 2021, the SLR has exhibited a downward trend as growth in leverage exposure has outpaced capital formation. This trend reversed in the second half of 2022 when GSIBs' aggregate leverage exposure declined for the first time since the onset of the pandemic (Chart S.3). GSIBs' shareholder payout ratio declined from 74.7 percent at year-end 2021 to 60.7 percent at year-end 2022, driven by a continued 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.[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 36 basis points to 6.30 percent (Column B) and 100 basis points to 6.94 percent (Column C), respectively, using data as of December 31, 2022.

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[4] 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 are estimated as fair value less amortized cost, which does not reflect tax effects.

[5] Unrealized losses on AFS securities are not reported as a separate line item in AOCI. The fair value of GSIBs' AFS securities less amortized cost was $45.4 billion as of December 31, 2022, but does not reflect tax effects that are accounted for in AOCI.

[6] Calculated as fair value less amortized cost, which does not reflect tax effects.

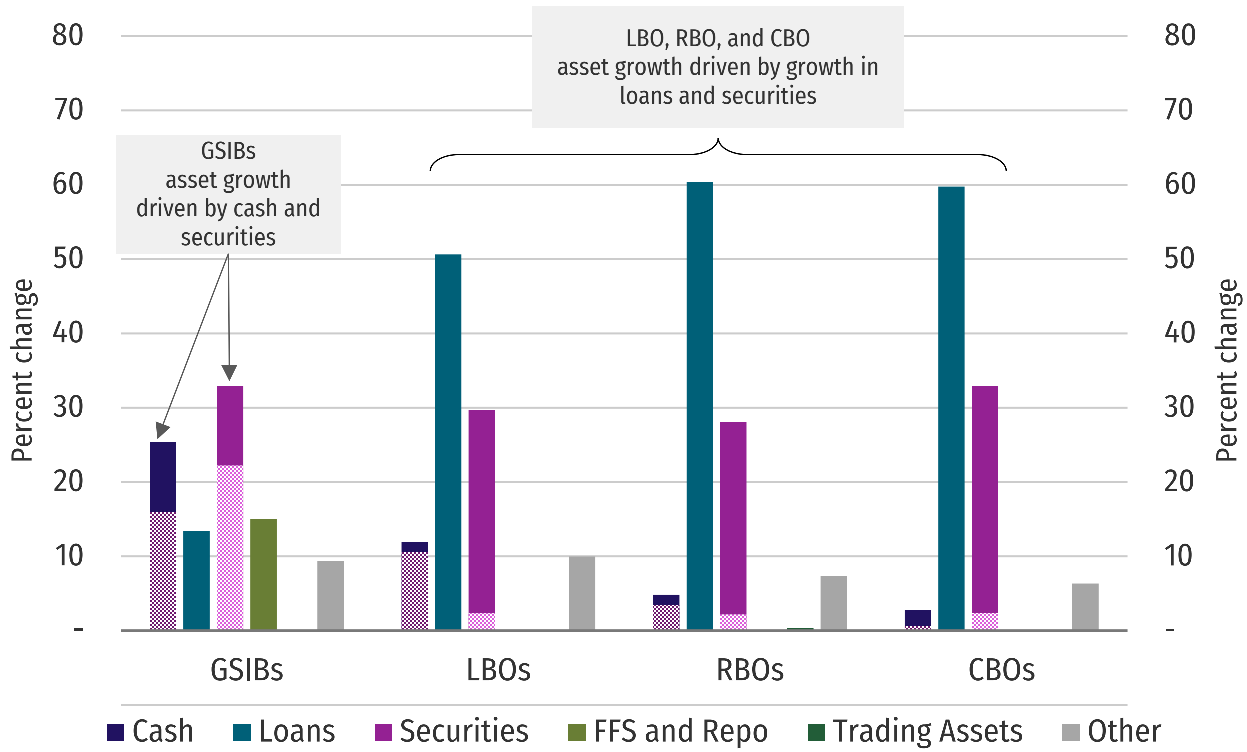
[7] As of December 31, 2020, U.S. G-SIBs' cash held as reserves and U.S. Treasury securities had increased by $885 billion in aggregate from a 2017-2019 average starting point.

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

Chart S.1

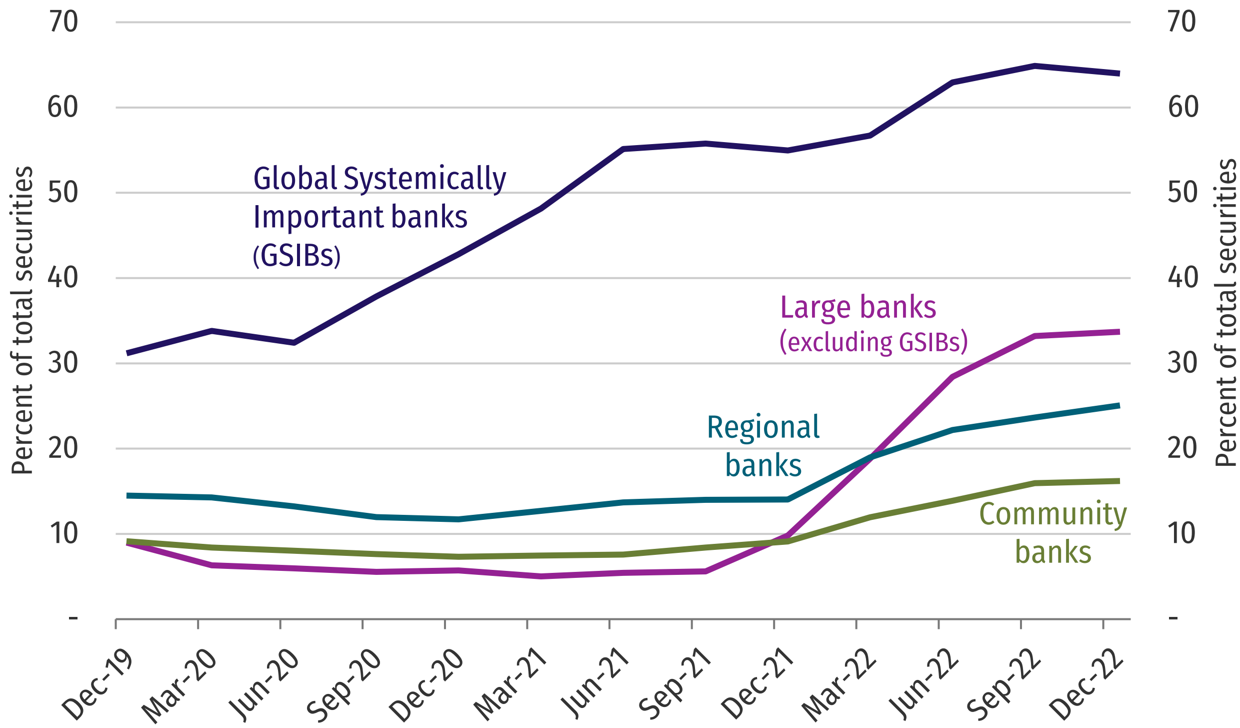
Asset Utilization by Bank Portfolio Group

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



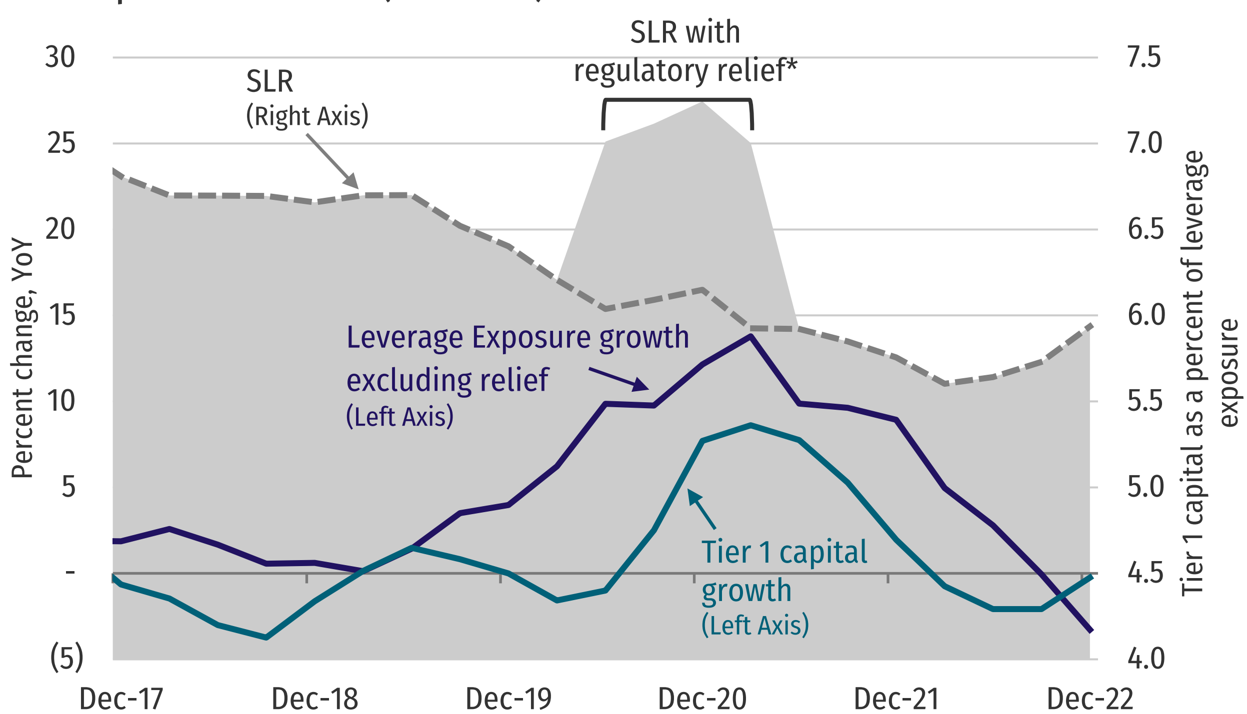
Notes: The shaded portion of Cash represents the increase in cash held as reserves. The shaded portion of Securities represents the increase in U.S. Treasury Securities.
Sources: Federal Reserve Y-9C Reports for G-SIBs, LBOs and RBOs and FFIEC Call Reports for CBOs.

Chart S.2
HTM Securities by Bank Portfolio Group



Sources: Federal Reserve Y-9C Reports for G-SIBs, LBOs and RBOs and FFIEC Call Reports for CBOs.

Chart S.3
SLR Component YoY 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, 2022

	As reported			Hypothetical adjustments			
	SLR (as reported)	Change from 4Q21 (bps)	Change from 2Q22 (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	5.92	▲ 46	▲ 37	6.12	▲ 20	6.80	▲ 89
Bank of New York Mellon Corporation	6.80	▲ 17	▲ 59	6.80	— 0	7.84	▲ 104
Citigroup Inc.	5.82	▲ 9	▲ 19	6.12	▲ 30	6.85	▲ 103
Goldman Sachs Group, Inc.	5.81	▲ 22	▲ 22	6.38	▲ 57	7.12	▲ 130
JPMorgan Chase & Co.	5.62	▲ 24	▲ 37	6.07	▲ 44	6.68	▲ 106
Morgan Stanley	5.52	▼ (13)	▲ 16	5.62	▲ 10	6.17	▲ 65
State Street Corporation	6.96	▼ (43)	▲ 34	6.96	— 0	7.60	▲ 64
Wells Fargo & Company	6.86	▼ (4)	▲ 23	7.21	▲ 35	7.54	▲ 68
U.S. G-SIBs (% Weighted Average)	**5.94**	▲ 18	▲ 29	**6.30**	▲ 36	**6.94**	▲ 100

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, reserve adjustments were not made for these firms for this hypothetical exercise.

Sources: Federal Reserve Y-9C Reports, FFIEC Call Reports (for reserves) and FFIEC 101 Reports.