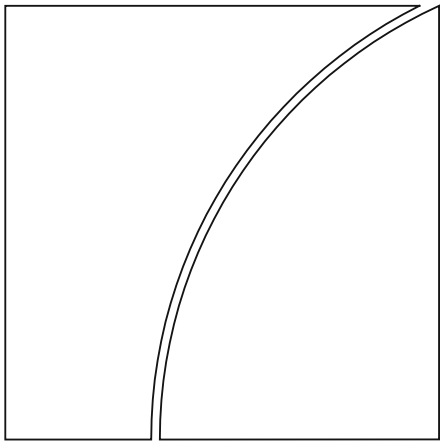
Basel Committee
on Banking Supervision



Basel III
Monitoring Report

September 2023

BIS

Queries regarding this document should be addressed to the Secretariat of the Basel Committee on Banking Supervision (e-mail: qis@bis.org).

Since the report published in September 2021, the monitoring reports no longer include a statistical annex. However, the data underlying the graphs are available for download as a separate Excel file. This presents the same data as the Annex in previous reports but in a format that is easier to use for readers' own analyses. Some analyses that were previously presented in the leverage ratio, liquidity and credit risk sections of the report have been published as Tableau dashboards. Additional analyses presented in the report will be made available in this innovative format in the coming months. The Committee welcomes any feedback on these new formats at qis@bis.org.

This publication is available on the BIS website (www.bis.org/bcbs/qis/).

Grey underlined text in this publication shows where hyperlinks are available in the electronic version.

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Basel III Monitoring Report

September 2023

Annexes

Conventions used in this report

billion thousand million
trillion thousand billion
lhs, rhs left-hand scale, right-hand scale

Group 1 banks are those that have Tier 1 capital of more than €3 billion and are internationally active. All other banks are considered Group 2 banks.

Components may not sum to totals because of rounding.

The term "country" as used in this publication also covers territorial entities that are not states as understood by international law and practice but for which data are separately and independently maintained.

All data, including for previous reporting dates, reflect revisions received up to 7 August 2023.

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of the Basel Committee on Banking Supervision

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Highlights of the Basel III monitoring exercise as of 31 December 2022

After their downturn at end-June 2022, initial Basel III capital ratios increase and rise above pre-pandemic levels

Liquidity Coverage Ratio declines but remains above pre-pandemic levels

To assess the impact of the Basel III framework on banks, the Basel Committee on Banking Supervision monitors the effects and dynamics of the reforms. For this purpose, a semiannual monitoring framework has been set up on the risk-based capital ratio, the leverage ratio and the liquidity metrics using data collected by national supervisors on a representative sample of institutions in each country. Since the end-2017 reporting date, the report also captures the effects of the Committee's finalisation of the Basel III reforms.[1] This report summarises the aggregate results using data as of 31 December 2022.[2] The Committee believes that the information contained in the report will provide relevant stakeholders with a useful benchmark for analysis.

Information considered for this report was obtained by voluntary and confidential data submissions from individual banks and their national supervisors. At the jurisdictional level, there may be mandatory data collections ongoing, which also feed into this report. Data were included for 178 banks, including 111 large internationally active ("Group 1") banks, among them 29 G-SIBs, and 67 other ("Group 2") banks.[3] Members' coverage of their banking sector is very high for Group 1 banks, reaching 100% coverage for some countries, while coverage is lower for Group 2 banks and varies by country.

In general, this report does not consider any transitional arrangements such as grandfathering arrangements. Rather, the estimates presented generally assume full implementation of the Basel III requirements based on data as of 31 December 2022. No assumptions have been made about banks' profitability or behavioural responses, such as changes in bank capital or balance sheet composition, either since this date or in the future. Furthermore, the report does not reflect any additional capital requirements under Pillar 2 of the Basel III framework or any higher loss absorbency requirements for domestic systemically important banks, nor does it reflect any countercyclical capital buffer requirements.

[1] See Basel Committee on Banking Supervision, *High-level summary of Basel III reforms*, December 2017, www.bis.org/bcbs/publ/d424_hlsummary.pdf; Basel Committee on Banking Supervision, *Basel III: Finalising post-crisis reforms*, December 2017, www.bis.org/bcbs/publ/d424.htm.

[2] A list of previous publications is included in the Annex.

[3] Group 1 banks are those that have Tier 1 capital of more than €3 billion and are internationally active. All other banks are considered Group 2 banks. Not all banks provided data relating to all parts of the Basel III framework.

Overview of results (unbalanced data set) Table 1

	30 June 2022[1]			31 December 2022		
	Group 1	Of which: G-SIBs	Group 2	Group 1	Of which: G-SIBs	Group 2
Initial Basel III framework						
CET1 ratio (%)	12.7	12.6	16.8	13.1	13.1	16.8
Target total capital shortfalls (€ bn)[2]	0.0	0.0	0.0	0.0	0.0	0.0
TLAC shortfall 2022 minimum (€ bn)	35.1	35.1		34.4	34.4	
Total accounting assets (€ bn)	81,839.4	59,481.9	2,417.9	80,915.3	55,405.3	4,193.2
Leverage ratio (%)[3]	5.8	5.7	5.8	6.1	5.9	6.3
LCR (%)	138.2	137.5	220.0	132.0	134.2	188.4
NSFR (%)	123.5	125.2	132.3	124.4	126.7	132.2
Fully phased-in final Basel III framework (2028)						
Change in Tier 1 MRC at the target level (%)	2.8	3.2	-2.0	3.0	2.9	6.6
CET1 ratio (%)	12.5	12.5	14.3	12.7	12.8	14.7
Target capital shortfalls (€ bn); of which:	7.8	7.8	0.0	3.2	3.2	1.1
CET1	3.5	3.5	0.0	0.0	0.0	0.1
Additional Tier 1	1.9	1.9	0.0	0.0	0.0	0.4
Tier 2	2.4	2.4	0.0	3.2	3.2	0.6
TLAC shortfall 2022 minimum (€ bn)	29.8	29.8		37.4	37.4	
Leverage ratio (%)[3]	6.0	5.9	5.8	6.1	6.0	6.3

See Table A.4 for the target level capital requirements. [1] The values for the previous period may differ slightly from those published in the end-December 2021 report at the time of its release. This is caused by data resubmissions for previous periods to improve the underlying data quality and enlarge the time series sample. [2] Uses the 2017 definition of the leverage ratio exposure measure. [3] The leverage ratios reflect temporary exclusions from leverage exposures introduced in some jurisdictions.

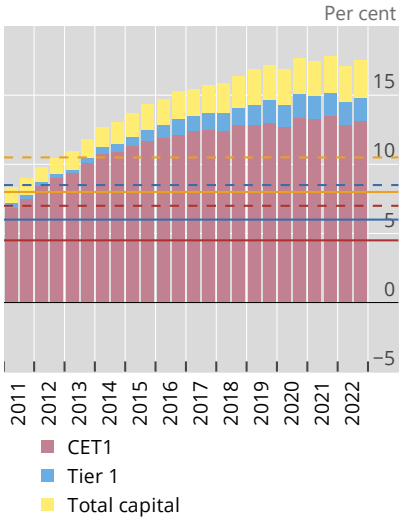
Source: Basel Committee on Banking Supervision.

- Compared with the end-June 2022 reporting period, the average Common Equity Tier 1 (CET1) capital ratio under the initial Basel III framework increased from 12.7% to 13.1% for Group 1 banks in H2 2022.
- The average impact of the Basel III framework on the Tier 1 minimum required capital (MRC) of Group 1 banks is slightly higher (+3.0%) when compared with the 2.8% increase at end-June 2022. The average increase for G-SIBs is 2.9%.
- After the increase in capital shortfalls in June 2022, capital shortfalls under the final Basel III framework decreased again in H2 2022 but still remain above the end-2021 level for Group 1 banks and G-SIBs.
- Applying the 2022 minimum total loss-absorbing capacity (TLAC) requirements and the initial Basel III framework, four of the 24 G-SIBs reporting TLAC data reported an aggregate incremental shortfall of €37.4 billion.
- Group 1 banks' average Liquidity Coverage Ratio (LCR) fell from 138.2% to 132.0% while the average Net Stable Funding Ratio (NSFR) increased from 123.5% to 124.4%.
- Group 2 banks' results based on the unbalanced data set should not be compared with the previous period due to significant changes in the sample.

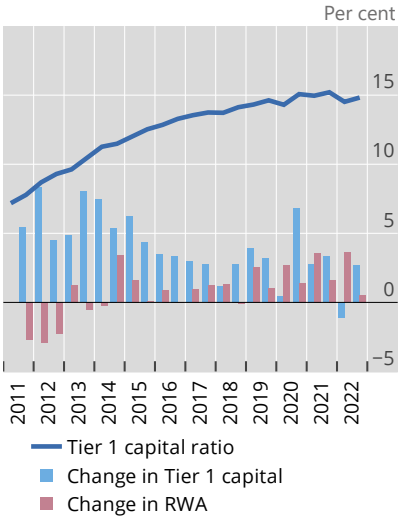
After their downturn at end-June 2022, initial Basel III capital ratios increase and rise above pre-pandemic levels

Group 1 banks, balanced data set — Graph 1

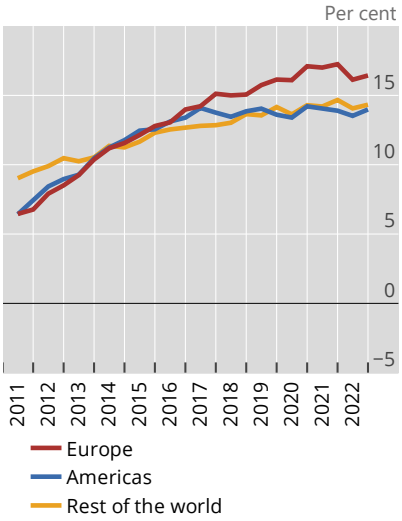
CET1, Tier 1 and total capital ratios[1]



Determinants of changes[2]



Tier 1 ratios by region[3]



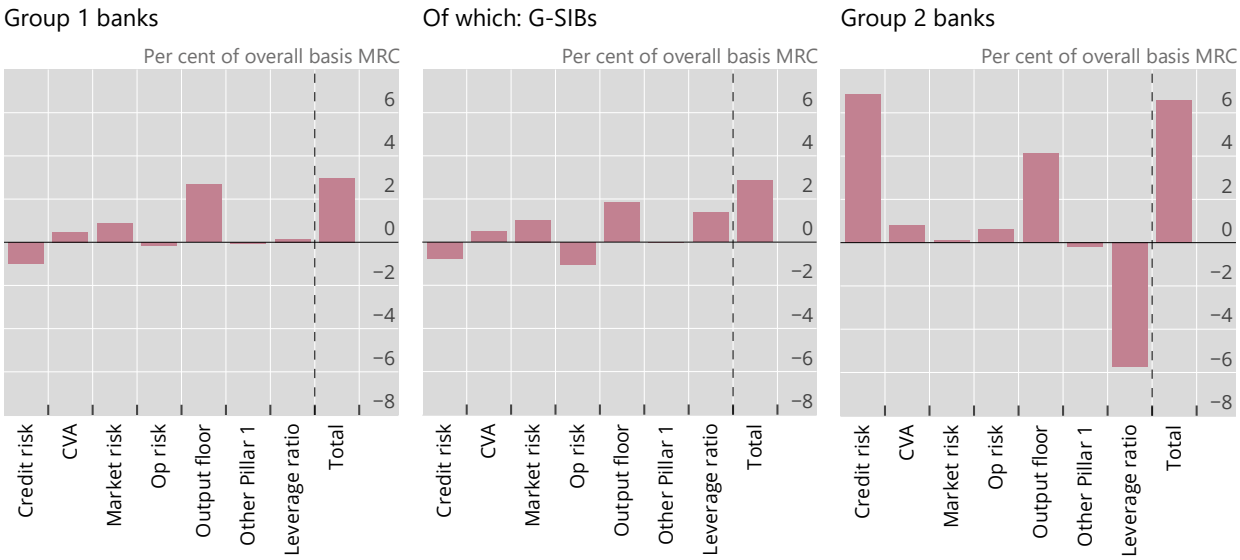
[1] The solid lines depict the relevant minimums, the dotted lines the minimums plus the capital conservation buffer. See Table A.4 for the relevant levels. [2] Exchange rates as of the current reporting date. [3] See Table B.1 for the composition of the regions.

Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

- The balanced data set for Group 1 banks showed an increase in initial Basel III capital ratios in H2 2022, driven by an increase in Tier 1 capital of larger magnitude than the increase in RWA. The overall CET1 capital ratios for Group 1 banks in the balanced data set were 13.1% in December 2022.
- Currently, the Tier 1 capital ratios are higher in Europe than in the Americas and the rest of the world region. However, when compared with data starting from 2011, this relationship was reversed before 2014.

Impact of final Basel III standards for Group 1 banks slightly higher compared with previous exercise

Change in Tier 1 MRC at the target level due to the final Basel III standards — Graph 2



Credit risk shows the change in MRC due to revised standardised and internal ratings-based approaches, including securitisation. Operational risk figures may not show supervisor-imposed capital add-ons under Pillar 2. Therefore, changes in MRC may be overestimated. Output floor results are net of the existing Basel I-based floor according to national implementation of the Basel II framework. The target level accounts for Tier 1 minimum capital requirements and the capital conservation buffer (ie resulting in an 8.5% Tier 1 capital requirement), as well as any applicable G-SIB surcharge.

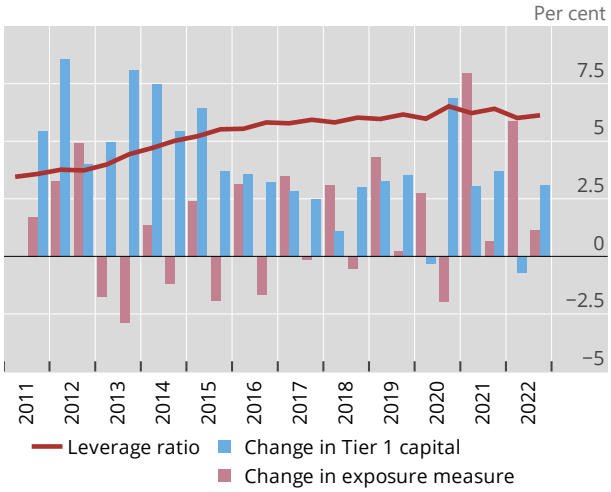
Source: Basel Committee on Banking Supervision. See also Table 4.

- For Group 1 banks, the Tier 1 minimum required capital (MRC) would increase by 3.0%, following the full phase-in of the final Basel III standards. The incremental impact of leverage ratio requirements being 0.2% in December 2022, the increase in MRC is mainly attributable to risk-based components. This dynamic is positively driven by CVA (+0.5%), market risk (+0.9%), operational risk (–0.2%) and the output floor (+2.7%), whereas credit risk (–1.0%) and other Pillar 1 requirements (–0.1%) have a negative impact on the overall increase in MRC.
- The impact on MRC across regions varies considerably for Group 1 banks with a moderate decrease in the rest of the world region (–2.6%), a small increase in the Americas (+0.9%) and, in contrast, a strong increase in MRC for European banks (+14.6%).
- For Group 2 banks, the overall 6.6% increase in Tier 1 MRC is driven by an increase in the risk-based measure of 12.3%, stemming mainly from credit risk (+6.8%) and the output floor (+4.1%) while the leverage ratio partially offsets this increase at –5.7%.
- The average impact of the final Basel III framework on Group 1 banks, at +3.0%, is 20 basis points higher than at mid-2022 (+2.8%).

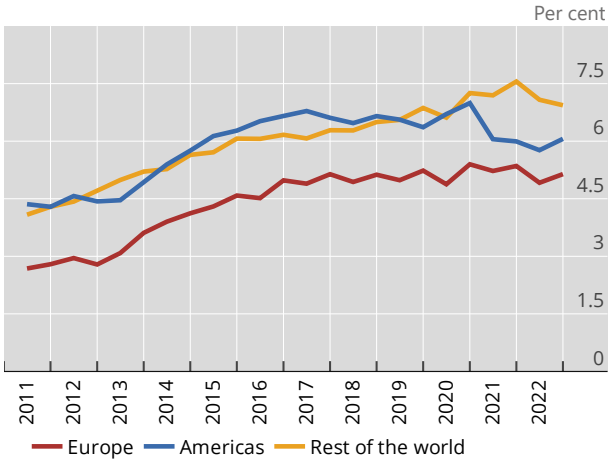
Fully phased-in Basel III leverage ratios[1] of large internationally active banks increase on average in H2 2022

Group 1 banks, balanced data set, exchange rates as of the current reporting date — Graph 3

Leverage ratios and their determinants



Leverage ratios by region



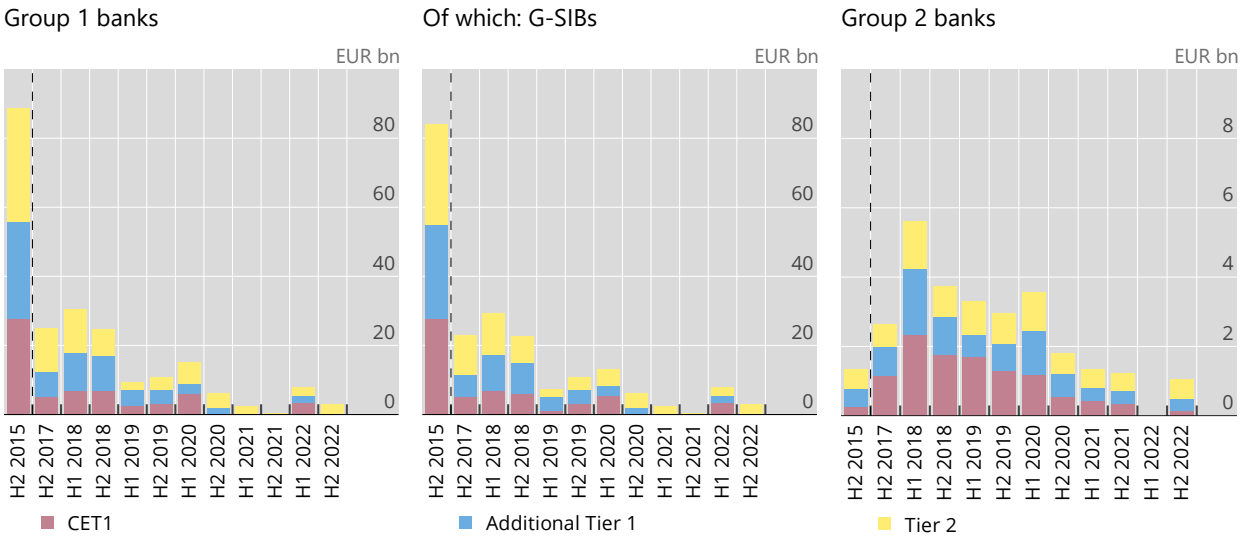
[1] Data points from H1 2011 to H2 2012 use the original definition of the leverage ratio. Data points from H1 2013 to H1 2017 use the definition of the leverage ratio set out in the 2014 version of the framework. Note that the data points for H1 2013 use an approximation for the initial definition of the Basel III leverage ratio exposure where gross instead of adjusted gross securities financing transaction values are used. Data points from H2 2017 onwards use the final definition of the leverage ratio to the extent data are available. Temporary exclusions from the leverage ratio exposure measure in the context of Covid-19 have not been added back.

Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

- For the unbalanced data set at the end-December 2022 reporting date, the average fully phased-in final Basel III Tier 1 leverage ratios are 6.1% for Group 1 banks, 6.0% for G-SIBs and 6.3% for Group 2 banks.
- For the balanced data set of Group 1 banks, the leverage ratio increased from the prior period, driven by banks in Europe and the Americas. This increase in leverage ratios in the Americas contrasts with the sharp decrease that started at end-June 2020.
- Leverage ratios are still lower in Europe (5.1%) as compared with the Americas (6.1%) and the rest of the world (6.9%).

Combined capital shortfalls at the target level under the final Basel III standards decrease for large internationally active banks

Fully phased-in final Basel III standards,[1] sample and exchange rates as at the reporting dates — Graph 4



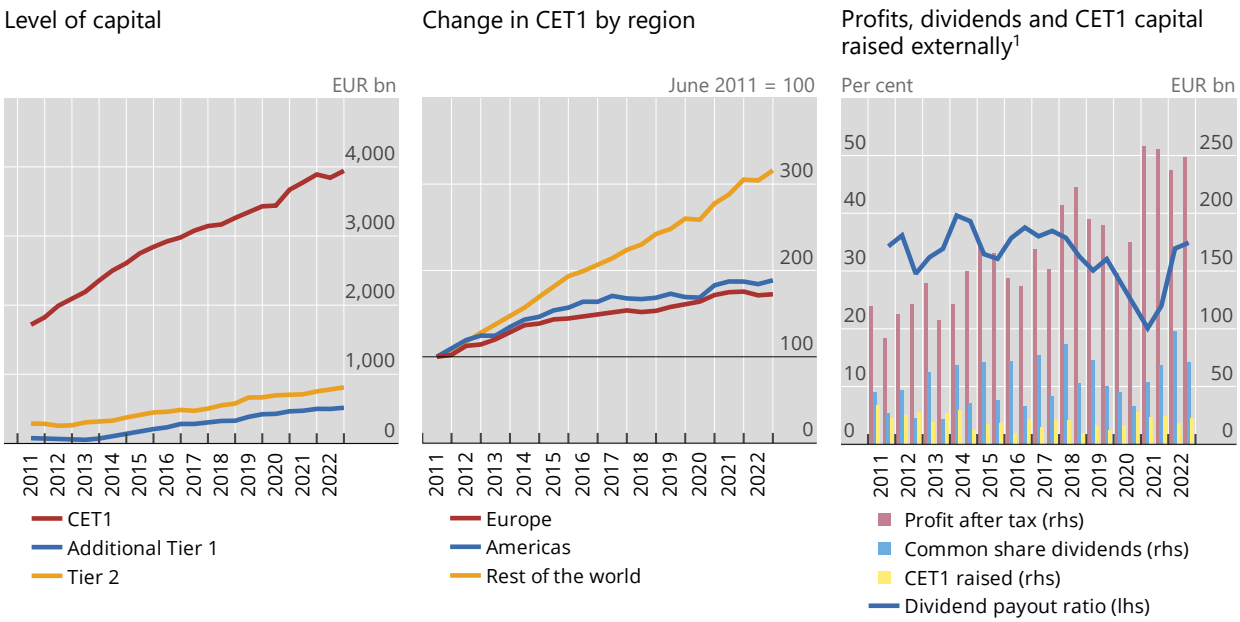
[1] Results for H2 2015 are based on the Committee's cumulative Quantitative Impact Study and are not fully comparable from a methodological point of view. Compared with H2 2017 and H1 2018, the results since H2 2018 include the revised market risk framework as finalised in January 2019.

Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

- For this reporting date, Group 1 banks registered total regulatory capital shortfalls amounting to €3.2 billion, compared with €7.8 billion at end-June 2022.
- For Group 2 banks, the aggregate total capital shortfall is further decreasing from its high in 2018. The total amount of capital shortfalls of Group 2 banks was €1.1 billion in December 2022. While the shortfall was zero at the June 2022 reporting date, this was due to a significantly smaller sample.

Fully phased-in regulatory CET1 increases during H2 2022 for large internationally active banks; profits and dividend payout ratio remain above pre-pandemic levels

Group 1 banks, balanced data set, exchange rates as of the current reporting date — Graph 5



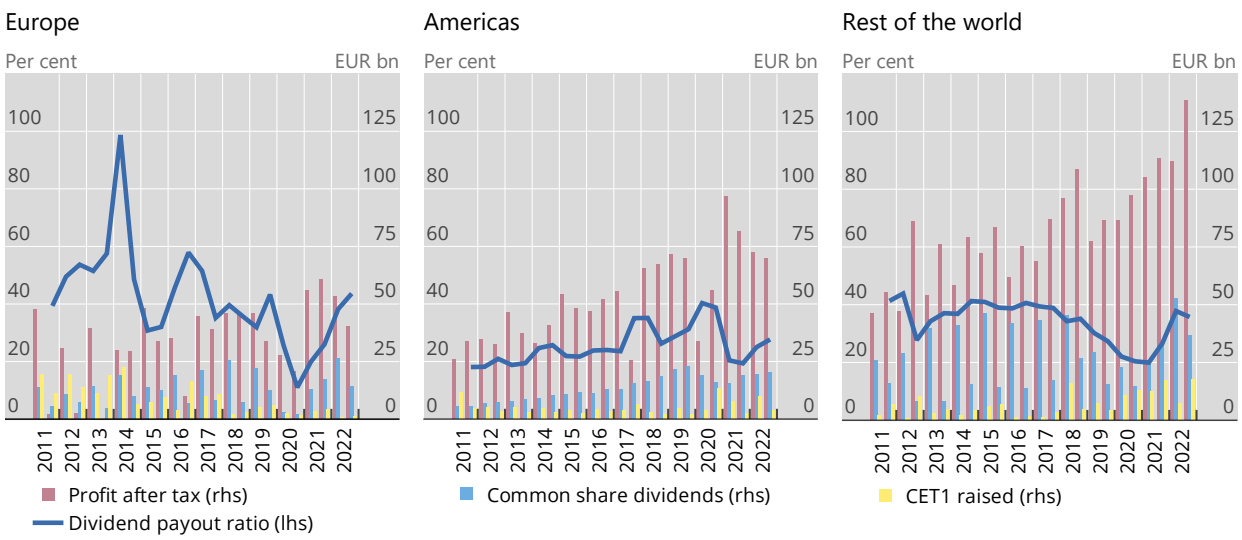
[1] The dividend payout ratio is calculated as common share dividends divided by profits after tax by using a rolling 12-month window.

Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size. Worksheets "Graph 33a", and "Graph 36" provide an additional regional breakdown for Group 1 banks.

- From end-December 2011 to end-December 2022, the level of Group 1 banks' CET1 capital increased by 130% from €1,717 billion to €3,943 billion. Since end-June 2022, Group 1 CET1 capital has increased by €100 billion (or 2.6%).
- Over H2 2022, CET1 capital remained unchanged in Europe and increased slightly in the Americas and in the rest of the world region. While CET1 capital in the rest of the world is now more than three times its 2011 value, the increase in Europe and in the Americas has been more limited, at 72% and 89% respectively.
- Overall, Group 1 banks' profits after tax increased for the banks in the sample and stood at €248.4 billion in H2 2022, above pre-pandemic levels. The dividend payout ratio stood at 34.9%, its highest value since end-2018. This can be explained by banks no longer facing the dividend payout restrictions that were introduced at the beginning of the Covid-19 pandemic.

Profits varying across regions

Group 1 banks, balanced data set, exchange rates as of the current reporting date — Graph 6



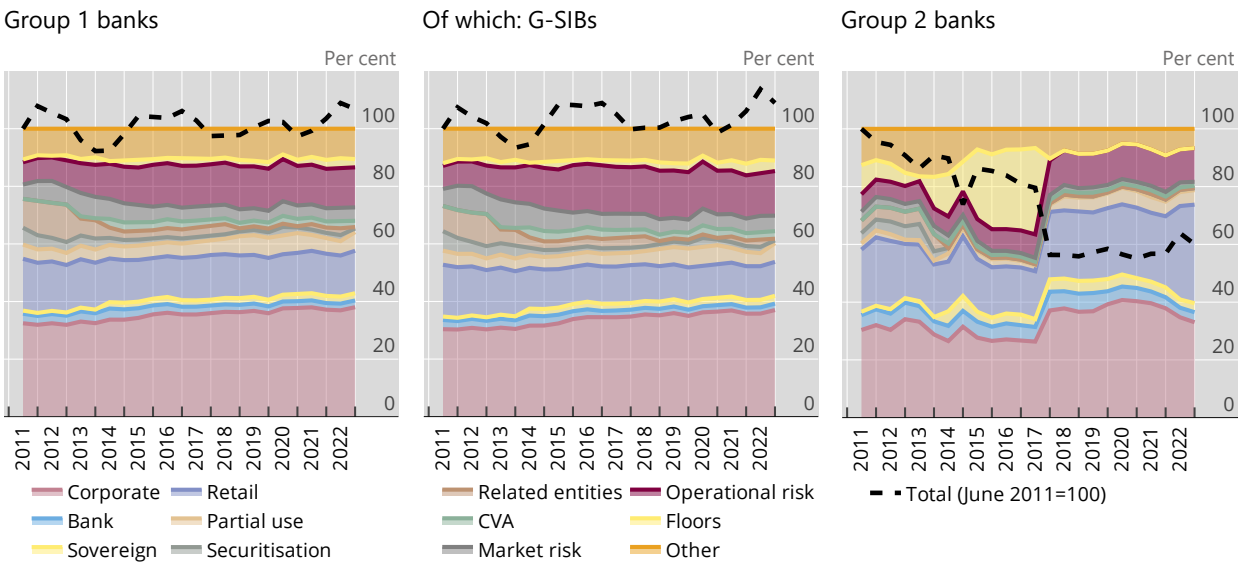
The dividend payout ratio is calculated as common share dividends divided by profits after tax by using a rolling 12-month window.

Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

- Annual after-tax profits for the Group 1 banks in the sample saw a significant decrease in Europe and the Americas (–19.8% and –20.3% respectively) while they strongly increased in the rest of the world region (+14.7%) compared with the 12-month period ending December 2021.
- Since the previous reporting date, the annual dividend payout ratios have increased in Europe and the Americas. They are still significantly below the record-high ratios observed in 2019 and 2020 in the Americas, while they are at pre-pandemic levels in Europe and the rest of the world.

Analysis of share of MRC by asset class[1] according to current rules shows increase in credit risk MRC driven by corporates and decrease in securitisations

Balanced data set — Graph 7



[1] Exposures subject to partial use of the standardised approach for credit risk that cannot be assigned to a specific portfolio, as well as past-due items under the standardised approach, are listed separately as "partial use". "Related entities" includes capital requirements specified in Part 1 of the Basel II framework. The category "other" includes capital requirements for other assets; the current Basel I-based output floor; Pillar 1 capital requirements in member countries for risks not covered by the Basel framework; reconciliation differences; and additional capital requirements due to regulatory calculation differences and general provisions. The latter item can lead to negative capital requirements in cases where there is an excess in provisions, which can be recognised in a bank's Tier 2 capital. Furthermore, for banks that apply the standardised approach, general provisions may be recognised to some extent as Tier 2 capital; consequently, MRC is reduced by this amount. The term "reconciliation differences" refers to the difference between MRC reported at the entire bank level and the sum of MRC reported for the individual portfolios.

Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

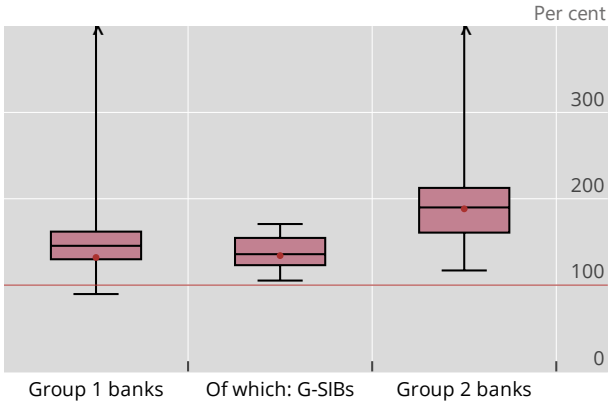
- As of December 2022 and for a balanced data set of Group 1 banks, credit risk[4] continues to be the dominant portion of overall MRC, on average covering 65.9% of total MRC. However, the share of credit risk has declined significantly from 75.6% at end-June 2011.
- The share of operational risk MRC increased sharply from 7.7% at the end of June 2011 to 14.9% at the end of 2018 and then decreased slightly to reach 13.9% at the current reporting date. The increase in the early 2010s was attributed in large part to the surge in the number and severity of operational risk events during and after the financial crises, which are factored into the calculation of MRC for operational risk under the advanced measurement approach. More recently, there is some "fading out" of the financial crisis losses so that in 2020, the lowest loss level of the past 10 years is observed. This explains the latest decrease in capital requirements especially for the banks heavily affected in the financial crisis. On the other hand, losses triggered by the Covid-19 pandemic are not yet having a significant impact on the loss severity level, but this may change given that the pandemic is still ongoing.
- Among the credit risk asset classes, the share of MRC for corporate exposures increased over the observed period from 32.5% at end-June 2011 to 38.0% at the current reporting date. The share of MRC for securitisation exposures declined from 5.8% to 1.3% between June 2011 and December 2022.

[4] Here overall credit risk is defined as the sum of corporate, bank, retail, sovereign, partial-use, securitisations and related entities as illustrated in the graph.

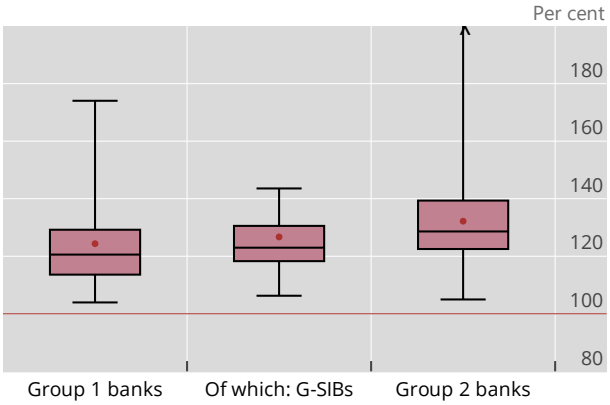
Average LCR declines while average NSFR increases; all banks exceed 100% threshold for NSFR[1]

Overall distribution — Graph 8

Liquidity Coverage Ratio[2]



Net Stable Funding Ratio



[1] The median value is represented by a horizontal line, with 50% of the values falling in the 25th to 75th percentile range shown by the box. The upper and lower end points of the thin vertical lines show the range of the entire sample. In some cases, arrows at the top of the vertical line indicate banks with ratios outside the range shown in the graph. The dots represent weighted averages. [2] The sample is capped at 400%, meaning that all banks with an LCR above 400% were set to 400%. The dots represent weighted averages. The horizontal line represents the 100% minimum (applicable from 1 January 2019).

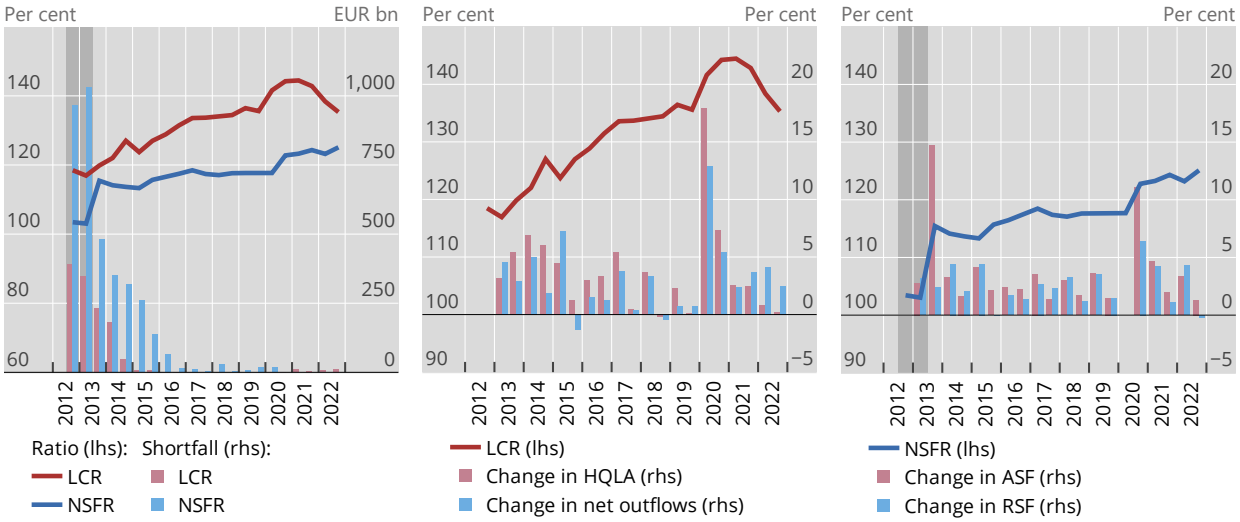
Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

- The weighted average LCR at end-December 2022 is 132.0% for Group 1 banks and 188.4% for Group 2 banks.
- In the current reporting period there are three Group 1 banks with an LCR below 100% and hence a shortfall (ie the difference between high-quality liquid assets and net cash outflows) which amounts to €15.1 billion.
- The weighted average NSFR was 124.4% for Group 1 banks and 132.2% for Group 2 banks at end-December 2022.
- All banks reported an NSFR that exceeded 100%.

For Group 1 banks, LCRs decrease but remain close to pre-pandemic levels; NSFRs increase and remain above pre-pandemic levels

Group 1 banks, balanced data set[1] Graph 9

LCR, NSFR and related shortfalls[2] | LCR and change in its determinants[3] | NSFR and change in its determinants[3]



[1] As described in Section 6.3, footnote 53, the NSFR time series depicts data reflecting NSFR standards released in December 2010, January 2014 and October 2014. [2] Exchange rates as at the reporting dates. [3] Exchange rates as of the current reporting date.

Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size. The worksheets "Graph 82", "Graph 85" and "Graph 89" provide additional regional breakdowns for Group 1 banks. The liquidity dashboards on the Committee's website provide the same breakdowns also for G-SIBs.

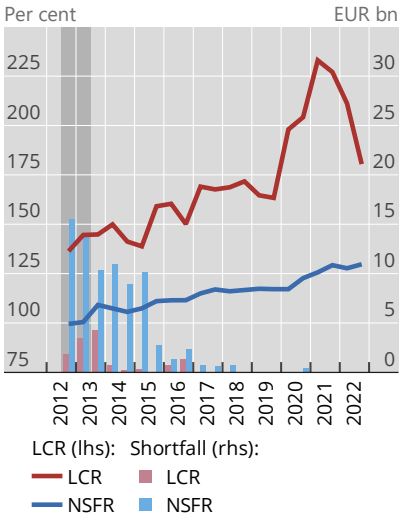
- For a balanced data set of Group 1 banks, all but three banks meet a 100% LCR at end-2022, resulting in an aggregate shortfall of €11.3 billion.[5] The shortfall has increased by €4.8 billion since June 2022. The average LCR for this sample decreased to 135.3% from 138.4% at end-June 2021.
- There was again no agreggate NSFR shortfall for the balanced data set of Group 1 banks. The average NSFR for the same sample of banks has increased from 123.2% to 125.1% in December 2022.
- While the NSFR ratio remains above pre-pandemic levels, the LCR is below its end-2019 level.

[5] Note that the LCR shortfall in the entire sample at end-December 2022 is €15.1 billion.

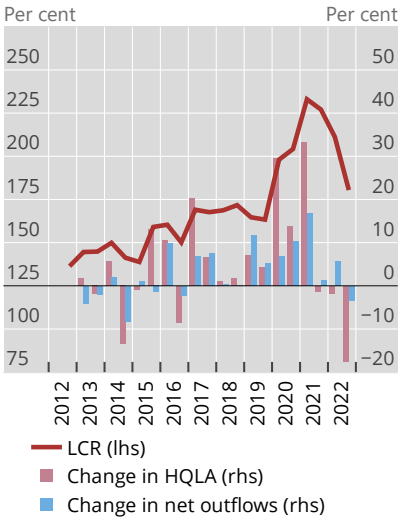
Group 2 banks show a decrease in the LCR and an increase in the NSFR with no shortfalls; both liquidity ratios remain significantly above pre-pandemic levels

Group 2 banks, balanced data set[1] Graph 10

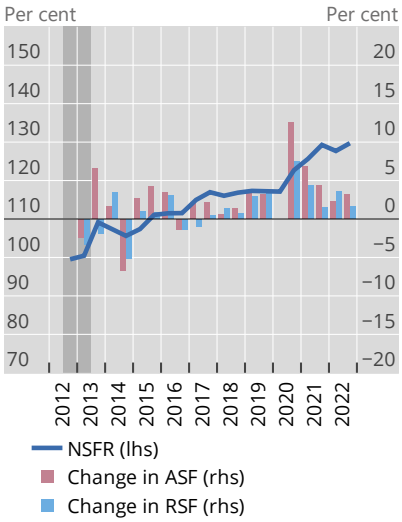
LCR, NSFR and related shortfalls[2]



LCR and change in its determinants[3]



NSFR and change in its determinants[3]



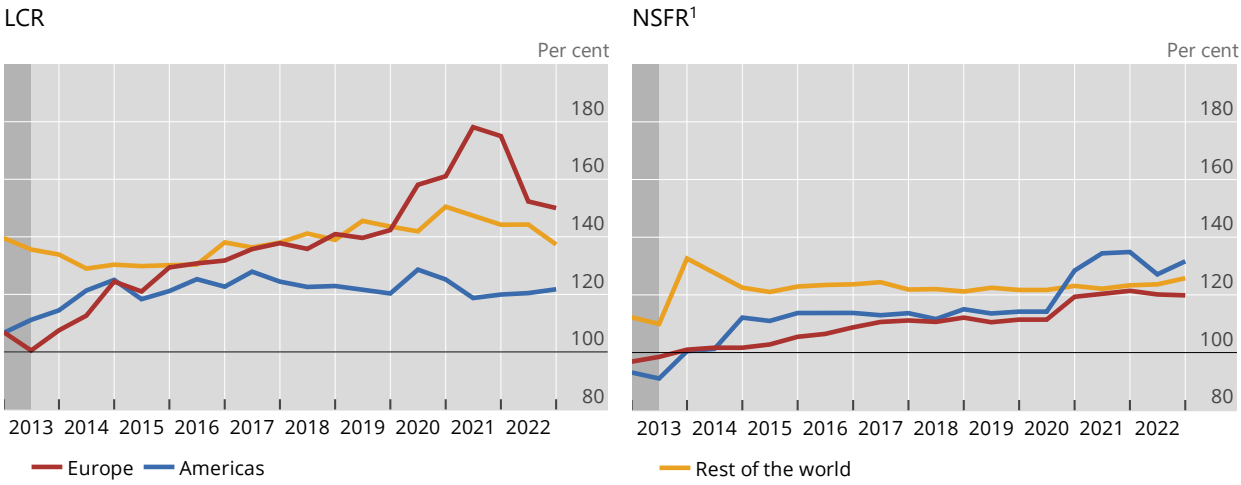
[1] As described in Section 6.3, footnote 53, the NSFR time series depicts data reflecting NSFR standards released in December 2010, January 2014 and October 2014. [2] Exchange rates as at the reporting dates. [3] Exchange rates as of the current reporting date.

Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

- For a balanced data set of Group 2 banks, the LCR shortfall has remained at zero since June 2017. The average LCR for the same sample of banks decreased by 30.7 percentage points to 180.4% in December 2022.
- The aggregate NSFR shortfall remained at zero for the balanced data set of Group 2 banks. The average NSFR for the same sample of banks increased by 2 percentage points to reach 129.7% in December 2022.
- The LCR remains above pre-pandemic levels while the NSFR continues to increase beyond pre-pandemic levels. At end-2019, the LCR of the same sample of Group 2 banks stood at 163.3%, the NSFR at 117.1%.

For Group 1 banks, LCRs decrease in Europe and the Americas during H2 2022, while NSFRs are trending upwards in the Americas and the rest of the world

Group 1 banks, balanced data set — Graph 11



[1] As described in Section 6.3, the NSFR time series depicts data reflecting NSFR standards released in December 2010, January 2014 and October 2014.

Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

- Since 2019, the weighted average LCR for each of Europe and the rest of the world has been above 140%, while the average LCR of the Americas is around 121%. While Europe and the Americas had initially lower average LCRs compared with the rest of the world, the average LCRs of Europe and the rest of the world had tended to converge gradually before the onset of the pandemic. The regions with lower end-2012 average ratios saw significant increases, in particular between end-2012 and June 2014, and Europe has seen such increases again since the start of the pandemic. The increase in Europe is now reversing, although the LCR of European banks is still above end-2019 levels.
- The weighted average NSFR at end-June 2021 for Group 1 banks in each of the three regions was well in excess of 100%. The average NSFRs in Europe and the Americas have increased from 111.4% and 114.2% at end-December 2019, respectively, to 119.8% and 131.7% at end-December 2022. After a significant drop during the previous exercise, the NSFR of banks in the Americas is again approaching its all-time high value (134.9%) of end-December 2021.

Detailed results of the Basel III monitoring exercise as of 31 December 2022

1. General remarks

At its 12 September 2010 meeting, the Group of Governors and Heads of Supervision (GHOS), the oversight body of the Basel Committee on Banking Supervision, announced a substantial strengthening of existing capital requirements and fully endorsed the agreements it had reached on 26 July 2010.[6] These capital reforms, together with the introduction of two international liquidity standards, are collectively referred to as "initial phase of Basel III reforms" or in short "initial Basel III" within this report. On 7 December 2017, the GHOS finalised the Basel III reforms[7] with a number of revisions that seek to restore credibility in the calculation of risk-weighted assets (RWA) and capital ratios of banks (referred to as "final Basel III" in this report). The Committee monitors and evaluates the impact of these capital, leverage and liquidity requirements on a semiannual basis.[8] This report summarises the results of the latest Basel III monitoring exercise using data as of 31 December 2022.[9] The Committee believes that the information contained in the report will provide relevant stakeholders with a useful benchmark for analysis.

Since the report published in September 2021, the monitoring reports no longer include a statistical annex. However, the data underlying the graphs are available for download as a separate Excel file. This presents the same data as the Annex in previous reports but in a format that is easier to use for readers' own analyses. Furthermore, most analyses have also been published as Tableau dashboards.[10] The Committee welcomes any feedback on these new formats at qis@bis.org.

1.1 Scope of the monitoring exercise

Almost all Committee member countries participated in the Basel III monitoring exercise as of 31 December 2022. The estimates presented are based on data submitted by the participating banks and

[6] See the 26 July 2010 press release "The Group of Governors and Heads of Supervision reach broad agreement on Basel Committee capital and liquidity reform package", www.bis.org/press/p100726.htm, and the 12 September 2010 press release "Group of Governors and Heads of Supervision announces higher global minimum capital standards", www.bis.org/press/p100912.htm.

[7] Basel Committee on Banking Supervision, *High-level summary of Basel III reforms*, December 2017, www.bis.org/bcbs/publ/d424_hlsummary.pdf; Basel Committee on Banking Supervision, *Basel III: Finalising post-crisis reforms*, December 2017, www.bis.org/bcbs/publ/d424.htm.

[8] A list of previous publications is included in the Annex.

[9] The data for Japan are as of the end of September 2022, as banks in that country report on a biannual basis as of the end of March and the end of September to correspond to the fiscal year-end period. Further, the data for Canada reflect a reporting date of 31 October 2022, which corresponds to Canadian banks' year-end.

[10] Given the reporting format for cryptoasset exposures has changed substantially following the Committee's publication of the final prudential standard on 16 December 2022 (www.bis.org/bcbs/publ/d545.htm), related analyses are only available as dashboards.

their national supervisors in reporting questionnaires and in accordance with the instructions prepared by the Committee.[11] The questionnaire covered components of eligible capital, the calculation of all aspects of RWA, the calculation of a leverage ratio and components of the liquidity metrics. Table A.3 in Annex A shows which standards are relevant for the relevant Basel III regime (initial Basel III, transitional Basel III and the fully phased-in Basel III framework). Technically, the remaining difference between the transitional and the fully phased-in Basel III frameworks is the level of the output floor which is 50% in 2023 (transitional final Basel III framework) and 72.5% in 2028 (fully phased-in final Basel III framework). This report reflects the finalisation of the market risk framework published in January 2019.[12]

The final data were submitted to the Secretariat of the Committee by 7 August 2023. The purpose of the exercise is to provide the Committee and the public with an ongoing assessment of the impact on participating banks of the capital and liquidity standards set out in the Basel standards.

The Committee appreciates the significant efforts contributed by both banks and national supervisors to this ongoing data collection exercise.

1.2 Sample of participating banks

Data on the initial Basel III framework were included for 178 banks, including 111 Group 1 banks and 67 Group 2 banks.[13] Group 1 banks are those that have Tier 1 capital of more than €3 billion and are internationally active. All other banks are considered Group 2 banks. Compared with end-December 2021 with 114 Group 1, 66 Group 2 banks and 180 banks overall, the sample decreased by four banks for Group 1 and increased by one bank for Group 2. However, while data availability from supervisory reporting was rather stable, the number of banks providing data on the final Basel III framework declined significantly. The impact of the final Basel III framework could only be assessed for a sample of 150 banks, among which 92 Group 1 banks and 58 Group 2 banks, which is an increase by six Group 1 banks and 18 Group 2 banks compared with the previous report.[14]

Banks were asked to provide data at the consolidated level as of 31 December 2022. Subsidiaries are not included in the analyses to avoid double-counting. For Group 1 banks, members' coverage of their banking sector was very high, reaching 100% coverage for some countries. Coverage for Group 2 banks was lower and varied across countries.

For a number of banks data relating to some parts of the Basel III framework were unavailable. Accordingly, these banks are excluded from individual sections of the Basel III monitoring analysis due to incomplete data. In certain sections, data are based on a balanced data set. This data set represents only those banks that reported necessary data at the June 2011 (labelled "H1 2011") through December 2022 ("H2 2022") reporting dates, to make more meaningful period-to-period comparisons. The balanced data set differs for the various analyses; typically, it includes around 77 Group 1 banks, of which 26 are G-SIBs, and around 20 Group 2 banks. The G-SIBs in the time series analyses are among those banks that have been classified as G-SIBs as of November 2022, irrespective of whether they have also been classified as G-SIBs previously.

[11] See Basel Committee on Banking Supervision, *Instructions for Basel III monitoring*, January 2021, www.bis.org/bcbs/qis/.

[12] Basel Committee on Banking Supervision, *Minimum capital requirements for market risk*, January 2019 (rev February 2019), www.bis.org/bcbs/publ/d457.htm.

[13] See Table B.1 in the Statistical Annex for details on the sample. Also note that this table shows banks for which data were generally included for the specific topics, but not necessarily sufficiently complete to be used in all analyses.

[14] See Table B.3 in the Statistical Annex for details on the sample for the assessment of the final Basel III framework. Also note that while all these banks provided data on the final Basel III credit and operational risk standards, some of them were unable to provide data on some other aspects of the final framework. To that extent, it was assumed that capital requirements would remain unchanged compared with the initial Basel III framework.

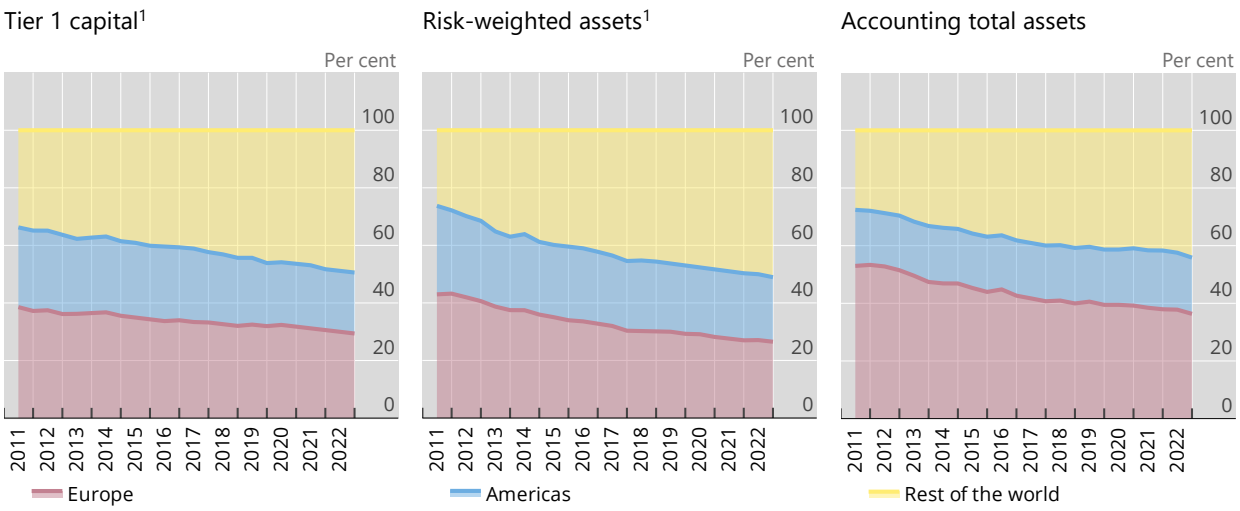
This report shows some of the results for three regional groupings – Europe, the Americas and the rest of the world. Table B.1 in the Statistical Annex provides detail on the composition of these country groupings. Table B.2 provides some additional sample statistics for the banks included in the exercise at the reporting date both overall and by region for Group 1 banks.

For a balanced data set of Group 1 banks participating in this exercise, Graph 12 shows the share of the three regions distinguished in this report in three key indicators: Tier 1 capital, risk-weighted assets and accounting total assets, using exchange rates as at the current reporting date. Since end-June 2011, the share of the Americas in Tier 1 capital has declined by 6.5 percentage points to 21.2%, while the share in RWA decreased by 8.3 percentage points to 22.4%. The Americas' share in accounting total assets remained stable at 19.5%. The share of European banks decreased by 9.2 percentage points to 29.4% in terms of Tier 1 capital, by 16.5 percentage points to 26.5% in terms of RWA and by 16.6 percentage points to 36.3% in terms of accounting total assets. Conversely, the share of banks in the rest of the world increased by 15.7 percentage points to 49.4% in terms of Tier 1 capital, by 24.8 percentage points to 51.1% in terms of RWA and by 16.6 percentage points to 44.2% in terms of accounting total assets.

Regional share of Tier 1 capital, total RWA and accounting total assets over time

Fully phased-in initial Basel III standards[1], Group 1 banks, balanced data set, exchange rates as of the current reporting date

Graph 12



[1] The graph shows the fully phased-in initial Basel III framework for the data points up to and including the end of 2018 and the actual framework in place at the reporting date for all data points thereafter.

Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

1.3 Methodology

1.3.1 Aggregation

Reported average amounts in this report have been calculated by creating a composite bank at a total sample level, which effectively means that the total sample averages are weighted. For example, the average common equity Tier 1 capital ratio is the sum of all banks' common equity Tier 1 (CET1) capital for the total sample divided by the sum of all banks' RWA for the total sample. Similarly, the average fully phased-in Basel III Tier 1 leverage ratio is the sum of all banks' fully phased-in Tier 1 capital for the total sample divided by the sum of all banks' Basel III leverage ratio exposures for the total sample.

1.3.2 Impact metrics

Throughout the report, effects of the reforms are frequently shown in terms of: (i) changes in minimum required capital (MRC); (ii) impact on capital ratios; and (iii) estimated capital shortfalls. MRC and shortfalls can be computed based on banks' minimum and target requirement levels. While the *minimum* levels reflect a risk-based 4.5% CET1, a 6% Tier 1 and an 8% total capital requirement as well as a 3% requirement for the Basel III leverage ratio, the *target* level also accounts for the capital conservation buffer (ie resulting in a 7% CET1, an 8.5% Tier 1 and a 10.5% total capital requirement), as well as any applicable G-SIB surcharge. Under the final Basel III framework, the target capital requirements also include the G-SIB buffer on the leverage ratio. Consistent with previous reports, this report does not reflect any additional capital requirements under Pillar 2 of the Basel framework, any higher loss absorbency requirements for domestic systemically important banks, nor does it reflect any countercyclical capital buffer requirements. However, it reflects any additional Pillar 1 RWA as reported by banks and their supervisors.

Reference points

Unless otherwise noted, the assessment of the final Basel III framework compares the fully phased-in final Basel III framework with the fully phased-in initial Basel III framework as implemented by the national supervisor.

Minimum required capital

Because the suite of post-crisis reforms includes revisions to RWA, expected loss (EL) amounts and the Basel III leverage ratio framework, the analysis of the final Basel III framework mainly focuses on MRC as a broad and integrated capital impact measure to aggregate the results. At the bank level, MRC is defined in this report as the sum of:

- the relevant target capital ratio level based on the Basel requirements times RWA, after consideration of all relevant floors;
- any capital effects from the treatment of EL amounts for credit risk and provisions at the relevant tier of capital, taking into account the split between defaulted and non-defaulted assets for those jurisdictions that require such a split;
- any capital effects from deductions which are an alternative to a 1,250% risk weighting treatment in certain national implementations of the Basel framework; and
- any incremental capital requirement (over and above the risk-based requirements including any floors) resulting from the Basel III leverage ratio.

This calculation is conducted for both the current *basis* and the *revised* regimes. Changes in MRC are hence calculated as follows:

$$\%\Delta MRC = \frac{MRC_{revised} - MRC_{basis}}{MRC_{basis}}.$$

Therefore, this formula reflects, among other elements:

- changes to the calculation of RWA (at the portfolio or risk type level RWA before output floors);
- changes to capital resulting from changes in the calculation of EL amounts for credit risk and the treatment of provisions;
- changes resulting from the move from the national implementation of the transitional Basel I-based floor (as collected through supervisory reported systems) to the aggregate output floor under the final Basel III framework; and
- changes to the definition of the Basel III leverage ratio exposure measure for all banks and to its level for G-SIBs (see below for the treatment of Covid-19-related exclusions).

Capital ratios

The impact of the reforms is also expressed in terms of its impact on capital ratios reflecting changes due to the reforms in both the numerator (through any effects on the treatment of EL amounts and provisions) and the denominator (through changes in RWA).

Leverage ratio

Temporary exclusions from the leverage ratio exposure measure in the context of Covid-19 have been added back to both the current and the fully phased-in leverage ratio exposure measures for the calculation of changes in MRC from the final Basel III framework. This separates the impact of the implementation of the final framework from the impact of the exclusions expiring. The exclusions have also been added back for the analysis of the combined shortfalls in Section 2.4 and for the analysis of the interactions between the regulatory measures in Section 5.2. The standalone analysis of the leverage ratio in Section 2.3 consistently reflects exclusions as applicable at the reporting date.

Combined shortfall analysis

In addition, a combined shortfall analysis at the three tiers of the Basel III capital ratios is conducted at the target level. The combined net shortfall at any capital tier is calculated as the difference (where positive) between the total required capital (accounting for both the risk-based requirements and the Basel III leverage ratio) at a given capital tier and the actual capital of the same tier held, net of any shortfall stemming from higher capital tiers. The last term is included since any higher tier capital (eg CET1) raised to meet a specific higher tier capital shortfall (eg CET1 shortfall) can also be used to meet any possible specific shortfall of a lower tier capital (eg any *additional* Tier 1 shortfall caused by risk-based and/or Basel III leverage ratio Tier 1 capital requirements).

1.3.3 Presentation

To preserve confidentiality, some of the results shown in this report are presented using box plot charts. The median value is represented by a horizontal line, with 50% of the values falling in the 25th to 75th percentile range shown by the box. The upper and lower end points of the thin vertical lines generally show the range of the entire sample; in some cases, arrows at the top of the vertical line indicate banks with changes outside the range shown in the graph. Finally, weighted averages are represented by dots.

Since most of the transitional arrangements for the initial Basel III framework expired at the end of 2018 (see Box A), this report no longer distinguishes the transitional and fully phased-in initial Basel III framework in the body of the text. Rather, relevant time series show the fully phased-in initial Basel III framework for the data points up to and including the end of 2018 and the actual framework in place at the reporting date for all data points thereafter. Interested readers will find a selection of tables showing time series for the transitional initial Basel III framework in the Excel files accompanying this report; these are in line with the presentation in previous reports. Furthermore, to the extent data are available, all data for the initial Basel III framework consistently reflect the impact of the output floor in the Basel II framework and any national floors in place.

1.3.4 Time series analysis and comparisons

To provide additional operational capacity for banks and supervisors to respond to the immediate financial stability priorities resulting from the impact of Covid-19, the Committee decided not to collect Basel III monitoring data for the end-June 2020 reporting date. Therefore, only data from supervisory reporting were collected. Graphs and tables that fully or partially use data from the monitoring exercise use banks' end-December 2019 data points also for the end-June 2020 reporting date. Where this is the case, it is mentioned in a footnote. Such graphs show no change between end-December 2019 and end-June 2020, and the change for the full year 2020 is shown between the end-June 2020 and end-December 2020 data points.

Box A

Phase-in provisions for risk-based capital requirements

The initial Basel III framework includes the following phase-in provisions for capital ratios:

- Regulatory adjustments (ie possibly stricter sets of deductions that apply under Basel III) were fully phased in by 1 January 2018;
- Capital instruments that no longer qualify as non-common equity Tier 1 or Tier 2 capital were phased out beginning 1 January 2013. Fixing the base at the nominal amount of such instruments outstanding on 1 January 2013, their recognition is capped at 90% from 1 January 2013, with the cap reducing by 10 percentage points in each subsequent year;
- An additional 2.5% capital conservation buffer above the regulatory minimum capital ratios, which must be met with CET1 capital, was phased in by 1 January 2019; and
- The additional loss absorbency requirement for G-SIBs, which ranges from 1.0% to 2.5%, was fully phased in by 1 January 2019. It is applied as an extension of the capital conservation buffer and must be met with CET1.

The final Basel III framework as amended by the 27 March 2020 press release includes phase-in provisions for the output floor, which will start at 50% on 1 January 2023, rise in annual steps of 5% and be fully phased in at the 72.5% level from 1 January 2028. Furthermore, the increase in RWA can be capped at 25% during the phase-in period at national discretion.

Table A.4 in Annex A includes a detailed overview of the Basel Committee's phase-in arrangements.

1.4 Data quality

For this monitoring exercise, participating banks submitted comprehensive and detailed non-public data on a voluntary and best-efforts basis. On jurisdictional level, there may be mandatory data collections ongoing which also feed into this report. As with the previous studies, national supervisors worked extensively with banks to ensure data quality, completeness and consistency with the published reporting instructions. In addition, particular attention has been paid on the reconciliation of reported data with existing data from supervisory reporting systems. Banks are included in the various analyses below only to the extent that they were able to provide data of sufficient quality to complete the analyses.

1.5 Interpretation of results

The following caveats apply to the interpretation of results shown in this report:

- When comparing results to prior reports, sample differences as well as minor revisions to data from previous periods need to be taken into account. Sample differences also explain why results presented for the June 2022 reporting date may differ from the H1 2022 data point in graphs and tables showing the time series for the balanced data set as described above.
- The actual impact of those new requirements that are covered in this analysis will almost certainly be less than shown in this report given banks' difficulty to assess the exact impact of the framework before its full implementation and interim adjustments made by the banking sector to changing economic conditions and the regulatory environment. Banks may use approximations when the implementation of an accurate impact assessment would be too costly. For example, the results do not consider bank profitability, changes in capital or portfolio composition or other management responses to the policy changes since 31 December 2022 or in the future. For this reason, the results are not comparable to industry estimates, which tend to

be based on forecasts and consider management actions to mitigate the impact, as well as incorporate approximations where information is not publicly available.

- For banks that could not provide data on the impact of the revised standards for securitisation, CVA or market risk, it was assumed that the respective capital requirements would remain unchanged in the assessment of the overall impact. Such banks were however excluded from the analysis of the relevant policy topic.
- Given the output floor of the final Basel III framework only applies to overall capital requirements, it is not applied to individual risk types or asset classes in this report. To this extent, the results are not comparable to analyses in other reports, which may apply the output floor at more granular levels than required by the final Basel III framework.
- This report disregards any effects stemming from changes in accounting frameworks that may influence capital requirements and eligible capital.
- Several G-SIBs report conservative assumptions under the revised market risk framework.[15] Therefore, the results for market risk since the end-2020 reporting date only reflect 20%[16] of the contribution from equity investments in funds subject to the "other sector bucket" treatment, while all other changes from the revised market risk framework are included in the calculations as reported. This also impacts the results of several G-SIBs in particular and also of a number of other banks, albeit to a significantly smaller extent. Please refer to the previous reports for the treatment in previous reporting dates.
- Some capital requirements, such as D-SIB buffer and Pillar 2 requirements, are not considered in the analysis. This tends to give more importance to leverage ratio requirements relative to risk-based requirements, compared with the actual situation where those additional requirements would be considered.

2. Regulatory capital requirements and TLAC

Table 2 shows the aggregate capital ratios under the current (or transitional initial), transitional final and fully phased-in final Basel III frameworks, as well as the related capital shortfalls. Table 3 shows CET1 capital ratios by regions. Details of capital ratios and capital shortfalls are provided in Section 2.1 and Section 2.4.

[15] Specifically, the banks are treating all trading book positions in equity investment in funds that may no longer be allowed to be modelled, using the most conservative standardised approach, ie the "other bucket" treatment subject to the highest applicable risk weights. They assumed that they are unable to use other treatments such as the index treatment or the mandate-based approach as set out in MAR21.36.

[16] This assumption is based on moving some equity investments in funds subject to the "other sector bucket" treatment to the "look-through" treatment, which would result in lower delta, vega and curvature requirements and higher diversification benefits.

Aggregate capital ratios and (incremental) combined capital shortfalls at the target level[1]

Table 2

	Basel III capital ratios, in per cent			Combined risk-based capital and leverage ratio shortfalls at the target level, in billions of euros[2]		
	Initial	Final		Initial	Final	
	Current	Transitional	Fully phased-in	Current	Transitional	Fully phased-in
Group 1 banks						
CET1 capital	12.9	13.3	12.7	0.0	0.0	0.0
Tier 1 capital[3]	14.6	15.0	14.3	0.0	0.0	0.0
Total capital[4]	17.1	17.5	16.7	0.0	0.0	3.2
Sum				0.0	0.0	3.2
Of which: G-SIBs						
CET1 capital	13.0	13.4	12.8	0.0	0.0	0.0
Tier 1 capital[3]	14.7	15.1	14.5	0.0	0.0	0.0
Total capital[4]	17.3	17.8	17.0	0.0	0.0	3.2
Sum				0.0	0.0	3.2
Group 2 banks						
CET1 capital	15.9	15.3	14.7	0.0	0.1	0.1
Tier 1 capital[3]	17.2	16.3	15.7	0.0	0.4	0.4
Total capital[4]	19.5	18.1	17.4	0.0	0.6	0.6
Sum				0.0	1.1	1.1

[1] The target level includes the capital conservation buffer and the capital surcharges for G-SIBs as applicable but does not include any countercyclical capital buffers. Samples for the initial and final Basel III frameworks are not consistent. [2] The shortfall is calculated as the sum across individual banks where a shortfall is observed. The calculation includes all changes to RWA (eg definition of capital, counterparty credit risk, trading book and securitisation in the banking book). The Tier 1 and total capital shortfalls are incremental assuming that the higher-tier capital requirements are fully met. All columns use the 2017 definition of the leverage ratio exposure measure. [3] The shortfalls presented in the Tier 1 capital row are *additional* Tier 1 capital shortfalls. [4] The shortfalls presented in the total capital row are *Tier 2* capital shortfalls.

Source: Basel Committee on Banking Supervision.

CET1 capital ratios

In per cent

Table 3

	Initial Basel III standards		Final Basel III standards		
	Number of banks	Current	Number of banks	Transitional	Fully phased-in
Group 1 banks	111	13.1	96	13.3	12.7
Of which: Europe	41	14.7	39	13.4	12.4
Of which: Americas	23	12.1	20	12.4	12.2
Of which: RW	47	12.8	37	13.9	13.3
Of which: G-SIBs	29	13.1	28	13.4	12.8
Group 2 banks	61	16.8	58	15.3	14.7

Source: Basel Committee on Banking Supervision.

2.1 Risk-based capital ratios

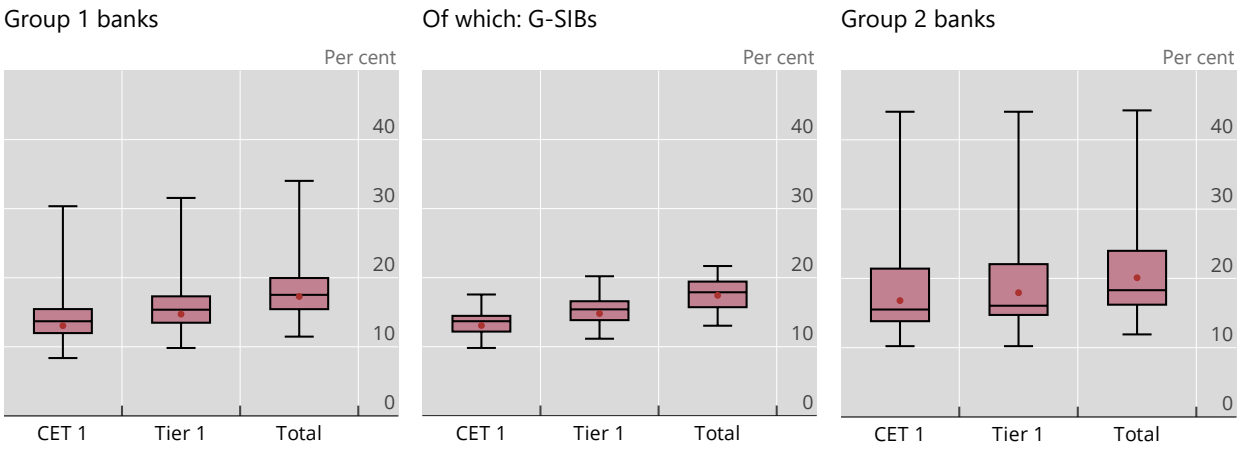
2.1.1 Initial Basel III standards

For Group 1 banks, the initial Basel III CET1 capital ratio ranges between 8.4% and 30.4%. The range is roughly the same for initial Basel III Tier 1 and total capital ratios, even though lower and upper bounds are slightly higher. Only considering the participating G-SIBs, the range is lower with less than 8 percentage points. The lowest initial Basel III CET1 capital ratio amounts to 9.8%, while the highest reported initial Basel III CET1 capital ratio amounts to 17.6%.

In contrast, Group 2 banks continue to show particularly high dispersion. The initial Basel III CET1 capital ratios range between 10.2% and 44.1%. This range is largely consistent for Tier 1 and total capital.

Apart from that, around 95% of Group 1 banks report initial Basel III CET1 capital ratios above 10%. More than half of them even exceed the 13% mark. For Group 2 banks, all participants report initial Basel III CET1 capital ratios above 10%, around 85% even show capital ratios above 13%.

Initial Basel III CET1, Tier 1 and total capital ratios[1] Graph 13



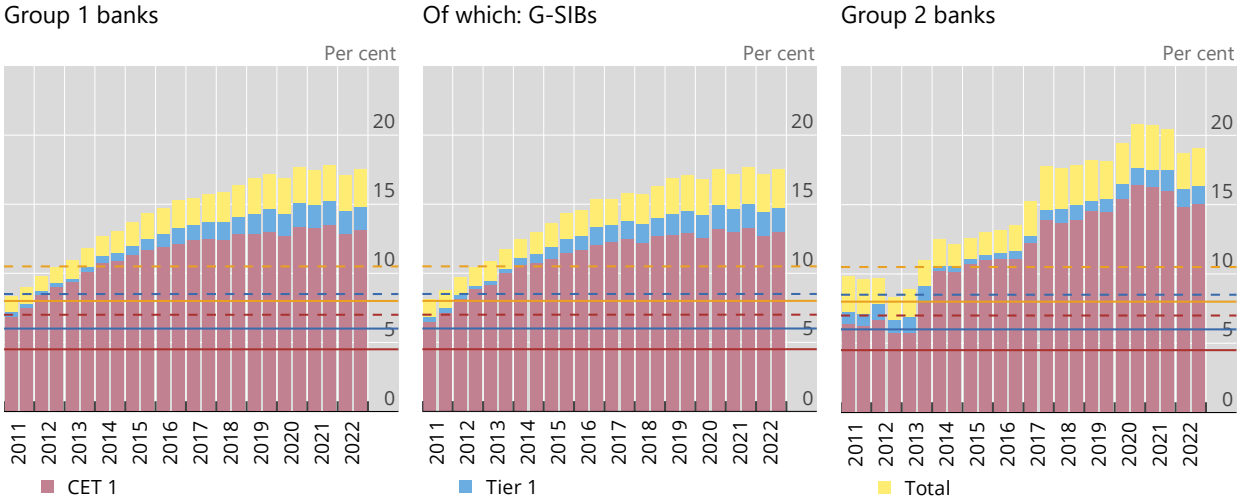
[1] See Section 1.3.3 for details on box plots.

Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size. Worksheet "Graph 13a" provides related information for the fully phased-in initial Basel III capital ratios.

Capital ratios remain modestly below their peak levels in 2020 and 2021 for Group 1 and Group 2 banks. Considering the current macroprudential situation banks face, this is in line with expectations. Despite this, capital levels remain high relative to the full historical reporting period that began in 2011. Compared to H1 2022, H2 capital ratios increased slightly. For Group 1 banks, CET1, Tier 1 and Tier 2 capital increased by 0.3, 0.1, and 0.1 percentage points, respectively.

Initial Basel III CET1, Tier 1 and total capital ratios[1]

Balanced data set — Graph 14



The graph shows the fully phased-in initial Basel III framework for the data points up to and including the end of 2018 and the actual framework in place at the reporting date for all data points thereafter.

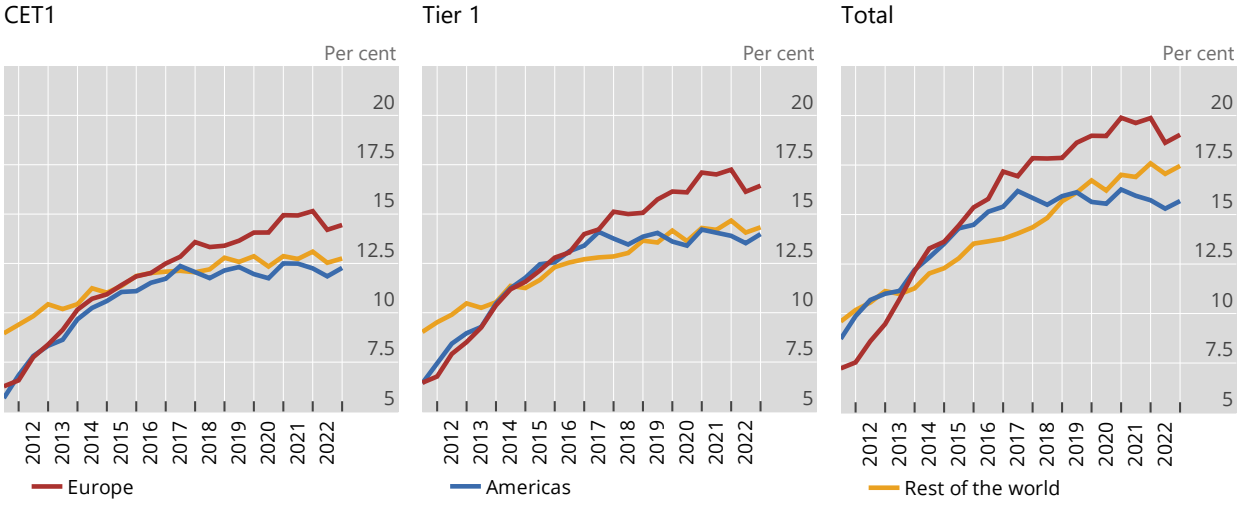
Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size. Note that the Excel file shows Tier 1 and total capital ratios as increments over the next lower Tier of capital.

In 2011, initial Tier 1 capital ratios were more than two percentage points lower in the Americas and in Europe than in the rest of the world region (Graph 15). However, for European banks and banks in the Americas the capital ratios rose remarkably stronger than in the rest of the world. Consequently, the original relationship reversed around 2014, when these banks started reporting higher average capital ratios than banks in the rest of the world. In 2017, capital ratios in the Americas started to decrease again, thus moving into line with the capital ratios in the rest of the world. Since then, the average initial Tier 1 capital ratio in the Americas is similar to the one in the rest of the world.

Over H2 2022, capital ratios showed comparable developments across all regions. All capital ratios increased modestly in the second half of 2022.

Initial Basel III CET1, Tier 1 and total capital ratios,[1] by region

Group 1 banks, balanced data set — Graph 15



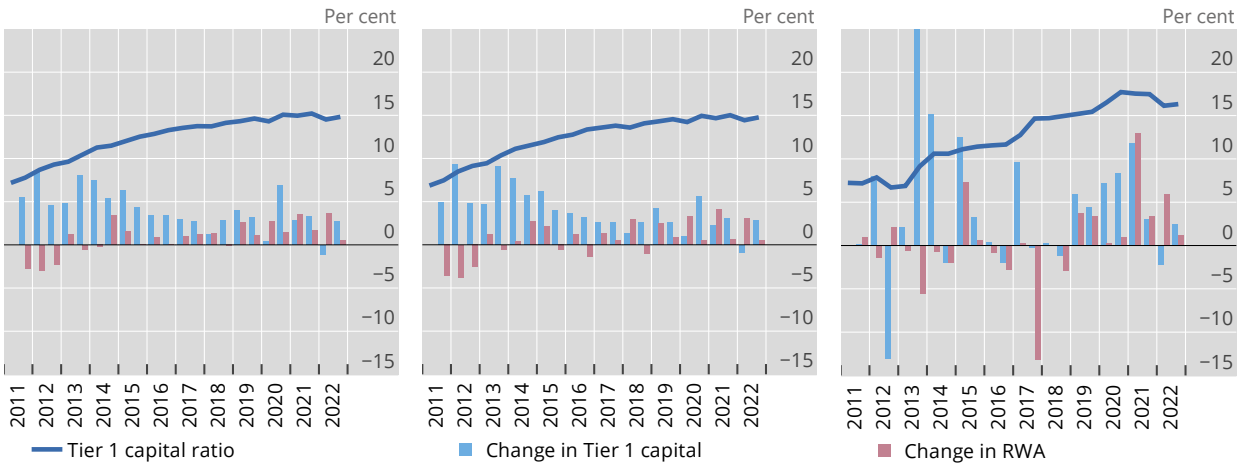
[1] The graph shows the fully phased-in initial Basel III framework for the data points up to and including the end of 2018 and the actual framework in place at the reporting date for all data points thereafter.

Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size. Worksheet "Graph 15a" provides the same breakdown for G-SIBs.

Across all regions and groups, the increase in capital ratios is due to capital increasing at a greater pace than RWA.

Initial Basel III Tier 1 capital ratios and changes in RWA and Tier 1 capital[1]

Balanced data set, exchange rates as of the current reporting date — Graph 16

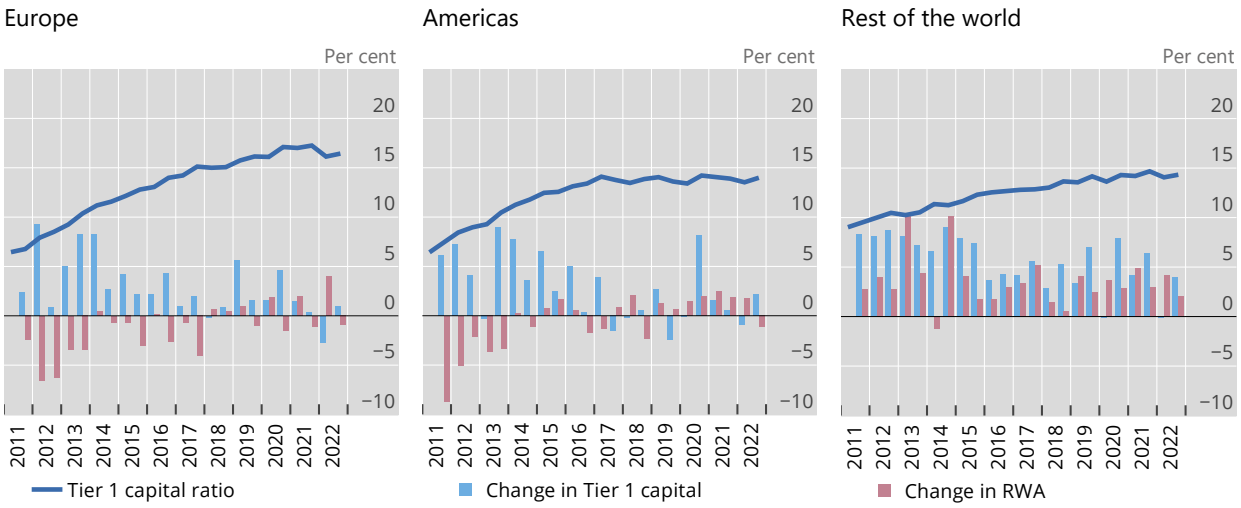


[1] The graph shows the fully phased-in initial Basel III framework for the data points up to and including the end of 2018 and the actual framework in place at the reporting date for all data points thereafter.

Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

Initial Basel III Tier 1 capital ratios and changes in RWA and Tier 1 capital,[1] by region

Group 1 banks, balanced data set, exchange rates as of the current reporting date — Graph 17



[1] The graph shows the fully phased-in initial Basel III framework for the data points up to and including the end of 2018 and the actual framework in place at the reporting date for all data points thereafter.

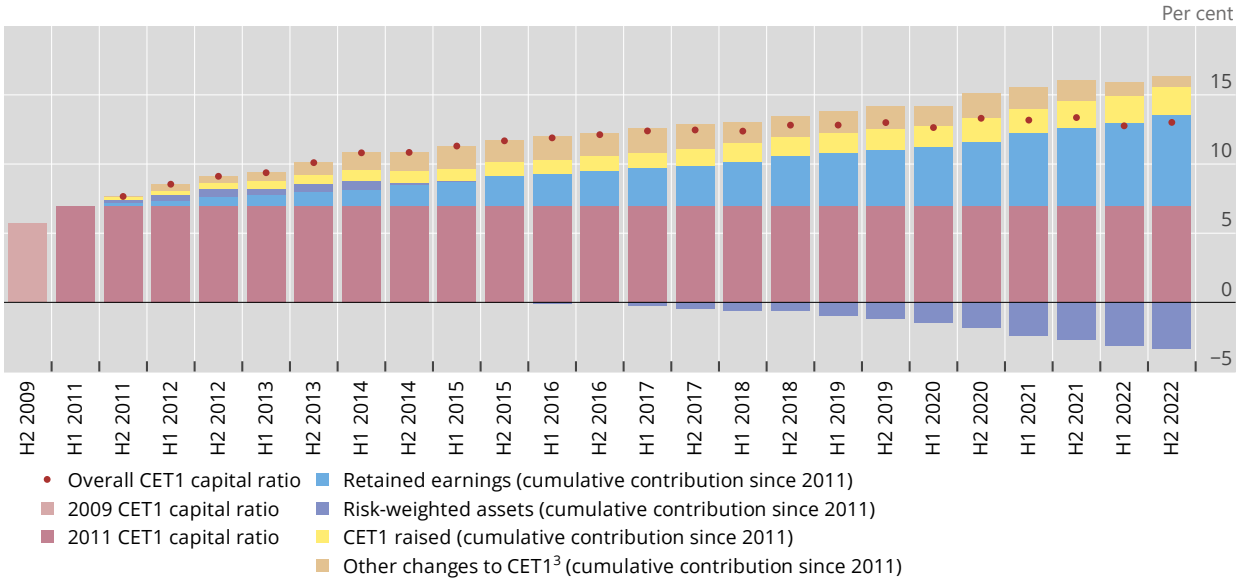
Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

Graph 18 and Graph 19 below show the evolution of initial Basel III CET1 capital ratios and their drivers. Starting with the June 2011 CET1 capital ratio, the cumulative effect on the ratio of CET1 capital raised, retained earnings and other increases in CET1 capital (such as any reduction in regulatory adjustments) is added to the capital ratio. Furthermore, the impact of cumulative reductions in RWA has a positive impact on capital ratios, while the impact of cumulative increases in RWA is subtracted from the baseline capital ratio.

Overall, Graph 18 suggests that retained earnings were the by far most significant contributor to the improvements in CET1 capital ratios since 2011. A more detailed observation shows that the development and the main contributors are very heterogeneous across regions. Indeed, in Europe, the improvement of CET1 capital ratios stems mainly from a reduction in total RWA, whereas in the Americas, the main driver of strengthening the CET1 ratio is the category "Other changes to CET1". In contrast, in the rest of the world the different contributors to the CET1 capital ratio development counteract. While the negative cumulative impact of RWA continues to increase, the positive cumulative impact of retained earnings rose as well. In aggregate, CET1 capital ratios continued to modestly increase.

Evolution of initial Basel III CET1 capital ratios and their drivers[1]

Group 1 banks, balanced data set[2] Graph 18

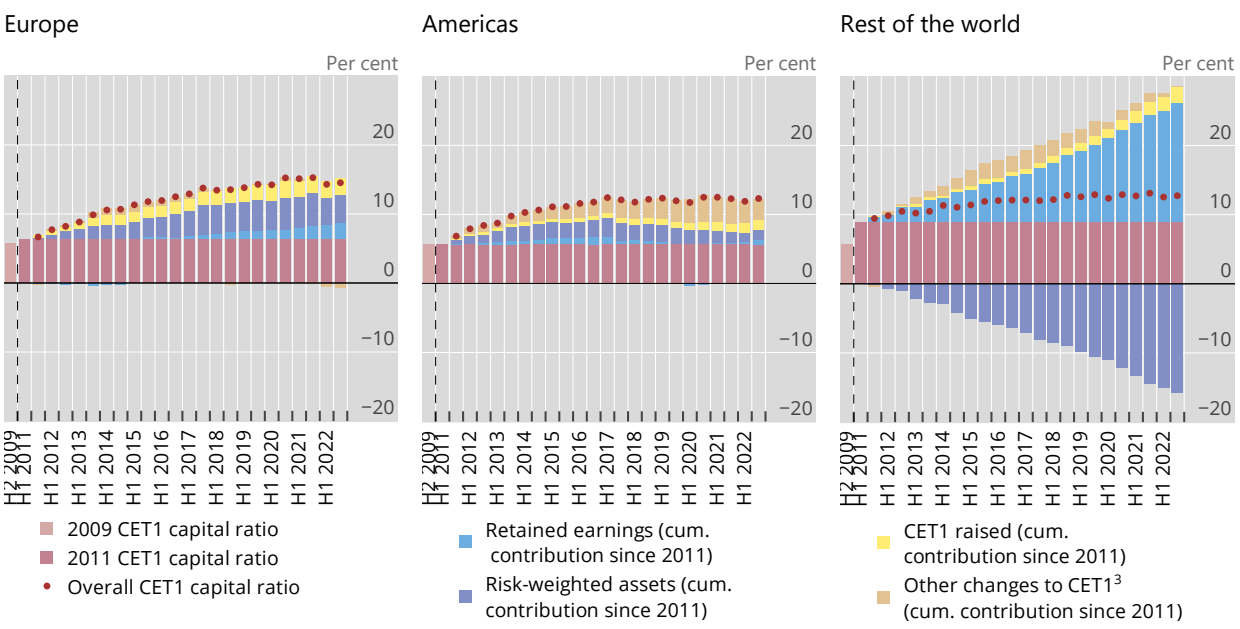


[1] The graph shows the fully phased-in initial Basel III framework for the data points up to and including the end of 2018 and the actual framework in place at the reporting date for all data points thereafter. [2] Except the ratio for H2 2009, which is based on the different sample of the Committee's comprehensive Quantitative Impact Study and therefore not fully comparable. [3] Other changes include changes in regulatory adjustments to CET1 capital and any other changes in CET1 capital between two reporting dates that are not reported separately.

Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

Evolution of initial Basel III CET1 capital ratios and their drivers,[1] by region

Group 1 banks, balanced data set[2] Graph 19



[1] The graph shows the fully phased-in initial Basel III framework for the data points up to and including the end of 2018 and the actual framework in place at the reporting date for all data points thereafter. [2] Except the ratio for H2 2009, which is based on the different sample of the Committee's comprehensive Quantitative Impact Study and therefore not fully comparable. [3] Other changes include changes in regulatory adjustments to CET1 capital and any other changes in CET1 capital between two reporting dates that are not reported separately.

Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

2.1.2 Final Basel III standards

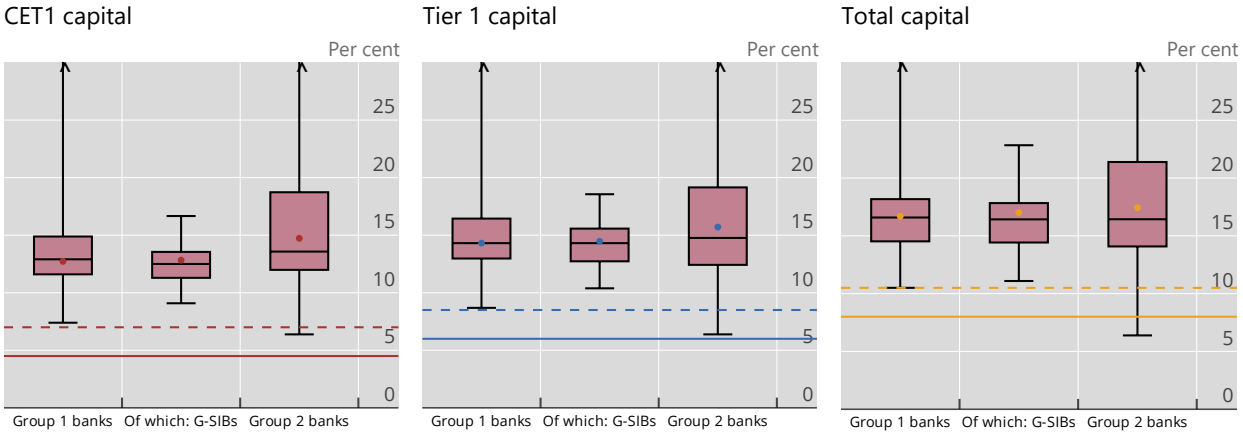
On average, the initial Basel III CET1 capital ratio of Group 1 banks compared with the fully phased-in final Basel III CET1 capital ratio (Table 2) would decline by about 20 basis points from 12.9% to 12.7%. The difference for G-SIBs is similar, with the CET1 ratio dropping from 13.0% to 12.8%. Apart from that, Group 2 banks show a larger CET1 capital ratio decline by 120 basis points from 15.9% to 14.7%.

Similar to CET1 capital ratios, Tier 1 and total capital ratios would also decline for all groups. For Group 1 banks and G-SIBs, the decline in Tier 1 capital ratio is similar to the decline in CET1 capital ratio. Both groups show a slightly more pronounced decline in total capital ratio of 20 to 40 basis points. Group 2 banks continue to show a larger impact due to the fully phased-in final Basel III framework. The Tier 1 capital ratio reduces by 150 basis points, while the total capital ratio even reduces by 210 basis points.

All Group 1 banks in the sample meet the 4.5% CET1 minimum ratio as well as the 7.0% target ratio under fully phased-in final Basel III standards. Moreover, around 49% of Group 1 banks report a CET1 ratio higher than 13% and roughly 90% have a CET1 ratio amounting to more than 10%. One Group 2 bank would fail to meet its target CET1, Tier 1 and total capital ratios in the fully phased-in framework, while one additional bank would also fail to meet the target total capital requirement. The vast majority (almost 95%) of Group 2 banks has a CET1 capital ratio that is higher than 10%. More than 60% even exceed the 13% mark.[17]

Fully phased-in CET1, Tier 1 and total capital ratios under the final Basel III standards[1]

Graph 20



[1] See Section 1.3.3 for details on box plots. The solid horizontal line represents the relevant minimum requirement and the dotted horizontal line represents the relevant target (excluding any bank-specific G-SIB surcharges).

Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size. The worksheet "Graph 20b" provides the same information for the transitional final Basel III standards.

2.2 Impact of the final Basel III framework on minimum required capital

On average, Group 1 banks report a total change in Tier 1 MRC at the target level due to the final Basel III framework of +3.0%. The average Tier 1 MRC change for G-SIBs is slightly lower (+2.9%). Compared with that, Group 2 banks show a material higher overall increase in Tier 1 MRC with +6.6% (see Table 4). In contrast to the results of the cumulative Quantitative Impact Study (CQIS),[18] these numbers include the

[17] Worksheet "Graph 20a" in the Excel data file provides additional information.

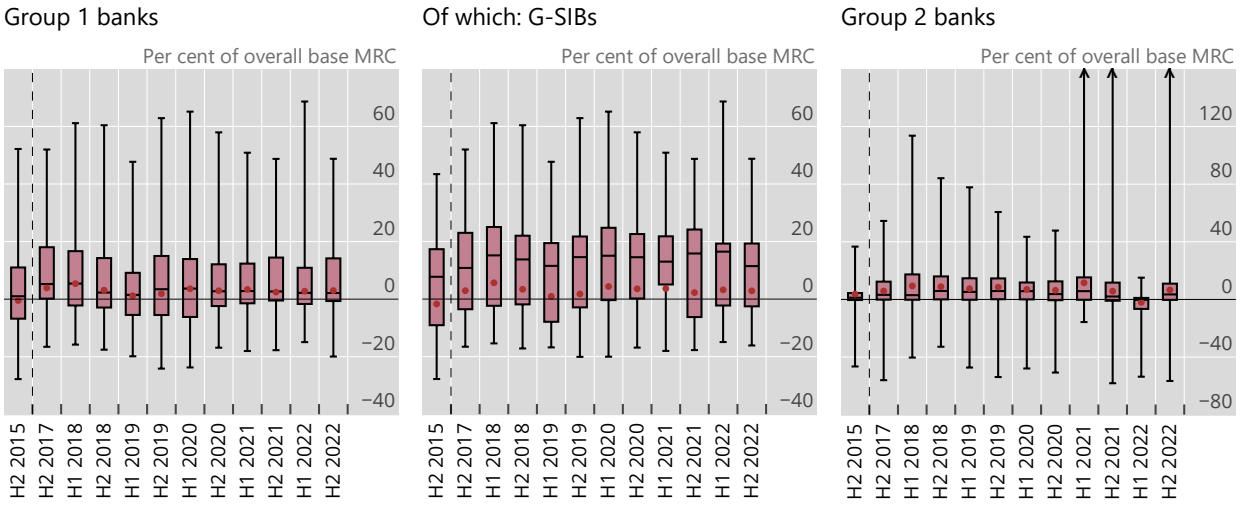
[18] In the cumulative QIS, all changes from the revised market risk framework were already added to MRC under the current rules such that they were not reflected in the *change* in MRC.

impact of the amended minimum capital requirements for market risk published in January 2019 and the targeted revisions to the CVA framework in July 2020.

In more detail, Graph 21 depicts the dispersion of the MRC changes across Group 1 banks, G-SIBs and Group 2 banks in the sample. The change in MRC (including market risk and CVA) for the current period varies greatly and ranges between -0.7% and 14.2% for half of the Group 1 banks with a median of 2.1%. The distribution for G-SIBs is largely in line with other Group 1 banks, although with a higher median. Meanwhile for this exercise, dispersion for Group 2 banks is materially greater than their Group 1 peers, with a median of 3.5%. However, this is largely driven by the more diverse collection of Group 2 banks.[19] Dispersion is generally materially higher among Group 1 banks, G-SIBs and Group 2 banks. Despite this, median values have generally remained consistent relative to the most recent periods.

Total change in Tier 1 MRC at the target level[1,2]

Unbalanced data set — Graph 21



[1] See Section 1.3.3 for details on box plots. [2] Results for H2 2015 are based on the Committee's cumulative Quantitative Impact Study and are not fully comparable from a methodological point of view, in particular since all changes from the revised market risk framework were already added to MRC under the current rules such that they were not reflected in the *change* in MRC. [3] Since the Committee did not collect the relevant data through its Basil III monitoring exercise for the end-June 2020 reporting date, results for H1 2020 use data from banks as of end-2019 and supervisory data for June 2020. Consequently, the change in MRC for the various risk types is kept constant from end-2019 to June 2020, but the basis on which these changes are calculated is updated for end-June 2020 based on supervisory data.

Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

The results are summarised in Table 4 and Graph 22 that include the following columns that provide an additional breakdown of the total change in MRC:

- *Total* shows overall changes in Tier 1 MRC, including the risk-based requirements (ie including output floors) and the Basel III leverage ratio.
- *Total: risk-based capital requirements* shows changes to the risk-based Tier 1 MRC (ie excluding the Basel III leverage ratio).

[19] The surge in the upper bound and dispersion is mostly due to the capital requirements reporting of one Group 2 bank that correctly reflected in June 2021 the leverage ratio exposures measurement treatment aligned with its specific business model and legal status under the current framework. Due to the methodological approach in the calculation of the change in MRC considering the interactions between leverage ratio and risk-based requirements, the changes in leverage ratio requirements are no longer compensating the increase in the risk-based change in MRC. At the same time, the level of MRC of this bank under the final framework remains unaffected by this change.

- *Credit risk* shows the change in Tier 1 MRC due to the revisions to the standardised and internal ratings-based (IRB) approaches for credit risk,[20] including the effect from migration of approaches[21] and changes to the securitisation framework.
- *CVA* shows the change in Tier 1 MRC due to the revisions to the CVA framework.[22]
- *Market risk* shows the change in Tier 1 MRC due to the revisions to the market risk framework.
- *Operational risk* shows the change in Tier 1 MRC due to the revisions to the operational risk standards.
- *Output floor* presents the change in the level of Tier 1 MRC due to the aggregate output floor when the total RWA fall below the threshold level of 72.5%. The impact is measured relative to the current national implementation of the Basel I-based transitional floor set out in the Basel II framework, as reported by member countries.
- *Other Pillar 1* presents the change in Tier 1 MRC due to changes to Pillar 1 requirements not specifically captured in the reporting template, including requirements by individual jurisdictions which are not based on a Basel Committee standard.
- *Leverage ratio* shows the change in Tier 1 MRC resulting from the changes to the Basel III leverage ratio framework. This captures the change in the definition of the Basel III leverage ratio exposure measure and the introduction of a G-SIB buffer on top of a 3% leverage ratio minimum which amounts to 50% of the surcharge on risk-based capital requirements. Note that increases to risk-based Tier 1 MRC and leverage ratio Tier 1 MRC do not add up, since the total MRC increases only to the extent the risk-based or leverage ratio requirement exceeds the other capital measure. Therefore, the leverage ratio column is adjusted to capture this effect (which can be positive or negative, even where the leverage ratio Tier 1 MRC remains unchanged). This results in an overall *incremental* leverage ratio change in MRC which can be either positive or negative. This mechanism is described in Box B.

For 92 Group 1 banks, the Tier 1 MRC would increase by 3.0%, applying a fully phased-in definition of the final Basel III standards. This increase is composed of a 2.8% rise in the risk-based components combined, driven by the positive contributions of the output floor (+2.7%), market risk (+0.9%), CVA (+0.5%), as well as a reduction in credit risk (-1.0%). The rise of the combined risk-based components is accompanied by a slightly positive effect of the leverage ratio Tier 1 MRC.

The impact on MRC is very heterogeneous across regions for Group 1 banks. European banks show the biggest increase in MRC (+14.6%), mostly driven by the output floor (+8.7%). In comparison, banks in the Americas report a moderate increase of MRC amounting to 0.9%. This increase is mostly driven by increases in market risk (+2.7%). For the rest of the world, MRC decreases (-2.6%) mostly due to credit risk (-4.7%). G-SIBs (29 banks) show an overall increase of 2.9%, decomposed between 1.5% and 1.4% increases on risk-based measure and leverage ratio, respectively. The risk-based increase is mostly driven by market risk[23] (1.0%) and the output floor (1.8%) and compensated by credit risk (-0.8%) and operational risk (-1.1%).

[20] The credit risk MRC impact since the end-December 2019 reporting date reflects the split between defaulted and non-defaulted assets in the treatment of EL amounts and provisions for those jurisdictions that require such a split. Because of this methodological change banks in these jurisdictions may show slightly increased credit risk MRC impacts. This is most pronounced for banks in the European regional breakdown since European Union rules require the aforementioned split.

[21] Migration of approaches refers to the application of a different approach for determining risk weights than the one currently used because of the revisions which remove certain modelling approaches for selected (sub-)asset classes.

[22] Targeted revisions to the revised CVA framework were published in July 2020. See Basel Committee on Banking Supervision, *Targeted revisions to the credit valuation adjustment risk framework, July 2020*, www.bis.org/bcbs/publ/d507.htm.

[23] Considering the retreatment of overly conservative treatment of investment in funds for several G-SIBs. For more details please see footnotes 15 and 16.

For Group 2 banks, the overall 6.6% increase in Tier 1 MRC is driven by a positive contribution of 12.3% from risk-based measures, which is offset by a reduction in leverage ratio requirements of 5.7%. Main contributors of the risk-based increase are the output floor (4.1%) and credit risk (6.8%).

Note that Group 1 and Group 2 bank samples are not directly comparable due to different business models and different regional distribution of the samples.

Changes in Tier 1 MRC at the target level due to the final Basel III standards

In per cent of overall basis MRC

Table 4

	Number of banks	Total	Risk-based requirements							Leverage ratio
			Total	Of which:						
				Credit risk[1]	CVA	Market risk	Op risk[2]	Output floor[3]	Other Pillar 1	
Group 1 banks	92	3.0	2.8	–1.0	0.5	0.9	–0.2	2.7	–0.1	0.2
Of which: Europe	39	14.6	16.9	3.3	2.2	0.6	2.4	8.7	–0.3	–2.3
Of which: AM	20	0.9	–0.3	0.4	–0.3	2.7	–1.0	–2.2	0.1	1.1
Of which: RW	33	–2.6	–3.5	–4.7	0.0	–0.2	–1.1	2.5	0.0	0.9
Of which: G-SIBs	29	2.9	1.5	–0.8	0.5	1.0	–1.0	1.8	0.0	1.4
Group 2 banks	58	6.6	12.3	6.8	0.8	0.1	0.6	4.1	–0.2	–5.7

[1] Including securitisation. [2] Figures may not show supervisor-imposed capital add-ons under Pillar 2. Therefore, increases in MRC may be overstated and reductions may be understated. [3] Net of existing Basel I-based floor according to national implementation of the Basel II framework.

Source: Basel Committee on Banking Supervision.

Box B

Aggregation of changes in risk-based and leverage ratio MRC

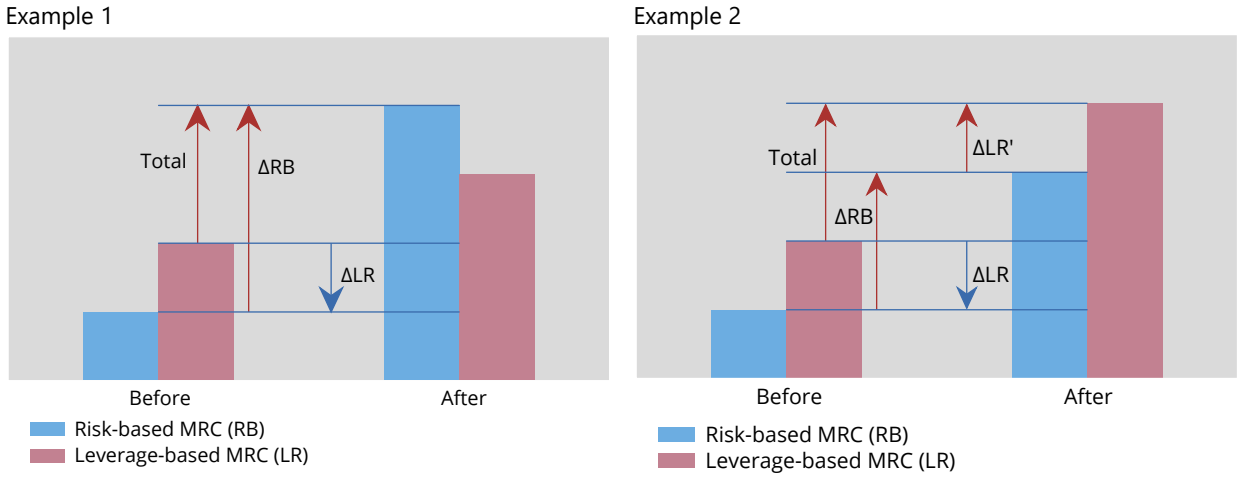
Example 1 shows an illustrative bank that is currently constrained① by the Basel III leverage ratio, resulting in an additional Tier 1 MRC. Under the revised framework, the additional requirement is instead "charged" by the risk-based Tier 1 MRC with the total change indicated by △RB. This replacement effect is represented as a negative effect in leverage ratio Tier 1 MRC to avoid double-counting, as shown by the blue arrow (△LR) in the diagram. Example 2 shows an alternative case where the bank is still constrained by the Basel III leverage ratio after the reforms. In this case, the contribution of the leverage ratio Tier 1 MRC is the net of (i) the additional leverage ratio Tier 1 MRC in the revised framework (△LR'); and (ii) the replacement effect captured by the risk-based Tier 1 MRC (△LR), which may be positive or negative.

Note that even for banks that already adopted the final leverage ratio standards (ie △LR'=0) there may be a non-zero contribution of the leverage ratio Tier 1 MRC, which is in this case equal to the replacement effect (△LR).

① A requirement is called constraining if it imposes the largest amount of MRC among the requirements under consideration (here risk-based and leverage ratio). A requirement is binding on a bank if the resulting MRC are higher than a bank's corresponding actual Basel III capital amounts.

Aggregation of changes in risk-based and leverage ratio MRC

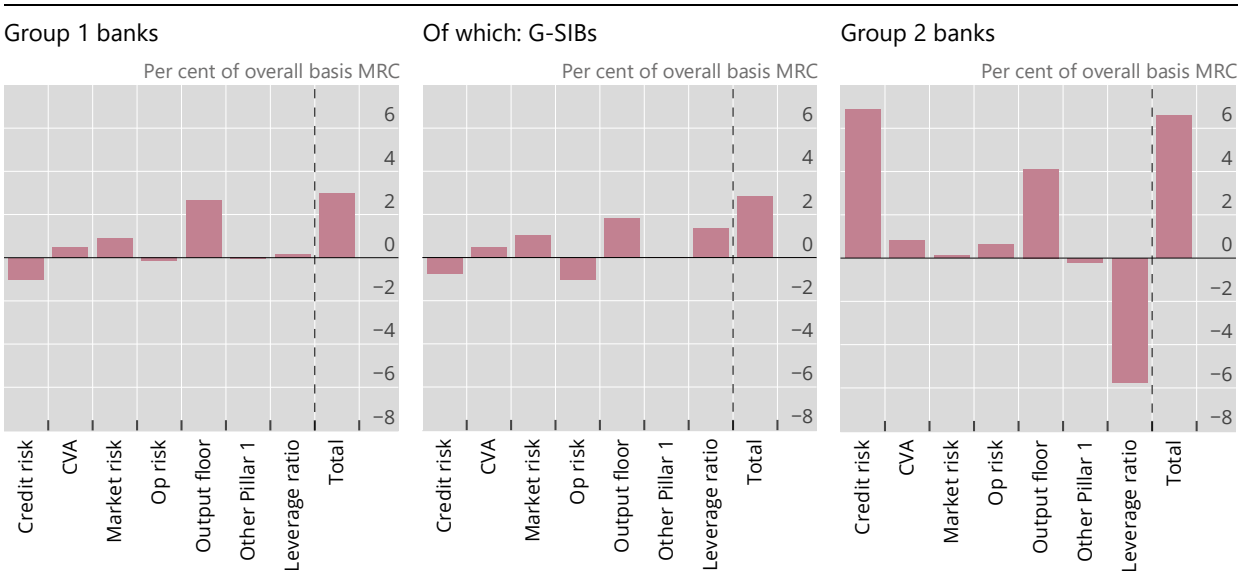
Graph A



Graph 22 displays the contributions of each MRC component relative to the current basis for Group 1 banks, G-SIBs and Group 2 banks, respectively. The bars above (below) the horizontal line highlight the positive (negative) contributions induced by the different parts of the final Basel III framework, except for the rightmost bar that represents the total MRC impact. Graph 23 provides the regional breakdown for Group 1 banks.

Changes in Tier 1 MRC at the target level due to the final Basel III standards

Graph 22

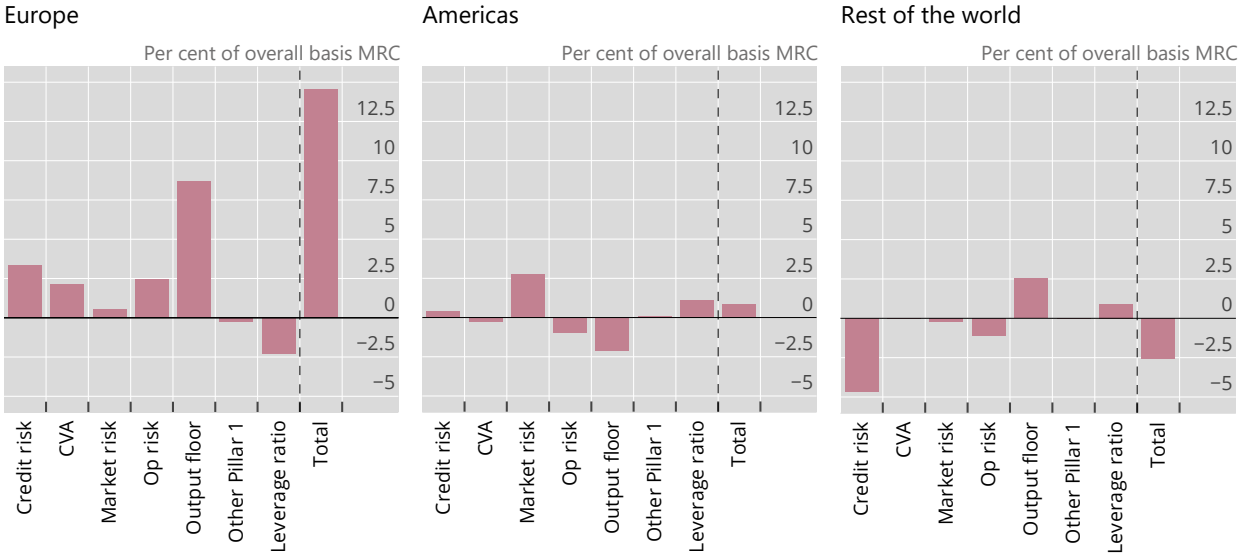


Credit risk includes securitisation. Operational risk figures may not show supervisor-imposed capital add-ons under Pillar 2. Therefore, increases in MRC may be overstated and reductions may be understated. Output floor results are net of the existing Basel I-based floor according to national implementation of the Basel II framework.

Source: Basel Committee on Banking Supervision.

Changes in Tier 1 MRC at the target level due to the final Basel III standards

Group 1 banks — Graph 23



Credit risk includes securitisation. Operational risk figures may not show supervisor-imposed capital add-ons under Pillar 2. Therefore, increases in MRC may be overstated and reductions may be understated. Output floor results are net of the existing Basel I-based floor according to national implementation of the Basel II framework.

Source: Basel Committee on Banking Supervision.

2.3 Leverage ratio

2.3.1 Overall results

The results regarding the Basel III leverage ratios are provided using the following measures for the numerator and the denominator:

- *numerator:* the numerator includes two alternative measures of Tier 1 capital:
  - *initial Basel III Tier 1,* which is the Tier 1 capital eligible under the national implementation of the Basel III framework in place in member countries at the reporting date, including any phase-in arrangements; and
  - *fully phased-in final Basel III Tier 1*, which is the fully phased-in Basel III definition of Tier 1 capital without considering any transitional arrangements set out in the in the Basel III framework.
- *denominator:* the Basel III leverage ratio exposure measure is calculated on the basis of the 2014 or 2017 (final) definition as applicable (see box C). Also note that, contrary to Sections 2.2, 2.4, 2.5 and Section 5.2, throughout Section 2.3 temporary exclusions from the leverage ratio exposure measure in the context of Covid-19 have not been added back.

Box C

Basel III leverage ratio framework

Under the January 2014 and December 2017 versions of the Basel III leverage ratio framework,① the Basel III leverage ratio exposure measure (the denominator of the Basel III leverage ratio) includes:

- on-balance sheet assets, excluding securities financing transactions (SFTs) and derivatives;
- SFTs, with limited recognition of netting of cash receivables and cash payables with the same counterparty under strict criteria;
- derivative exposures at replacement cost (net of cash variation margin meeting a set of strict eligibility criteria) plus an add-on for potential future exposure;
- written credit derivative exposures at their effective notional amount (net of negative changes in fair value that have been incorporated into the calculation of Tier 1 capital) reduced by the effective notional amount of purchased credit derivatives that meet offsetting criteria related to reference name, level of seniority and maturity;
- off-balance sheet exposures, obtained by multiplying notional amounts by the credit conversion factors in the standardised approach to credit risk, subject to a floor of 10%; and
- other exposures as specified in the Basel III leverage ratio framework.

① Basel Committee on Banking Supervision, *Basel III leverage ratio framework and disclosure requirements*, January 2014, www.bis.org/publ/bcbs270.htm. The Committee agreed revisions to the leverage ratio framework in December 2017, see Basel Committee on Banking Supervision, *Basel III: Finalising post-crisis reforms*, December 2017, www.bis.org/bcbs/publ/d424.htm. Please note that this report does not consider the treatment of client cleared derivatives exposures as revised by the Committee in June 2019.

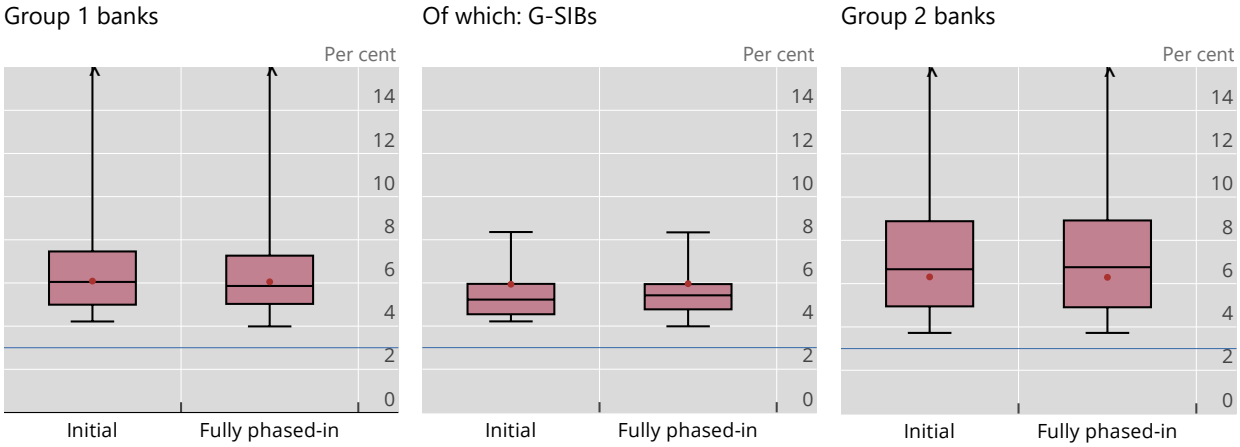
Graph 24 presents summary statistics related to the distribution of Basel III leverage ratios based on initial and fully phased-in final Basel III Tier 1 capital for Group 1 banks, G-SIBs and Group 2 banks. The weighted average of the initial Basel III leverage ratios is 6.1% for Group 1 banks and 5.9% for G-SIBs, while it equals 6.3% for Group 2 banks. The weighted average of the fully phased-in final Basel III leverage ratios is 6.1% for Group 1 banks, 6.0% for G-SIBs and 6.3% for Group 2 banks. When comparing across groups, Group 2 banks show a slightly larger interquartile dispersion compared with Group 1 banks, whereas G-SIBs' leverage ratios are more concentrated.

The median fully phased-in final Basel III leverage ratio is 5.9% for Group 1 banks, 5.4% for G-SIBs and 6.8% for Group 2 banks, with all banks well above the 3% minimum. The aggregate leverage incremental shortfall under the initial framework is again zero in this period.

Graph 25 shows how the fully phased-in final Basel III leverage ratios have evolved over time for a balanced data set comprising leverage ratio data for all reporting dates from June 2011 to December 2022. For Group 1 banks, the leverage ratio increased compared with end-June 2022. This is driven by a decrease in exposure measure and an increase in Tier 1 capital for Group 1 banks. The leverage ratio for Group 2 banks shows an increase as well, driven by both a decrease in the leverage ratio exposure measure as well as a decrease in Tier 1 capital for these banks.

Initial and fully phased-in final Basel III Tier 1 leverage ratios[1]

Graph 24



[1] See Section 1.3.3 for details on box plots. The blue line is set at 3% (minimum leverage ratio level).

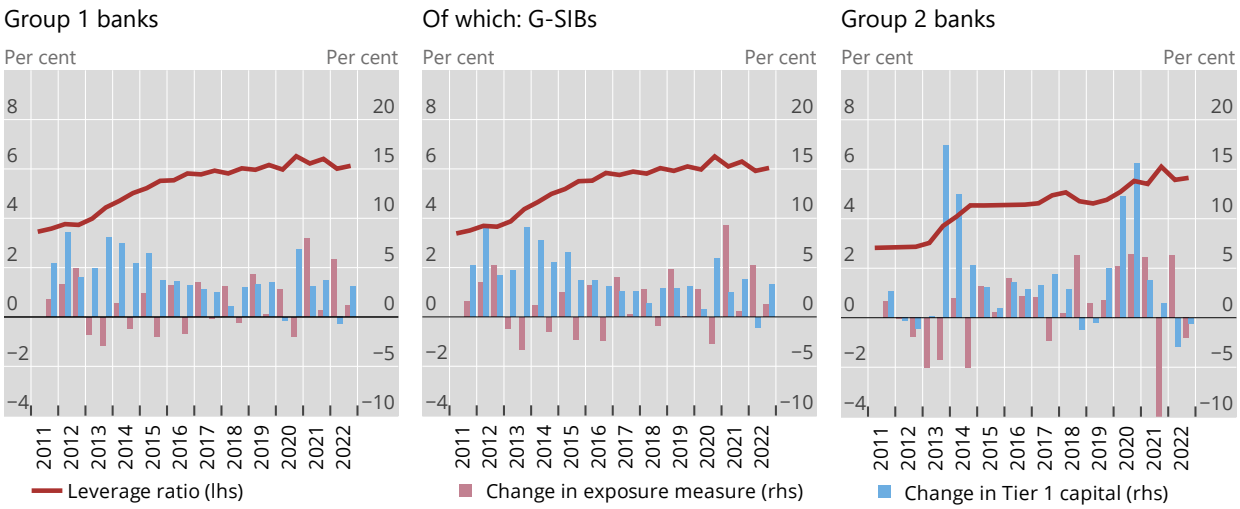
Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

Graph 26 shows the same information as Graph 25, but for a balanced data set of Group 1 banks, grouped by region. Overall, the leverage ratio has been growing over the past nine years for all regions, with Europe showing the strongest relative increase and the rest of the world showing the largest absolute increase. In the last period, the average leverage ratio in Europe and the Americas increased again. Leverage ratios continue to be lower in Europe (5.1%) compared with the Americas (6.1%) and the rest of the world (6.9%).

Fully phased-in final Basel III Tier 1 leverage ratios and component changes[1]

Balanced data set, exchange rates as of the current reporting date

Graph 25

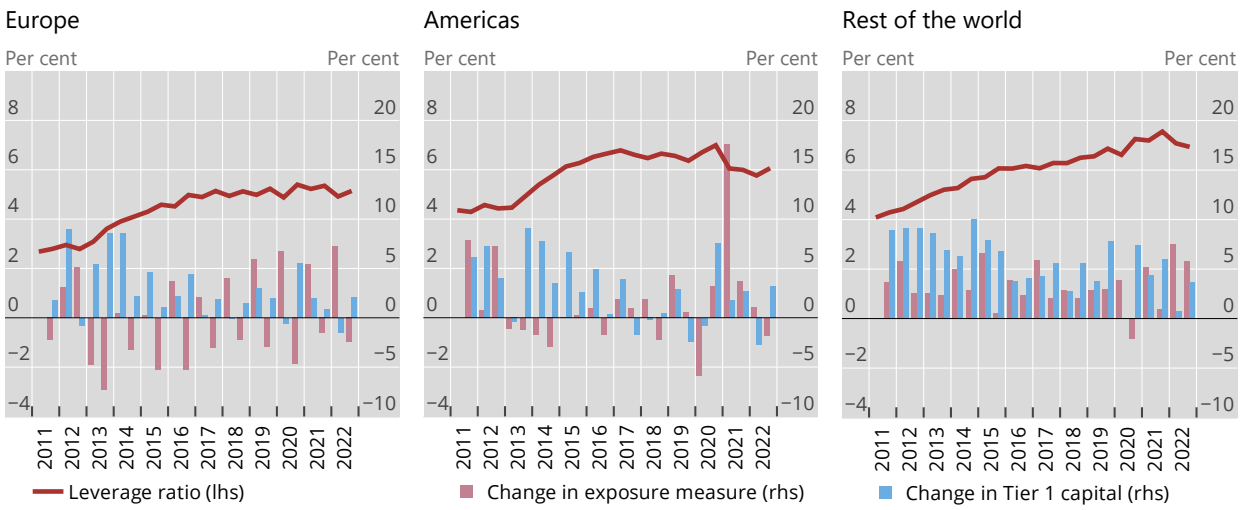


[1] Data points from H1 2011 to H2 2012 use the original definition of the leverage ratio. Data points from H1 2013 to H1 2017 use the definition of the leverage ratio set out in the 2014 version of the framework. Note that the data points for H1 2013 use an approximation for the initial definition of the Basel III leverage ratio exposure where gross instead of adjusted gross securities financing transaction values are used. Data points from H2 2017 onwards use the final definition of the leverage ratio to the extent data are available. Since the Committee did not collect the relevant data through its Basel III monitoring exercise for the end-June 2020 reporting date, the adjustment from initial to final leverage ratio exposure measure was calculated based on H2 2019 data.

Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

Fully phased-in final Basel III Tier 1 leverage ratios and component changes,[1] by region

Group 1 banks, balanced data set, exchange rates as of the current reporting date — Graph 26



[1] See footnote 1 to Graph 25.

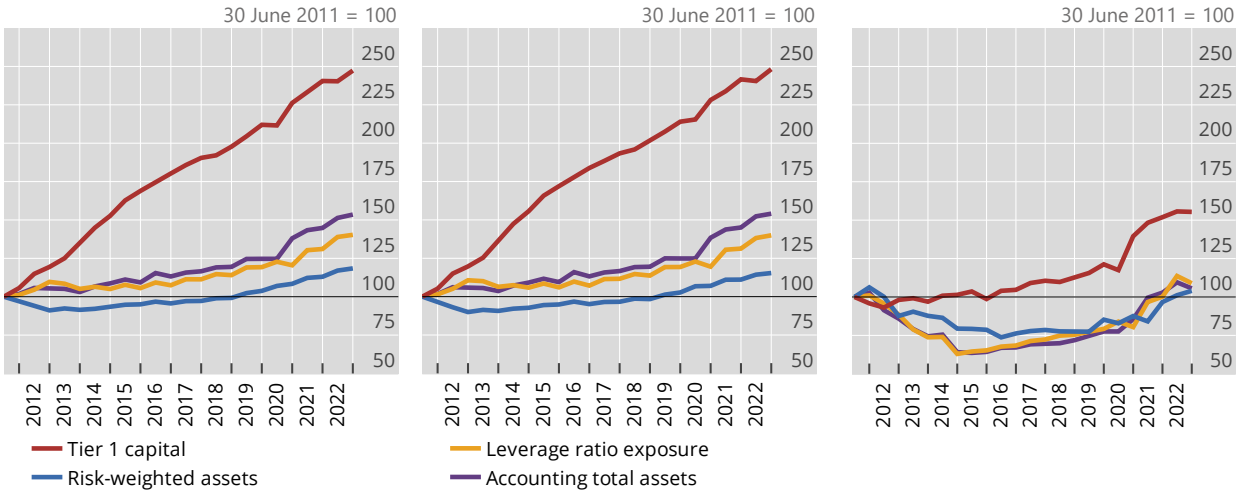
Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size. Worksheet "Graph 26a" provides the same breakdown for G-SIBs.

Graph 27 shows the evolution of the components of the risk-based capital and leverage ratios over time for a balanced data set, ie banks that have consistently provided the data since June 2011. The four components are Basel III Tier 1 capital, RWA and the leverage ratio exposure measure, all assuming full implementation of Basel III, as well as accounting total assets. For Group 1 banks, all four components have increased steadily over the period. For Group 2 banks, Tier 1 capital generally increased during the period, with a substantial increase since end-December 2019. RWA, leverage ratio exposure and accounting total assets have somewhat declined in the first part of the entire observed period, but have steadily increased since. For all banks, Tier 1 capital has increased at a much higher rate than RWA, accounting assets and leverage ratio exposures over the entire observed period.

Graph 28 shows the same information for a balanced data set of Group 1 banks, grouped by region. While leverage exposures decreased from 2011 until 2016 for European Group 1 banks and remained below the level of 2011 since then, banks in the Americas experienced a moderate increase, and exposure for Group 1 banks in the rest of the world increased steadily since 2011.

Tier 1 capital, RWA, Basel III leverage ratio exposure and accounting total assets[1]

Balanced data set, exchange rates as of the current reporting date — Graph 27

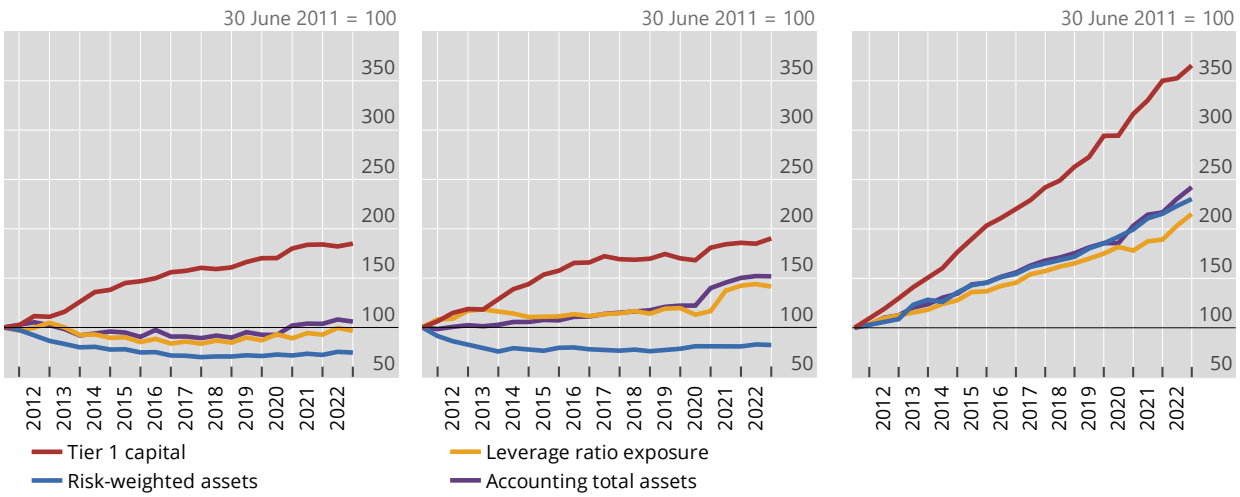


[1] Tier 1 capital, RWA and leverage ratio exposure assume full implementation of Basel III. Data points from H1 2010 to H2 2012 use the original definition of the leverage ratio. Data points from H1 2013 to H1 2017 use the definition of the leverage ratio set out in the 2014 version of the framework. Note that the data points for H1 2013 use an approximation for the initial definition of the Basel III leverage ratio exposure where gross instead of adjusted gross securities financing transaction values are used. Data points from H2 2017 onwards use the final definition of the leverage ratio to the extent data are available. Since the Committee did not collect the relevant data through its Basel III monitoring exercise for the end-June 2020 reporting date, the adjustment from initial to final leverage ratio exposure measure was calculated based on H2 2019 data, and accounting total assets are taken from end-2019 reporting.

Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

Tier 1 capital, RWA, Basel III leverage ratio exposure and accounting total assets,[1] by region

Group 1 banks, balanced data set, exchange rates as of the current reporting date — Graph 28



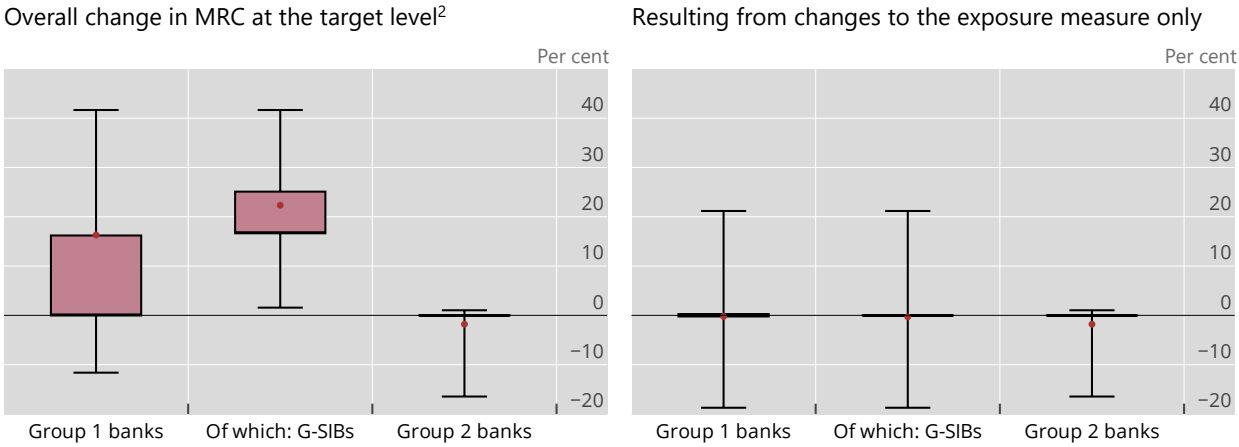
[1] See footnote 1 to Graph 27.

Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

2.3.2 Impact on Basel III leverage ratio MRC measure due to the final standards

Graph 29 assesses, for Group 1 banks, G-SIBs and Group 2 banks, the changes in leverage ratio MRC at the target level due to the revisions to the Basel III leverage ratio. This captures the change in the definition of the Basel III leverage ratio exposure measure and the introduction of a G-SIB buffer on top of a 3% leverage ratio minimum, which amounts to 50% of the G-SIB surcharge on risk-based capital requirements. The left-hand side panel of Graph 29 shows the overall MRC changes, while the right-hand side panel shows the changes in MRC due to the changes in the exposure measure only (right-hand panel). The main driver of the change in MRC is the introduction of the G-SIB buffer in the final Basel III framework, even though at individual level some banks might be materially impacted by the change of the leverage ratio exposure measure. Note that many banks have already adopted the final standards. For these banks, the change in MRC shown below is zero.

Changes in leverage ratio MRC due to revisions in the final standards[1] Graph 29



[1] See Section 1.3.3 for details on box plots. To the extent a bank could not provide a component under the 2017 exposure measure, the relevant component of the 2014 measure was used. If a bank already adopted the revisions to the leverage ratio exposure measure, the change to the exposure measure equals zero. [2] The increase for G-SIBs is driven by the introduction of a G-SIBs add-on.

Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

2.4 Combined shortfall amounts under the final Basel III framework

This section shows the regulatory capital shortfalls for the Group 1 and Group 2 bank samples assuming fully phased-in requirements according to the final Basel III standards. Results for the Basel III monitoring exercises (data as of end-December 2017 through to the current reporting period) are compared with the results of the previous cumulative QIS, using data as of end-December 2015.[24] This analysis is based on an unbalanced data set, ie it relies on the different samples for the different reporting dates.

For this reporting date, Group 1 banks reported total regulatory capital shortfalls at the target level amounting to €3.2 billion, less than half the shortfall in H1 2022 (€7.8 billion). Shortfalls for Tier 2 capital are now the only contributor.

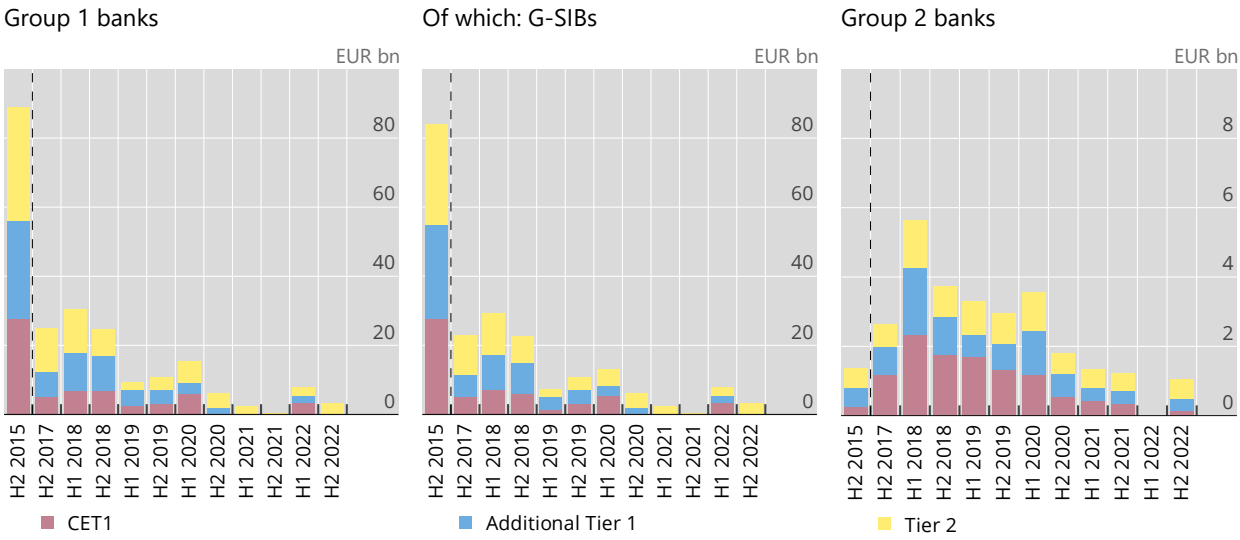
Group 2 banks report €1.1 billion in shortfall, with each type of capital contributing to the total. This is a small decrease relative to H2 2021. While the shortfall was zero at the June 2022 reporting date, this was due to a significantly smaller sample.

[24] Basel Committee on Banking Supervision, *Basel III Monitoring Report – Results of the cumulative quantitative impact study*, December 2017, www.bis.org/bcbs/publ/d426.htm.

Combined capital shortfalls at the target level

Fully phased-in final Basel III standards[1], unbalanced data set, exchange rates as at the reporting dates

Graph 30



[1] Results for H2 2015 are based on the Committee's cumulative Quantitative Impact Study and are not fully comparable from a methodological point of view. Compared with H2 2017 and H1 2018, the results since H2 2018 include the revised market risk framework as finalised in January 2019. Since the Committee did not collect all relevant data through its Basel III monitoring exercise for the end-June 2020 reporting date, shortfalls for H1 2020 are estimated using some data from end-2019 reporting.

Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

2.5 Total loss-absorbing capacity requirements for G-SIBs

2.5.1 Initial Basel III framework

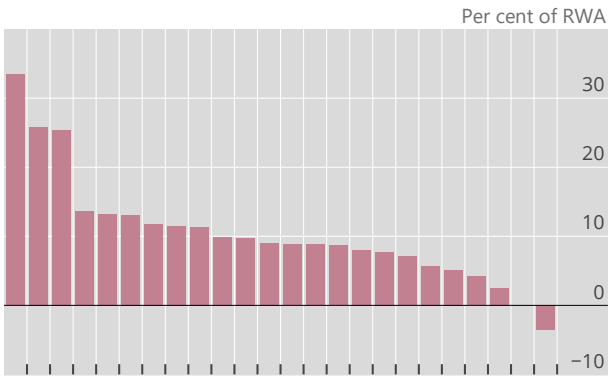
The Committee also collected data on additional total loss-absorbing capacity (TLAC) for G-SIBs, 24 of which participated in the exercise. Applying the 2019 minimum requirements, two G-SIBs in the sample show an incremental[25] TLAC shortfall which corresponds to 0.1% and 3.6% of its RWA. Applying the 2022 TLAC minimum requirements the shortfall increases to 2.7% and 6.1%. Overall, the shortfall of the two banks amounts to €34.4 billion.

[25] The shortfall is incremental to any risk-based and leverage ratio shortfall discussed above.

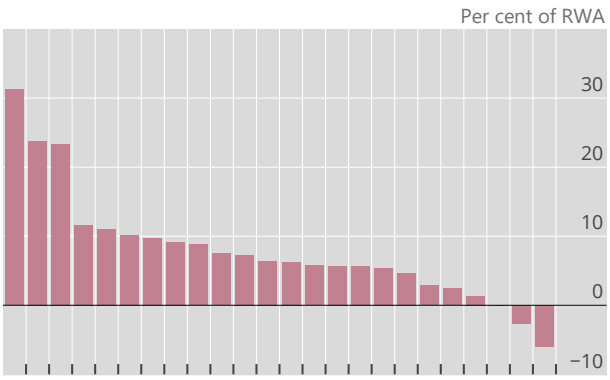
Distribution of individual G-SIBs' incremental TLAC surplus and shortfall across banks[1]

Fully phased-in initial Basel III standards, pure TLAC implementation[2] Graph 31

Applying 2019 TLAC minimum requirements



Applying 2022 TLAC minimum requirements



[1] Surplus is indicated as positive and shortfall as negative. [2] Ie following the FSB TLAC Term Sheet rather than national implementation.

Source: Basel Committee on Banking Supervision.

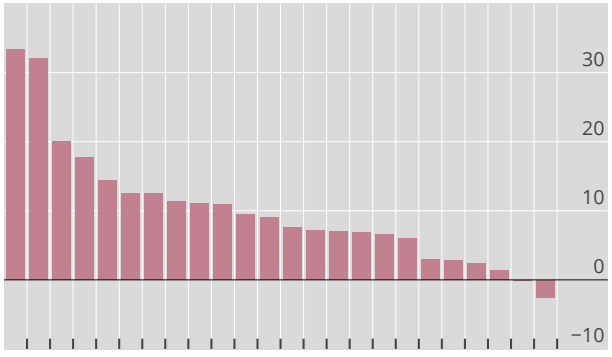
2.5.2 Final Basel III framework

The final Basel III reforms, based on end-June 2022 data, resulted in no significant increase in aggregate capital requirements for the respondent banks. Two additional G-SIBs reported shortfall when applying final Basel III framework 2022 TLAC minimum requirements. In total, four G-SIBs report shortfall ranging up to 4.9% of RWA. These four G-SIBs report shortfalls applying the 2022 requirements totalling €37.4 billion.

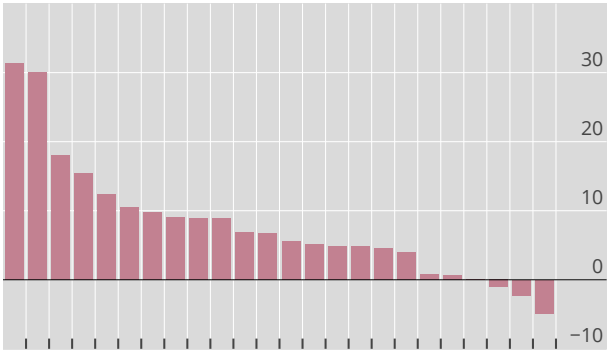
Distribution of individual G-SIBs' incremental TLAC surplus and shortfall across banks[1]

Fully phased-in final Basel III standards Graph 32

Applying 2019 TLAC minimum requirements



Applying 2022 TLAC minimum requirements



[1] Surplus is indicated as positive and shortfall as negative.

Source: Basel Committee on Banking Supervision.

3. Level and composition of regulatory capital

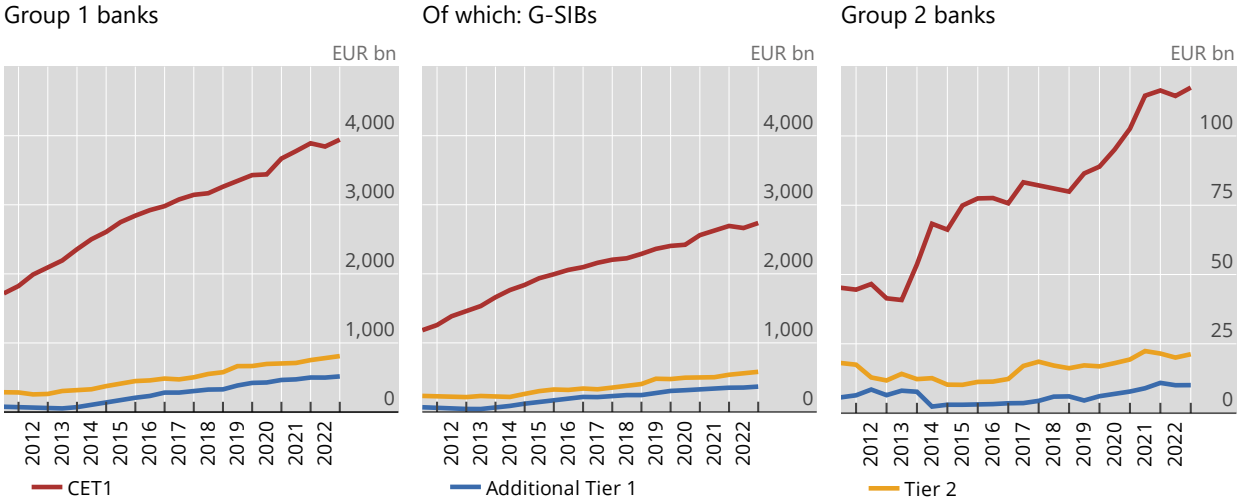
3.1 Level of capital

Graph 33 shows a time series of the level of regulatory capital for a balanced data set of Group 1 banks, Group 2 banks and G-SIBs. From end-June 2022 to end-December 2022, the level of CET1 capital for Group 1 banks increased by €100 billion (or 2.6%) to €3,943 billion. G-SIBs, which collectively held €2,736 billion in CET1 capital as of end-June 2022, account for 73% of this increase. For Group 1 banks, the increase in additional Tier 1 capital amounts to €17.0 billion since June 2022, while an increase of Tier 2 capital of €31.6 billion is observed.

Over the most recent period, the level of Group 2 banks' CET1 capital increased by €3.0 billion (or 2.6%) to €117.4 billion. Group 2 banks' additional Tier 1 capital remained stable while their Tier 2 capital increased by €1.2 billion.

Level of capital[1]

Balanced data set, exchange rates as of the current reporting date — Graph 33



[1] The graph shows the fully phased-in initial Basel III framework for the data points up to and including the end of 2018 and the actual framework in place at the reporting date for all data points thereafter.

Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size. Worksheet "Graph 33a" provides an additional regional breakdown for Group 1 banks.

Graph 34 shows a time series of the level of regulatory capital for a balanced data set of Group 1 banks, grouped by region, assuming full implementation of final Basel III standards. Over H2 2022, CET1 capital remains unchanged in Europe and increased slightly in the Americas and the rest of the world region. While CET1 capital in the rest of the world is now more than three times its value in 2011, the increase in Europe and in the Americas was more limited at 72% and 89%, respectively.

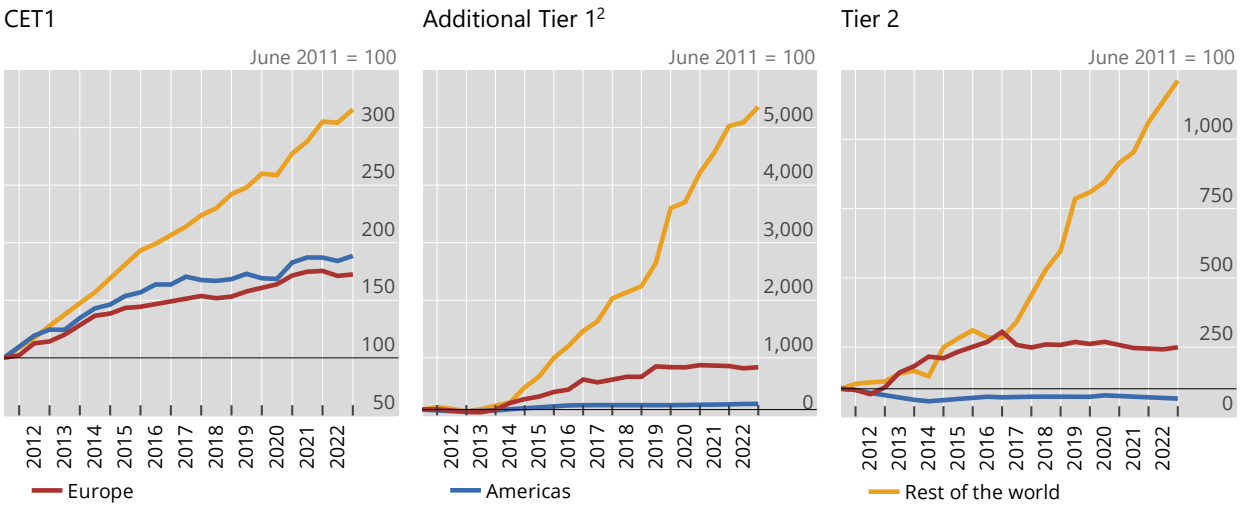
Additional Tier 1 capital showed some initial declines from 2011 through 2013 in Europe and the Americas and some mild increases in the rest of the world region. Afterwards, additional Tier 1 capital has grown significantly in the rest of the world region. The growth of additional Tier 1 capital is more modest in Europe and especially in the Americas. This development is in line with Tier 2 capital.

The stock of Tier 2 capital has grown compared with the end-June 2011 reference date for all regions except the Americas. This region experienced a decrease between 2011 and 2014 and has experienced mild increases thereafter. Since end-June 2022, the level of Tier 2 capital fell by 5.4% in the

Americas while it increased in Europe and in the rest of the world region by 3.0% (€7.4 billion) and 6.7% (€76.5 billion) respectively.

Evolution of Basel III capital,[1] by region

Group 1 banks, balanced data set, exchange rates as of the current reporting date — Graph 34



[1] The graph shows the fully phased-in initial Basel III framework for the data points up to and including the end of 2018 and the actual framework in place at the reporting date for all data points thereafter. [2] The strong percentage increases in additional Tier 1 capital are driven by the low absolute levels in 2011, in particular for the rest of the world region.

Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size. Worksheet Graph 34a provides the same breakdown but shown in EUR amounts.

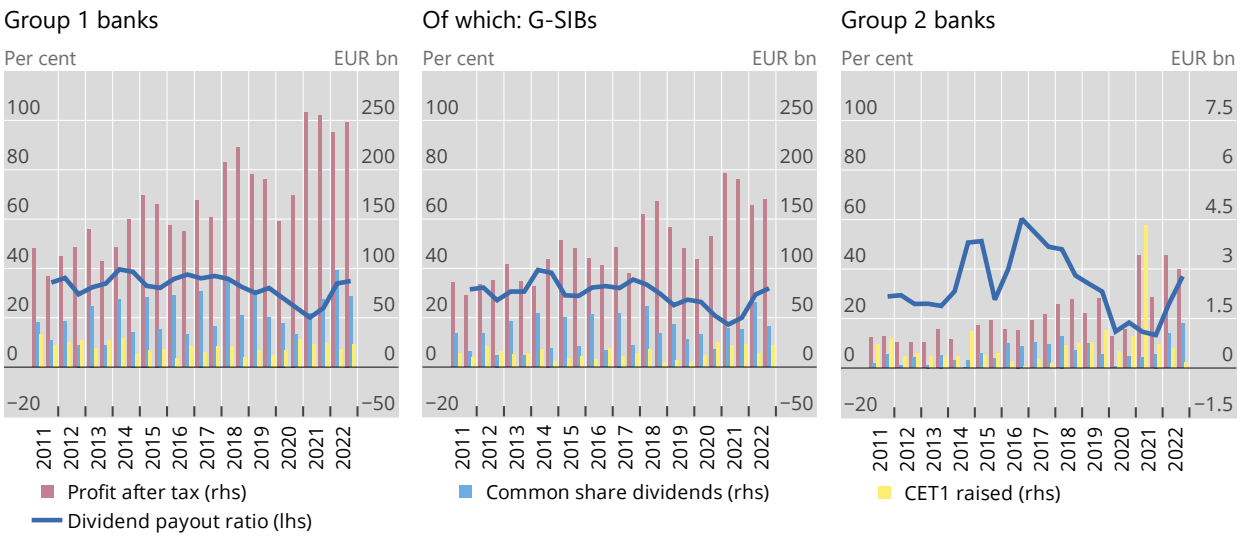
3.2 Profits, dividends and capital raised

Overall, Group 1 banks' profits after tax increased by 4.6% (€10.9 billion) since end-June 2022 (€248.4 billion vs €237.5 billion), thus reaching a level €100 billion above the pandemic low of €148.1 billion in H1 2020. G-SIBs' profit after tax increased by 4.0% (€6.6 billion) to €169.9 billion since June 2022, thus strengthening a profit level well above pandemic lows. The annual dividend payout ratios for Group 1 banks and G-SIBs (calculated over the last two semesters to avoid seasonality issues) increased to 34.9% and 31.9%, respectively, which confirms an upward trend since the end of the ECB dividends restrictions for EU banks during the Covid-19 pandemic.

Group 2 banks suffer from a 12.4% decrease in profits after tax since June 2022 and their dividend payout ratio increased to 37.1% in December 2022.

Profits, dividends, CET1 capital raised externally and dividend payout ratio

Balanced data set, exchange rates as of the current reporting date — Graph 35



The dividend payout ratio is calculated as common share dividends divided by profits after tax by using a rolling 12-month window to improve comparability across countries with different dividend payment patterns.

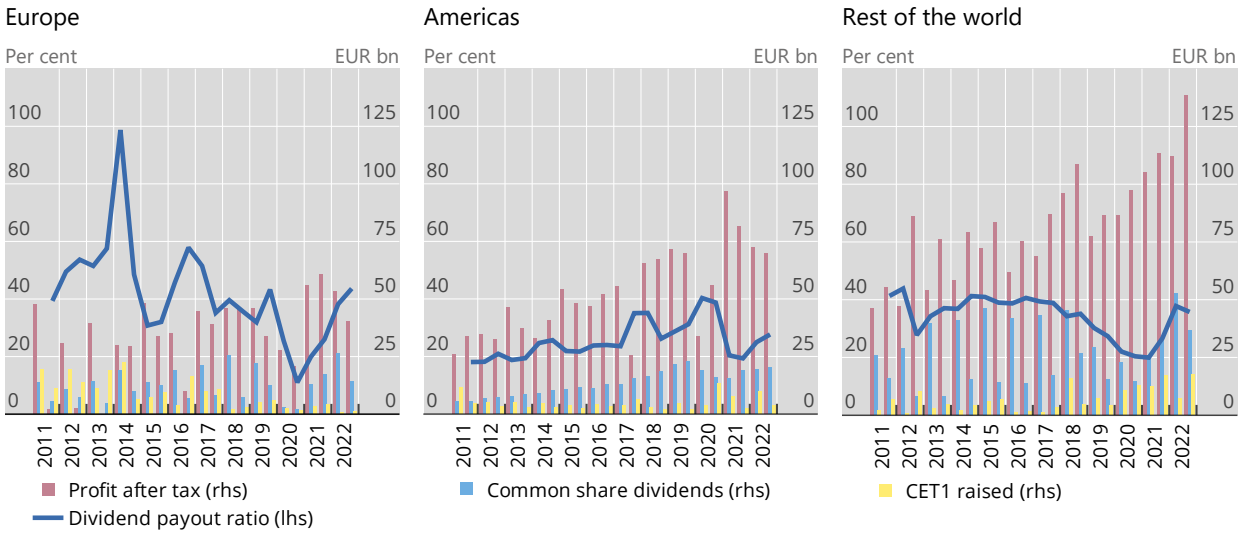
Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

Graph 36 provides the regional breakdown for Group 1 banks. After tax profits for the Group 1 banks in the sample decreased in Europe (from €53.2 billion in H1 2022 to €40.1 billion in H2 2022), and in the Americas (from €72.2 billion to €69.9 billion), while they increased in the rest of the world (from €112.2 billion to €138.4 billion). Over the same period, the annual dividend payout ratios increased by 5.4 and 2.7 percentage points in Europe and the Americas respectively while it decreased by 2.1 percentage points in the rest of the world region.

Annual after-tax profits for the Group 1 banks in the sample saw a significant decrease in Europe and in the Americas (-19.8% and -20.3% respectively) while they strongly increased in the rest of the world region (+14.7%) compared with the 12-month period ending December 2021.

Profits, dividends, CET1 capital raised externally and dividend payout ratio, by region

Group 1 banks, balanced data set, exchange rates as of the current reporting date — Graph 36



The dividend payout ratio is calculated as common share dividends divided by profits after tax by using a rolling 12-month window to improve comparability across countries with different dividend payment patterns.

Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size. Worksheet "Graph 36a" provides the same breakdown for G-SIBs.

Over the last twelve months, 82 out of the 110 Group 1 banks in the sample raised capital. Regarding CET1 capital, the total amount raised equals €66.6 billion (see Table 5), including €35.2 billion raised by G-SIBs.

Group 1 banks raised a similar amount of additional Tier 1 capital (€64.7 billion) and a greater amount of Tier 2 capital (€125.8 billion), relative to CET1 capital. This could indicate that banks are continuing to focus on the remaining, not yet fully phased-in, capital requirements such as the leverage ratio, TLAC and the minimum requirement for own funds and eligible liabilities (MREL) in countries in the European Union. The relevant regulations stipulate that CET1 capital is not necessarily the exclusive form of eligible capital to meet these requirements. In other countries, the same may hold true for additional requirements stemming from Pillar 2. Additionally, 60% of the overall capital raised globally at the current date, was raised by banks in the rest of the world region. Over the last twelve months, Group 2 banks focused on Tier2 capital (66% of the total capital raised).

Capital raised during 2022

Full sample of banks[1], gross amounts, in billions of euros — Table 5

	Number of banks	Number of banks that raised capital	CET1	Add. Tier 1	Tier 2
Group 1 banks	110	82	66.6	64.7	125.8
Of which: Europe	41	29	10.1	19.2	33.8
Of which: Americas	22	16	10.9	14.4	14.6
Of which: RW	47	37	45.7	31.1	77.4
Of which: G-SIBs	29	25	35.2	38.5	71.4
Group 2 banks	65	18	1.1	0.5	3.1

[1] Table only includes banks that provide data for the current and previous reporting dates.

Source: Basel Committee on Banking Supervision.

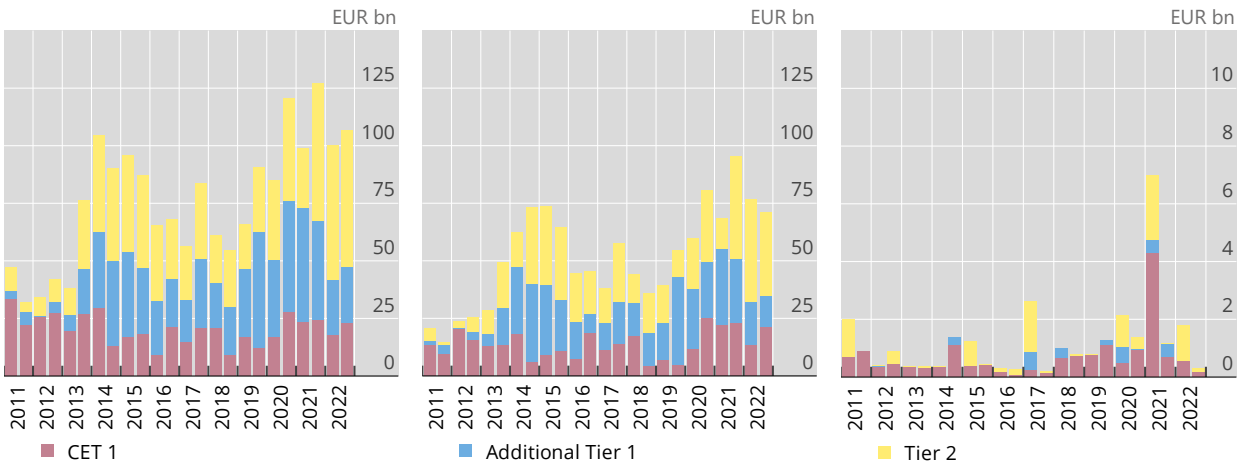
Graph 37 depicts the evolution of capital raised over time for a balanced data set. The capital raised in H2 2022 by Group 1 banks increased by 6.8% to €106.9 billion since H1 2022. Of this amount, the amount raised by G-SIBs decreased by 7.4% to €71.1 billion. Overall, since 2011, the capital raised by G-SIBs accounts for 68% of the capital raised by Group 1 banks.

The CET1 capital raised in H2 2022 by Group 1 banks and G-SIBs increased to €22.9 billion and €21.5 billion respectively. Banks from the rest of the world contribute to more than 75% of the overall increase in CET1 capital raised by Group 1 banks while banks from the Americas and Europe contribute to 6.0% and 17.1% respectively. Yet, European banks increased their CET1 capital raised by 69% (€1.37 billion raised) while that raised by banks from the Americas dropped to €3.9 billion (-60%) over the past six months.

Observing total capital raised by Group 1 banks (€107 billion) in H2 2022, it shows that Group 1 banks focused mainly on Tier 2 capital (Graph 37) as it represents more than 55% of the total capital raised in that period. More than 60% of this increase in Group 1 banks' Tier 2 capital is attributable to G-SIBs.

Capital raised externally

Balanced data set, exchange rates as of the current reporting date — Graph 37



Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size. Worksheet "Graph 37a" provides an additional regional breakdown for Group 1 banks.

3.3 Composition of capital

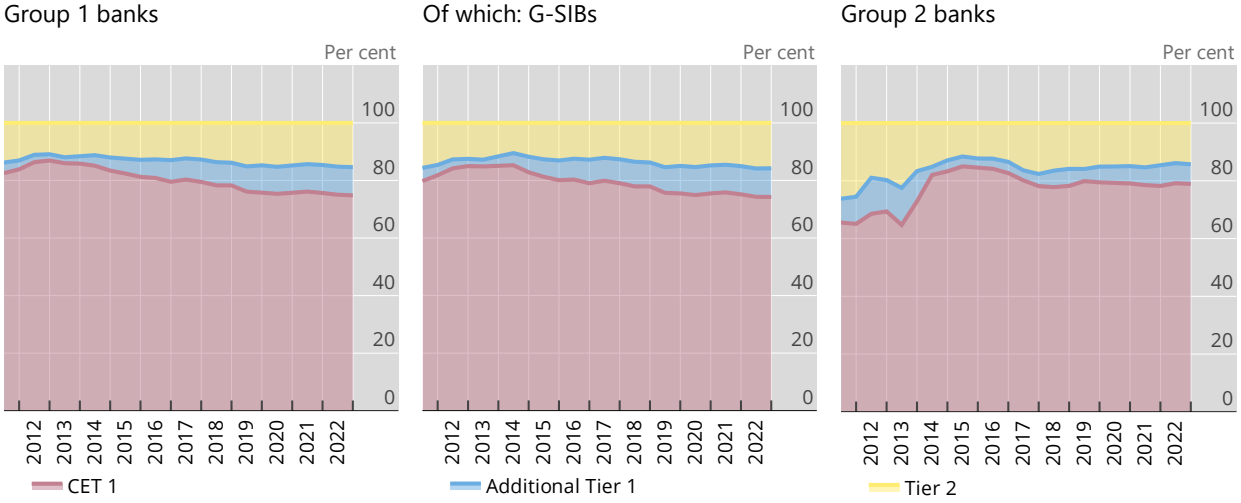
Graph 38 below shows the composition of total capital under the initial Basel III rules. As expected and as observed on previous reporting dates, CET1 capital continues to be the predominant form of regulatory capital amongst all banks. As of end-December 2022, the average share of initial Basel III CET1 capital for a balanced data set of Group 1 banks is 74.8%. For Group 2 banks, the initial Basel III CET1 capital represents 78.9% of regulatory capital at the reporting date. Noticeably, the second largest share of total capital continues to be Tier 2 capital (15.4% for Group 1 banks and 14.3% for Group 2 banks).

For Group 1 banks, the positive trend of increasing shares of CET1 capital, which had been observed during the first years of the monitoring exercise, reversed starting in 2013. Since then, there is a decline in the share of CET1 capital offset by an increase in additional Tier 1 and Tier 2 capital. The structure of regulatory capital had somewhat stabilised up to 2017, but CET1 capital has continued to globally decline over the more recent reporting periods for Group 1 banks, as well as G-SIBs.

For Group 2 banks, the share of CET1 capital has remained fairly stable since end-June 2019, standing at 78.9% for the current reporting period. The additional Tier 1 capital share increased modestly during this time, while the share of Tier 2 capital slightly decreased.

Structure of regulatory capital under initial Basel III[1]

Balanced data set — Graph 38



[1] The graph shows the fully phased-in initial Basel III framework for the data points up to and including the end of 2018 and the actual framework in place at the reporting date for all data points thereafter.

Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size. Worksheet "Graph 38a" for the structure of capital under transitional initial Basel III.

With regards to the composition of Basel III CET1 capital itself (Table 6), retained earnings and paid-in capital continue to comprise the overwhelming majority of CET1 outstanding for both Group 1 and Group 2 banks. For Group 1 banks, retained earnings and paid-in capital make up 97.8% of outstanding CET1 on average. Accumulated Other Comprehensive Income (AOCI)[26] contributes 1.7% to Group 1 banks' CET1 capital on average, but there is significant dispersion across banks and countries. Meanwhile, CET1 from recognised subsidiaries continues to provide minimal support to Group 1 banks' outstanding CET1 balances in most countries. For Group 2 banks, the share of paid-in capital and retained

[26] AOCI typically includes the following: unrealised gains and losses in available for sale securities; actuarial gains and losses in defined benefit plans; gains and losses on derivatives held as cash flow hedges; and gains and losses resulting from translating the financial statements of foreign subsidiaries.

earnings in total CET1 capital is somewhat lower, at 41.3% and 43.4% respectively, while the share of AOCI is higher compared with Group 1 banks, again with significant dispersion across banks and countries.

Structure of CET1 capital, by bank group and region

Full sample of banks, in per cent of CET1 capital gross of regulatory adjustments Table 6

	Number of banks	Paid in capital	Retained earnings	Other comprehensive income	CET1 from recognised subsidiaries
Group 1 banks	107	21.8	76.0	1.7	0.5
Of which: Europe	40	32.7	56.8	9.0	1.5
Of which: Americas	22	10.3	99.1	–9.5	0.0
Of which: RW	45	22.6	72.6	4.7	0.2
Of which: G-SIBs	28	16.6	81.5	1.2	0.6
Group 2 banks	61	41.3	43.4	15.0	0.4

Source: Basel Committee on Banking Supervision.

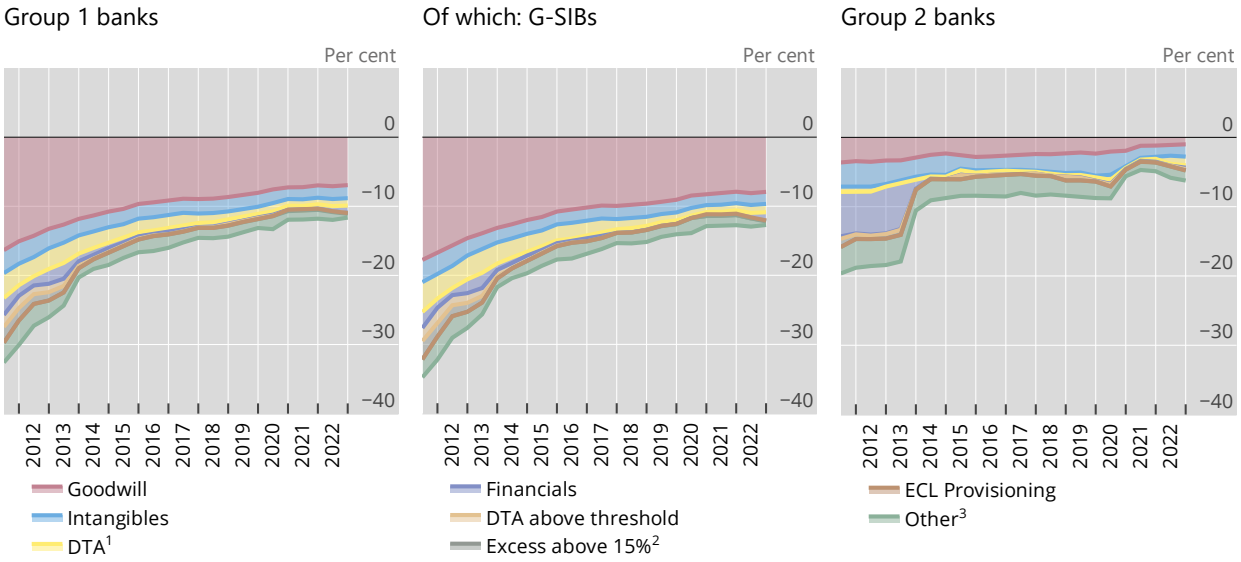
3.4 Regulatory adjustments

Using a balanced data set, regulatory adjustments reduce overall gross CET1 capital for the current period (ie CET1 capital before adjustments) for Group 1 and Group 2 banks by 11.6% and 6.2% respectively (see Graph 39). The largest driver of Group 1 bank CET1 capital adjustments continues to be goodwill (6.9%). The largest drivers of Group 2 banks' adjustments are intangibles, other deductions and DTA (1.8%, 1.5% and 1.3%, respectively).

Looking at Group 1 banks, most countries (17 out of 23) report zero adjustments from the transitional add-backs from ECL provisioning. Five countries report positive impacts while one reports a material negative impact.

Regulatory CET1 capital adjustments under fully phased-in initial Basel III

Balanced data set, in per cent of CET1 capital prior to adjustments — Graph 39

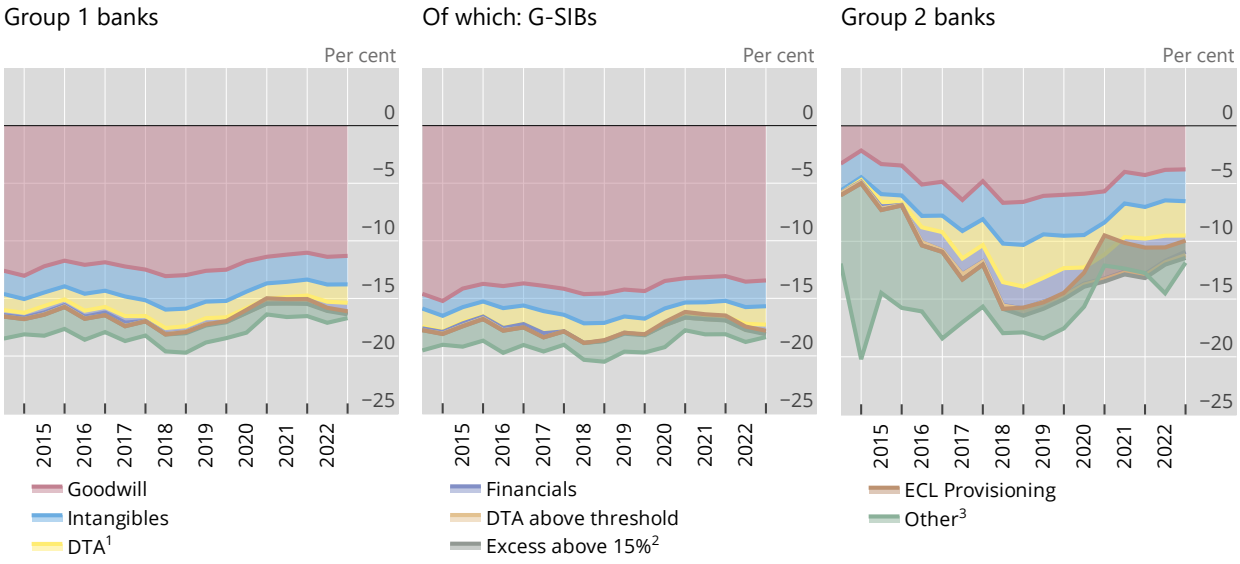


[1] DTAs are the deferred tax assets that are deducted in full under Basel III (ie they exclude DTAs that are related to temporary differences, which are only deducted when they exceed a threshold). [2] Excess above 15% pertains to significant investments in the common shares of unconsolidated financial institutions, mortgage servicing rights, and DTAs due to timing differences that do not separately exceed the 10% category thresholds but in the aggregate exceed the 15% basket threshold. [3] Other includes adjustments related to investment in own shares, shortfall of provisions to expected losses, cash flow hedge reserves, cumulative changes in fair value due to changes in own credit risk, net pension fund assets, securitisation gains on sale, mortgage servicing rights and deductions from additional Tier 1 capital to the extent they exceed a bank's additional Tier 1 capital.

Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

Regulatory CET1 capital adjustments under rules applicable at the reporting dates

Balanced data set, in per cent of CET1 capital prior to adjustments — Graph 40



[1] DTAs are the deferred tax assets that are deducted in full under Basel III (ie they exclude DTAs that are related to temporary differences, which are only deducted when they exceed a threshold). [2] Excess above 15% pertains to significant investments in the common shares of unconsolidated financial institutions, mortgage servicing rights, and DTAs due to timing differences that do not separately exceed the 10% category thresholds but in the aggregate exceed the 15% basket threshold. [3] Other includes adjustments related to investment in own shares, shortfall of provisions to expected losses, cash flow hedge reserves, cumulative changes in fair value due to changes in own credit risk, net pension fund assets, securitisation gains on sale, mortgage servicing rights and deductions from additional Tier 1 capital to the extent they exceed a bank's additional Tier 1 capital.

Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

4. Components and determinants of risk-based capital requirements

4.1 Share of different risk types in overall MRC under current rules

Graph 41 shows the evolution of the share of different asset classes in overall MRC for a balanced data set.[27] As of December 2022 and for a balanced data set of Group 1 banks, credit risk[28] continues to be the dominant portion of overall MRC, on average covering 65.9% of total MRC. However, the share of credit risk has declined significantly from 75.6% at end-June 2011 to its lowest share of 64.3% at end-December 2014 and since then slightly increased to the level at the current reporting date. This looping trend was mainly driven by in the MRC for retail (from 18.0% to 14.8%), related entities (from 10% to 0.5%) and securitisations (from 5.8% to 1.3%) while the MRC for corporate exposures increase over the observed period from 32.5% at end-June 2011 to 38.0% at the current reporting date.

The share of operational risk MRC increased sharply from 7.7% at the end of June 2011 to 14.9% at the end of 2018 and then decreased slightly to reach 13.9% at the current reporting date. The increase in the early 2010s was attributed in large part to the surge in the number and severity of operational risk

[27] MRC figures in this section are based on the total capital ratio, ie based on 8% of RWAs. Where applicable, MRCs reflect the effect of the 1.06 scaling factor applied to IRB credit RWA, and deductions assigned to the securitisation and related entities asset classes.

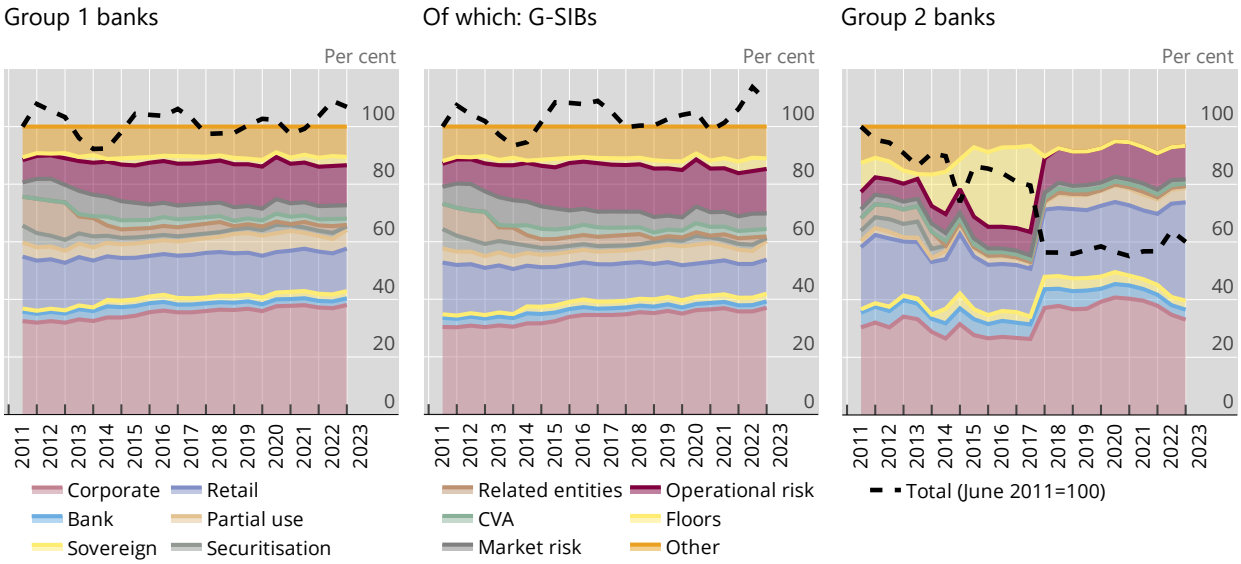
[28] Here overall credit risk is defined as the sum of corporate, bank, retail, sovereign, partial-use, securitisations and related entities as illustrated in the graph.

events during and after the financial crises, which are factored into the calculation of MRC for operational risk under the advanced measurement approach. More recently, there is some "fading out" of the financial crisis losses so that in 2020, the lowest loss level of the past 10 years is observed. This explains the latest decrease in capital requirements especially for the banks heavily affected in the financial crisis. On the other hand, losses triggered by the Covid-19 pandemic did not have a significant impact on the loss severity level. The share of market risk decreased strongly until end 2019 (from 7.1% in end-2011 to 4.1%) to stabilise around 5% since (4.7% in December 2022). The shares of "other" risk and of the floor requirement have been somewhat stable at around 10% and 2%, respectively, although floor requirements increased more recently to 3.1% at end December 2021 and slightly dropped to 2.9% in December 2022.

For Group 2 banks, the drop in overall MRC in the second half of 2017 as well as the drop in the share of floors is due to a change in the Basel I floor reporting approach in several countries.

Share of MRC by asset class[1] according to current rules

Balanced data set — Graph 41



[1] Exposures subject to partial use of the standardised approach for credit risk that cannot be assigned to a specific portfolio, as well as past-due items under the standardised approach, are listed separately as "partial use". "Related entities" includes capital requirements specified in Part 1 of the Basel II framework. The category "other" includes capital requirements for other assets; the current Basel I-based output floor; Pillar 1 capital requirements in member countries for risks not covered by the Basel framework; reconciliation differences; and additional capital requirements due to regulatory calculation differences and general provisions. The latter item can lead to negative capital requirements in cases where there is an excess in provisions, which can be recognised in a bank's Tier 2 capital. Furthermore, for banks that apply the standardised approach, general provisions may be recognised to some extent as Tier 2 capital; consequently, MRC is reduced by this amount. The term "reconciliation differences" refers to the difference between MRC reported at the entire bank level and the sum of MRC reported for the individual portfolios.

Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

Table 7 provides data on relative sizes of asset classes in terms of exposures as well as MRC for both Group 1 and Group 2 banks according to current rules at the reporting date. The sample differs considerably from the balanced data set used for the time series above, resulting in differences for the values at the reporting date. The average risk weight suggests the relative riskiness of the different asset classes as measured by the current framework. Both the numerator (12.5 times MRC) and the denominator (exposure amounts) of this ratio include exposures under the IRB and standardised approaches for credit risk.[29] Since a common exposure measure for credit, market and operational risk does not exist, the size

[29] The asset classification is mainly based on the IRB approach. Exposures subject to partial use of the standardised approach for credit risk which cannot be assigned to a specific portfolio, as well as past-due items under the standardised approach, are listed separately in Table 7.

in terms of exposure and the average risk weight are only defined for asset classes subject to a credit risk treatment.

Looking at Group 1 banks, corporate exposures are the biggest in size with 31.1% of total exposures and 42.2% of MRC; they attract a 54.1% risk weight. Retail and sovereign asset classes represent almost half of exposures although a small share of MRC as they have a low-risk density and an average risk weight at 27.1% and 5.4% respectively. For Group 2 banks, retail and sovereign asset classes comprise almost two third (62.1%) of exposures, corporates represent 18.3% adding up to 80.4% of the total. Group 2 banks' average risk weight for overall credit risk is lower by 6.6 percentage points at 33.2% versus 39.9% for Group 1 banks. This is largely driven by Group 2 banks' lower average risk weights for sovereign, bank and retail exposures.

Average asset class/risk type size and average risk weight[1]

In per cent — Table 7

	Group 1			Group 2		
	Size exposure	Size MRC	Average risk weight	Size exposure	Size MRC	Average risk weight
Credit risk; of which:	98.9	78.9	31.9	99.6	82.6	27.5
Corporate	31.1	42.2	54.1	18.3	34.5	62.7
Sovereign	24.7	3.4	5.4	33.4	3.2	3.2
Bank	6.8	4.2	24.3	8.6	5.1	19.5
Retail	24.1	16.4	27.1	28.7	20.6	23.8
Equity	0.8	4.7	237.5	0.9	5.5	207.2
Purchased receivables	0.2	0.1	23.2	0.0	0.0	
Securitisation	2.5	1.2	19.1	0.7	0.5	23.7
Related entities	0.0	0.2	235.9	0.0	0.0	
Past-due items	0.1	0.2	108.4	0.2	0.6	112.5
Other assets	4.7	6.1	51.1	1.0	2.8	93.2
Failed trades and non-DVP transactions	0.0	0.1	107.9	0.0	0.0	
Not assigned[2]	3.7	8.9	95.0	7.9	11.7	49.0
Regulatory difference[3]		–8.7			–1.9	
CVA	1.0	1.4	55.1	0.4	1.0	89.4
Trading book CCR[4]		0.2			0.0	
Market risk		3.8			2.2	
Other trading book		0.1			0.0	
Operational risk		12.3			10.4	
Floor adjustment		1.8			0.0	
Other[5]		1.4			3.9	
Total	100.0	100.0	39.9	100.0	100.0	33.2

[1] MRC figures in this table are based on the minimum total capital ratio (ie based on 8% of RWAs). [2] The "not assigned" asset class only includes those exposures subject to partial use of the standardised approach that could not be assigned to one of the other asset classes. [3] Includes shortfall (positive) or excess (negative) of provisions over expected loss amounts for exposures subject to the IRB approach for credit risk as well as general provisions (negative) for exposures subject to the standardised approach for credit risk to the extent they are recognised in Tier 2 capital. [4] Counterparty credit risk in the trading book. [5] Includes the reconciliation asset class and other Pillar 1 capital requirements.

Source: Basel Committee on Banking Supervision.

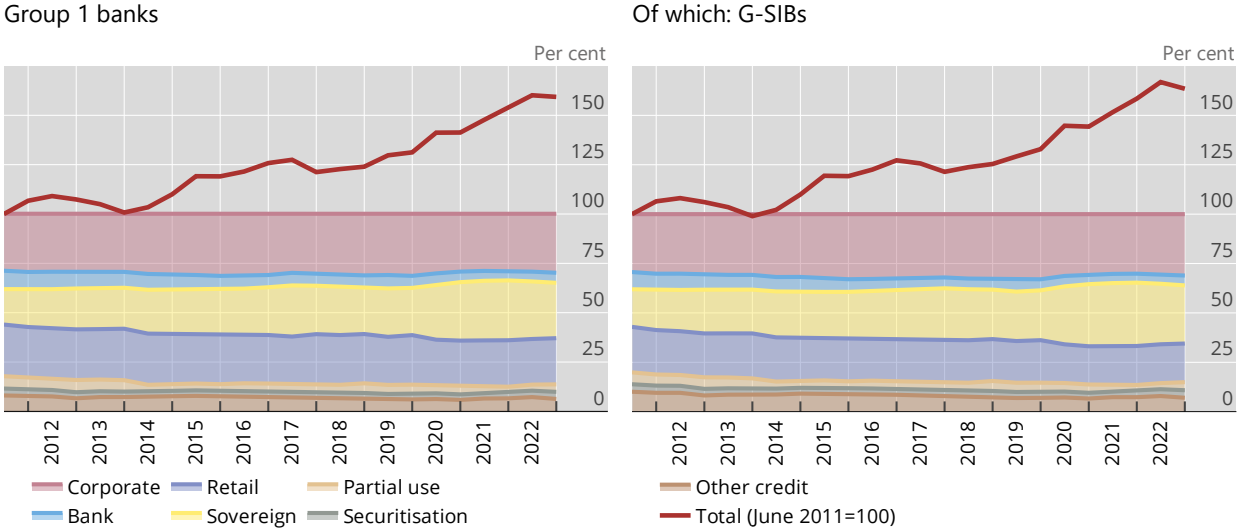
4.2 Credit risk

4.2.1 Share of credit risk exposure by asset classes under the current rules

The left-hand panel of Graph 42 shows the evolution of credit exposure for the seven major asset classes for a balanced data set of 40 Group 1 banks. The composition of credit risk exposures has remained relatively stable as overall exposure levels have grown by 59.3% over the entire period, with a slight decrease in the last period. However, the share of sovereign exposures has increased steadily in recent years and, after a slight decline in 2018 and 2019, increased substantially in 2020, and reached its peak at 30.3% at the end of December 2021, remaining relatively stable since then. The share of exposures to sovereigns, corporates and securitisation has declined slightly over the last semester, while the shares of exposures to retail and banks have increased slightly, exposures subject to the partial use of the standardised approach have increased and other credit exposures have decreased.

Share of credit exposure

Balanced data set Graph 42



Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

4.2.2 Impact of revisions to the standardised and IRB approaches for credit risk on MRC

Graph 43 shows the changes in terms of current Tier 1 MRC associated with exposures under the standardised and IRB approaches for credit risk due to the final Basel III framework. The left-hand panel shows the overall distribution of the impact, while the right-hand panel provides a breakdown by asset class. On average, the impact on the change of Tier 1 MRC is positive for Group 2 banks (+7.7%) while for Group 1 banks, the impact indicates a decrease in capital requirements of -2.3% (and a decrease of -2.5% for G-SIBs).

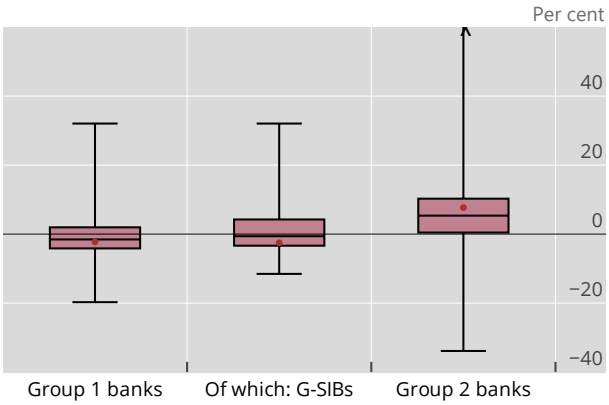
The right-hand panel of Graph 43 breaks down the impact by asset class. For Group 1 banks, exposures to corporate contribute to a significant decrease in MRC, while the contribution of bank and covered bonds is positive. For Group 2 banks, the increase in MRC is primarily due to exposures to equity, bank and covered bonds, real estate, retail and to corporates. As regards exposures to corporates, the results are mainly driven by the removal of the 1.06 scaling factor in the IRB formula and the reduction of the supervisory loss-given-default (LGD) parameter for unsecured corporate exposures from 45% to 40% under the foundation IRB approach. Other relevant changes with major impacts relate to the removal of

the advanced IRB approach for exposures to banks and the removal of all IRB approaches for equity exposures.

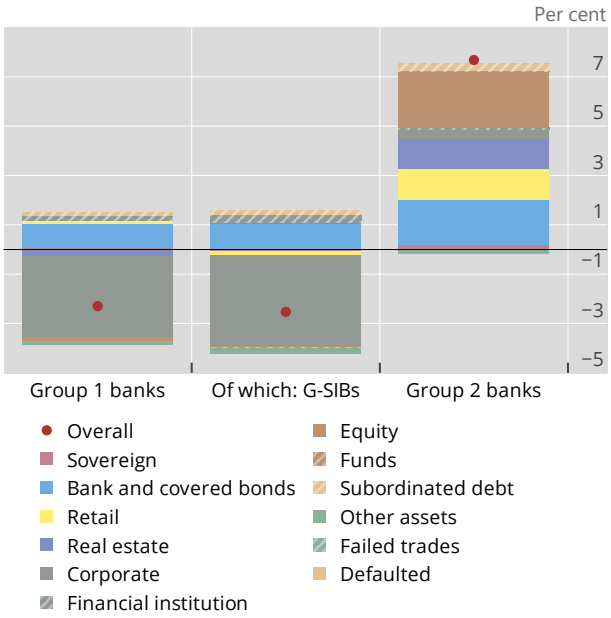
Changes in Tier 1 MRC for credit risk due to the final Basel III standards

Graph 43

Overall distribution[1]



Breakdown by asset class



[1] See Section 1.3.3 for details on box plots.

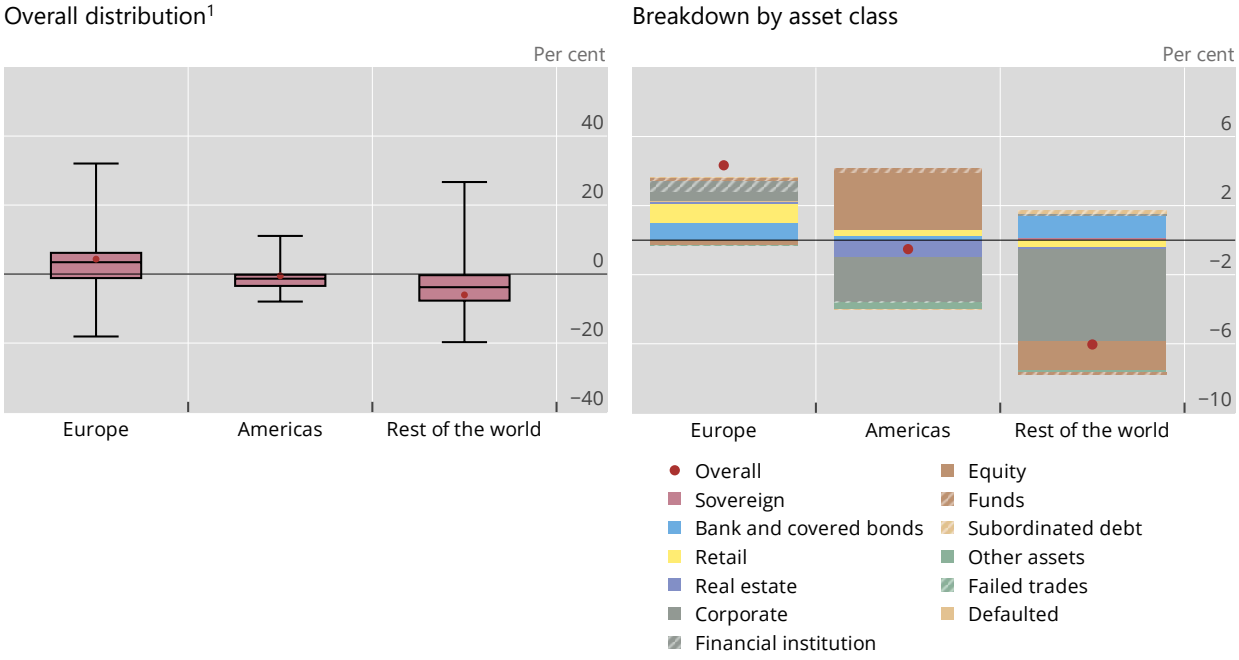
Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

The regional breakdown for Group 1 banks in Graph 44 highlights differences in impact between the three regions, which however should be carefully considered given the variable and limited number of banks per region included in the sample. The change in MRC is positive for Europe (+4.3%) but slightly negative for the Americas (-0.5%) and negative for the rest of the world (-6.0%). In Europe, the impact is positive for almost all asset subclasses, with corporate, retail, banks and covered bonds having the largest impact. In the Americas, the impact on equity is the largest positive and corporates is the largest negative. The impact on corporates, followed by equity, drives the large decrease, while the impact on the bank and covered bonds asset class represents the largest increase in MRC in the rest of the world.

Changes in Tier 1 MRC for credit risk due to the final Basel III standards, by region

Group 1 banks

Graph 44



[1] See Section 1.3.3 for details on box plots.

Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

4.2.3 Standardised approach for credit risk

Impact of the revisions on MRC

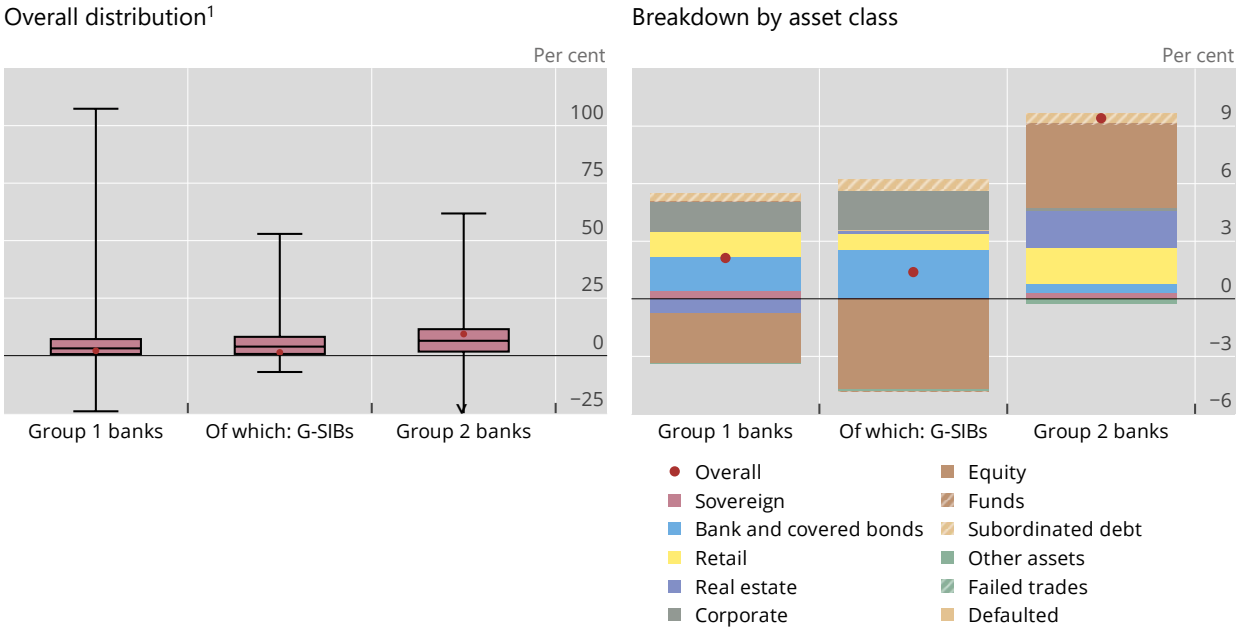
Graph 45 shows the changes in Tier 1 MRC due to the finalisation of the Basel III standards for credit risk exposures that are currently under the standardised approach. These data include exposures of banks subject to the standardised approach for credit risk as well as exposures of banks using the IRB approach for credit risk to the extent that they are subject to partial use provisions. It does not include exposures currently under the IRB approach that migrate to the standardised approach under the revised framework (eg IRB equity exposures). Note that changes in Tier 1 MRC are calculated as a percentage of current Tier 1 MRC associated with exposures currently under the standardised approach only.

The left-hand panel of the graph shows the overall distribution of the impact. The revised standardised approach for credit risk results in a weighted average increase in MRC of 2.1% for Group 1 banks, 1.4% for G-SIBs and 9.4% for Group 2 banks.

The right-hand panel provides a breakdown of the change in MRC by asset class. For Group 1 banks in the sample, the asset classes with the greatest contribution to the overall increase in MRC are exposures to banks and covered bonds followed by corporates. MRC for investment in funds, real estate and defaulted exposures are largely unchanged while exposures to equity and other assets on average show a decrease in MRC. For Group 2 banks, the increase in MRC is primarily driven by equity exposures real estate, retail and corporates, followed by exposures to banks and covered bonds, subordinated debt and sovereign. The changes in MRC for all other asset classes are relatively smaller. The results suggest a large variation across asset classes and countries.

Changes in Tier 1 MRC for exposures subject to the standardised approach for credit risk due to the final Basel III standards

Graph 45



Data generally include banks subject to the standardised approach for credit risk and exposures subject to partial use of banks using the IRB approach for credit risk. [1] See Section 1.3.3 for details on box plots.

Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

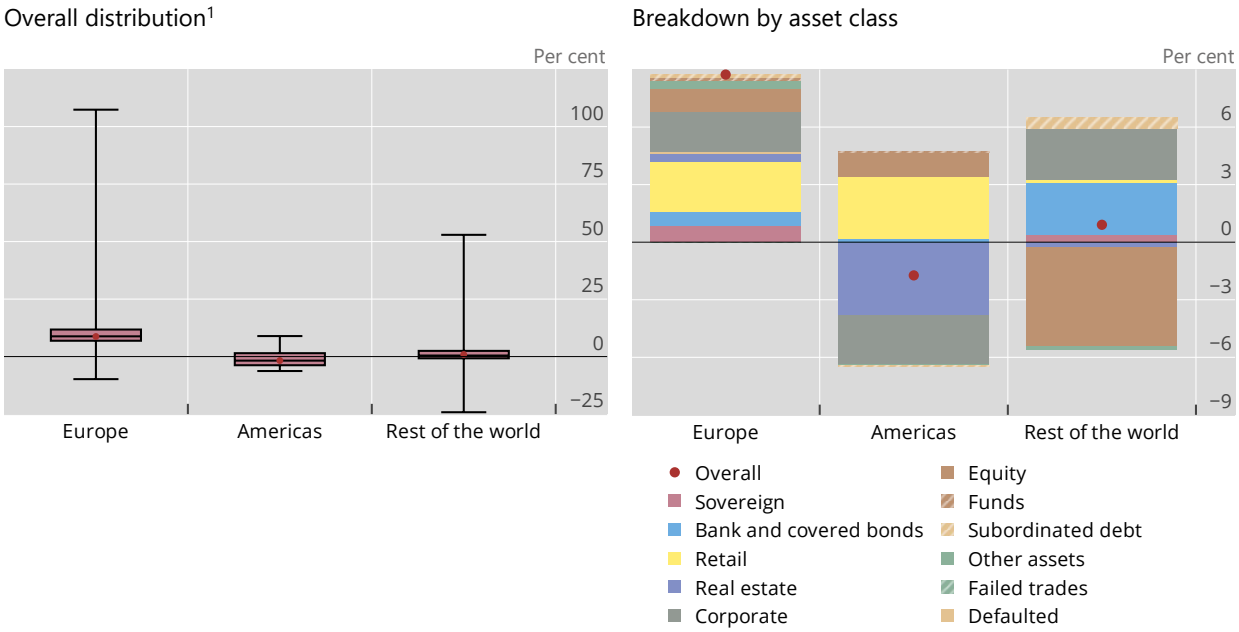
Graph 46 replicates the analysis of Graph 45 but breaks down the results for Group 1 banks by geographical region. On average, the revised standardised approach entails a positive impact on MRC in Europe (8.7%) and in the rest of the world (0.9%) while it shows a negative impact on MRC in the Americas (-1.7%).

Looking at individual asset classes, the results are somewhat heterogeneous. Exposures to retail are the largest contributor to the increase in MRC for banks in Europe but show a smaller negative impact in the Americas and in the rest of the world. Exposures to real estate and corporates represent the largest negative impacts in the Americas but a positive impact in the other two regions. Equity exposures have a positive impact for banks in Europe and the Americas, but a significant negative impact for banks in the rest of the world. Exposures to banks and covered bonds are the largest positive contributors for banks in the rest of the world, while their effect is positive but more muted in Europe and in the Americas.

Changes in Tier 1 MRC for exposures subject to the standardised approach for credit risk due to the final Basel III standards, by region

Group 1 banks

Graph 46



Data generally include banks subject to the standardised approach for credit risk and exposures subject to partial use of banks using the IRB approach for credit risk. [1] See Section 1.3.3 for details on box plots.

Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

4.2.4 Internal ratings-based approach for credit risk

Impact of the revisions on MRC

Graph 47 summarises the change in Tier 1 MRC due to the IRB revisions for all credit risk exposures that are currently under the IRB approach, regardless of which approach they are subject to under the final Basel III standards. Therefore, it includes equity exposures currently under the IRB approach, even if under the revised standards their MRC will be calculated using the standardised approach. The sample of banks included in this section differs from the sample of IRB banks in the previous sections. Moreover, changes in Tier 1 MRC in this section are calculated as a percentage of current Tier 1 MRC associated with exposures under the IRB approach only.

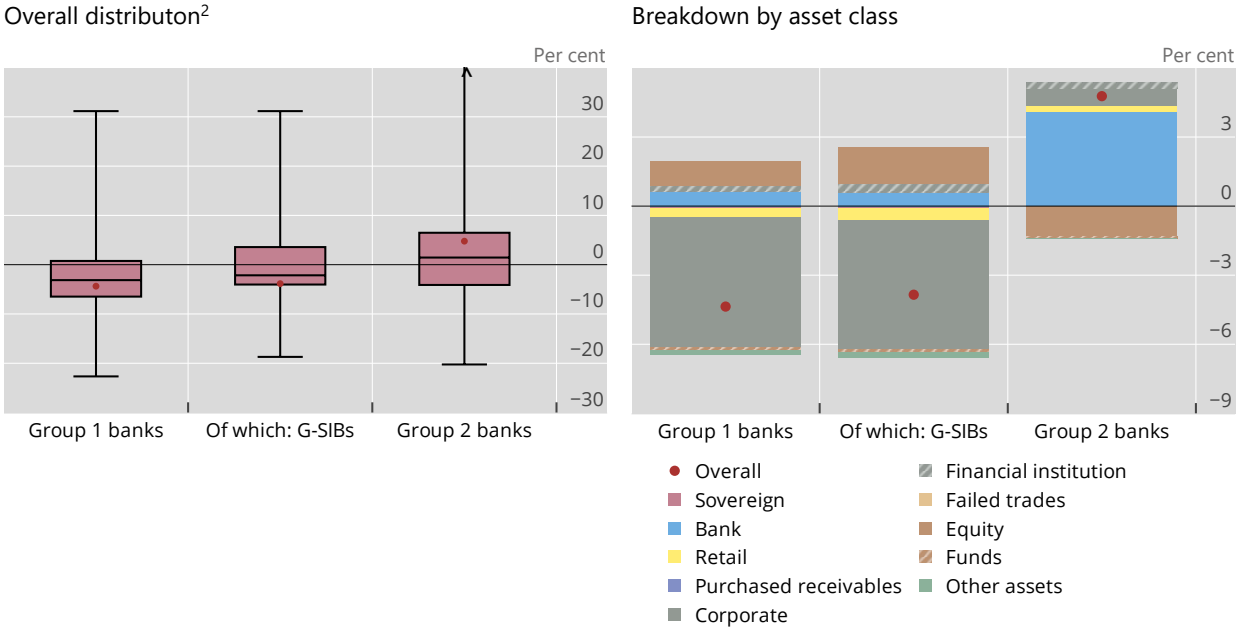
The left-hand panel of Graph 47 shows the overall distribution of the impact. In aggregate, the revisions to the IRB approach appear to result in a decrease in overall Tier 1 MRC for Group 1 banks (-4.4%) and G-SIBs (-3.9%), and an increase for Group 2 banks (+4.8%). Median values, which are less sensitive to extreme values and are not weighted, show a more moderate impact for all groups.

The right-hand panel of Graph 47 breaks down the impact by asset class. Exposures to corporates are the main contributors to the overall decrease in MRC for Group 1 banks and G-SIBs while they increase MRC for Group 2 banks. Exposures to banks and covered bonds contribute the most to the overall increase in MRC for Group 2 and, as expected, indicate an increase for Group 1 banks and G-SIBs. The MRC for exposures to equity shows a decrease for Group 2 banks, while it increases for Group 1 banks and G-SIBs. Although the new restrictions on the scope of IRB approaches for certain asset classes and the revised input floors on certain IRB parameters (eg increased PD floors) may suggest an increase in MRC, an overall decrease in MRC is observed for Group 1 banks and G-SIBs. This impact may be explained by, among others, four factors: (i) certain jurisdictions currently apply super-equivalent requirements, which the

analysis assumes will not be carried over to the new framework, (ii) the changes in the foundation IRB rules, which in many cases result in a decrease in MRC, (iii) the removal of the 1.06 IRB scaling factor, and (iv) the lower LGD floor for retail residential mortgages (though it applies on exposure rather than portfolio level). The impact of points (i) and (ii) may be amplified when the affected countries also make up a substantial amount of total exposures in the sample.

Changes in Tier 1 MRC for exposures subject to the IRB approach for credit risk due to the final Basel III standards[1]

Graph 47



[1] The change is calculated as a percentage of current Tier 1 MRC across all IRB exposures. The impact when summing over all asset classes is slightly different from the overall impact reported. The reason is that when summing over all asset classes changes in the difference between provisions and expected losses are not considered, whereas in the overall impact calculation a change in the shortfall in provisions is reflected in the change in MRC. [2] See Section 1.3.3 for details on box plots."

Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

Graph 48 replicates the analysis of Graph 47 but breaks down the results by geographical region considering only Group 1 banks. Overall, the revisions to the IRB approach lead to an increase in Tier 1 MRC for Group 1 banks in Europe (+2.5%), a slight decrease in the Americas -0.1%) and a significant decrease for banks in the rest of the world (-9.9%). The impact is heterogeneous across banks in each group.

For banks in Europe, exposures to corporates, banks and covered bonds, and financial institutions are the main contributors to the overall increase in MRC. For banks in the Americas, while equity exposures have a large positive impact on MRC, the remaining exposures show a negative or negligible change and offset this increase. For banks in the rest of the world, the decrease in MRC is mainly driven by exposures to corporates.

Changes in Tier 1 MRC for exposures subject to the IRB approach for credit risk due to the final Basel III standards,[1] by region

Group 1 banks

Graph 48

[1] The change is calculated as a percentage of current Tier 1 MRC across all IRB exposures. The impact when summing over all asset classes is slightly different from the overall impact reported. The reason is that when summing over all asset classes changes in the difference between provisions and expected losses are not considered, whereas in the overall impact calculation a change in the shortfall in provisions is reflected in the change in MRC. [2] See Section 1.3.3 for details on box plots.

Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

Risk parameters by IRB asset classes under current rules

This section presents time series of IRB risk parameters under current rules for a sample of Group 1 banks only.[30] Graph 49 shows probability of default (PD) and the share of defaulted exposures for different asset classes for a balanced data set of Group 1 banks over time. It should be noted that the share of defaulted exposures is a stock variable, which depends highly on banks' workout processes upon default. Banks may choose to sell off defaulted exposures to external parties after default or retain them on balance sheet, which would heavily impact this metric. In addition, since the share of defaulted exposures is a stock variable, it should not be confused with a default rate, which could be compared with PDs for backtesting purposes.

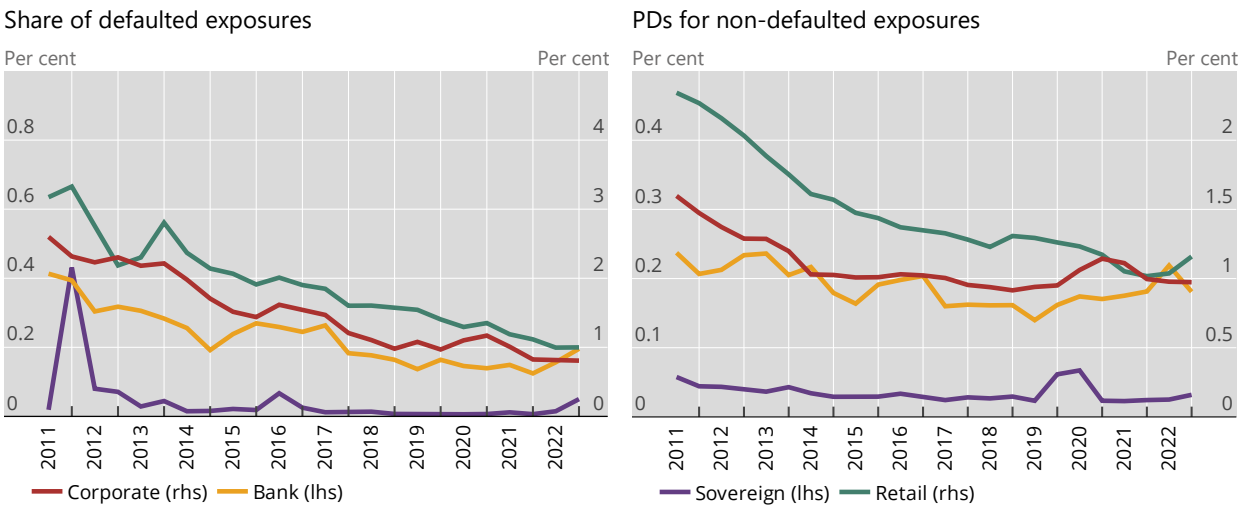
The left-hand panel of Graph 49 shows a general downward trend in the share of defaulted exposures, with the exception of a temporary increase for sovereign between 2011 and 2012 due to the sovereign debt crisis, and a marked increase in the share of bank defaulted exposures beginning in 2020.[31] Looking at PDs for non-defaulted exposures (right-hand panel), there is also a general downward trend, most pronounced for retail exposures, with a slight increase in PDs for retail exposures over the last semesters.

[30] For point in time distribution plots of the various risk parameters by asset class, as well as the share of defaulted exposures, refer to worksheets "Graph 48a" to "Graph 48d" in the Excel data file.

[31] The marked increase for bank exposures since December 2020 is due to a significant increase for one large bank.

Share of defaulted exposures and PDs for non-defaulted exposures by asset class

Group 1 banks, balanced data set — Graph 49

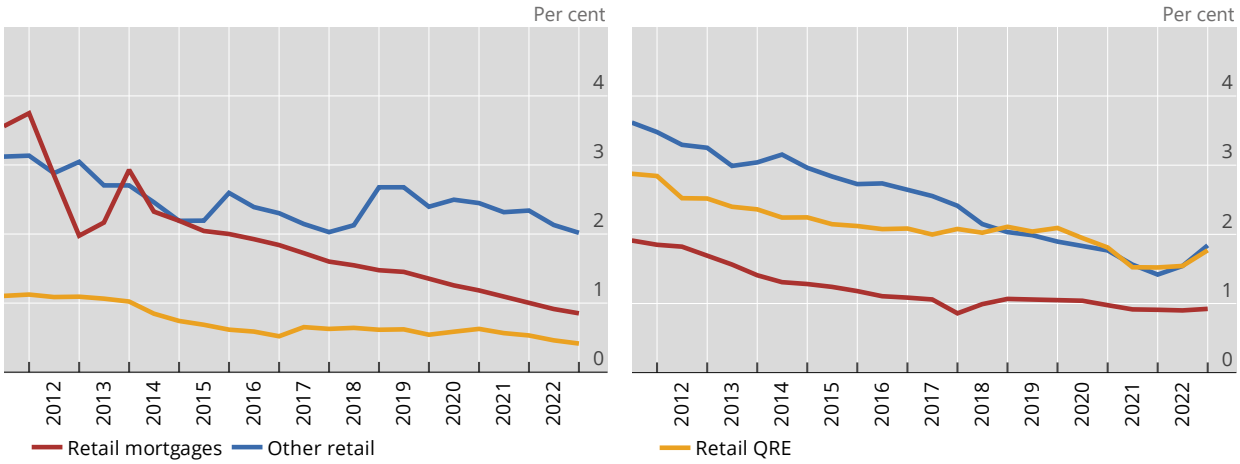


Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

With respect to the retail asset classes (Graph 50), the decreasing trend in PDs described above seems to be driven by retail mortgages and other retail exposures, even though they exhibit an increase during the last semesters.

Share of defaulted exposures and PDs for non-defaulted exposures by retail sub-asset classes

Group 1 banks, balanced data set — Graph 50

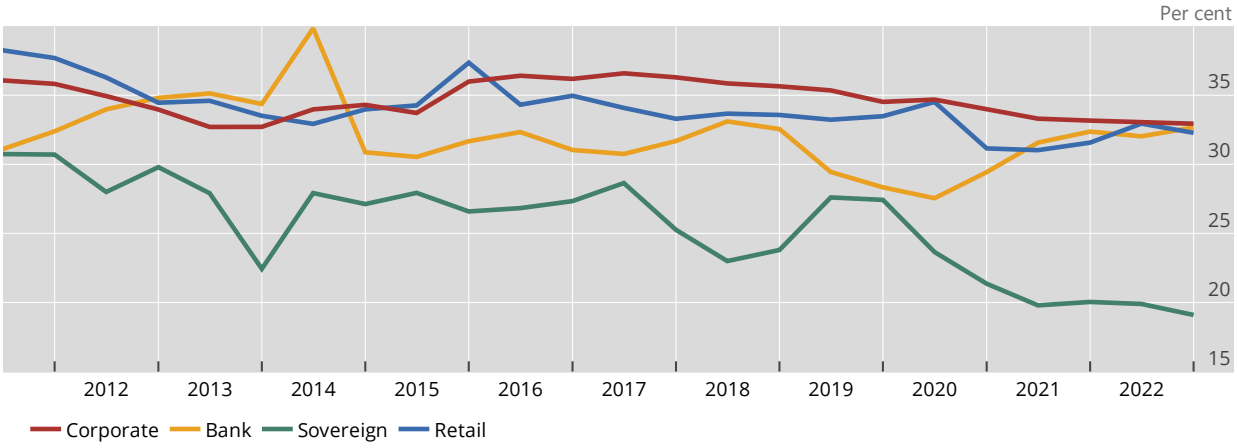


Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

LGD estimates are supposed to reflect economic downturn conditions and therefore should be somewhat more stable than PDs. This is reflected in Graph 51. Nonetheless, LGDs for non-defaulted exposures slightly increased in the last semester for the bank and retail asset classes while it has slightly decreased for the sovereign asset class.

LGDs for non-defaulted exposures by asset class

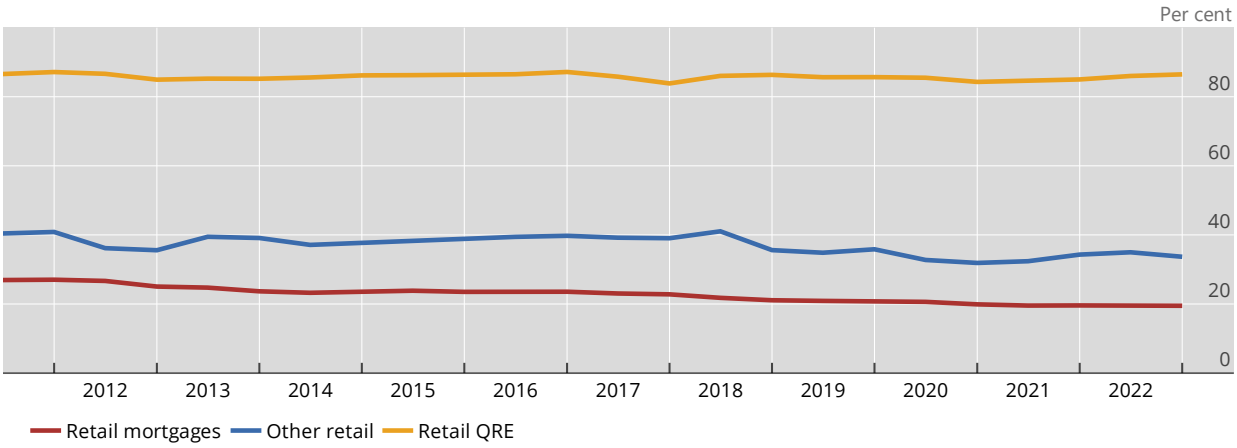
Group 1 banks, balanced data set — Graph 51



Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

LGDs for non-defaulted exposures by retail sub-asset class

Group 1 banks, balanced data set — Graph 52



Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

4.2.5 Impact of revisions to credit risk on MRC over time

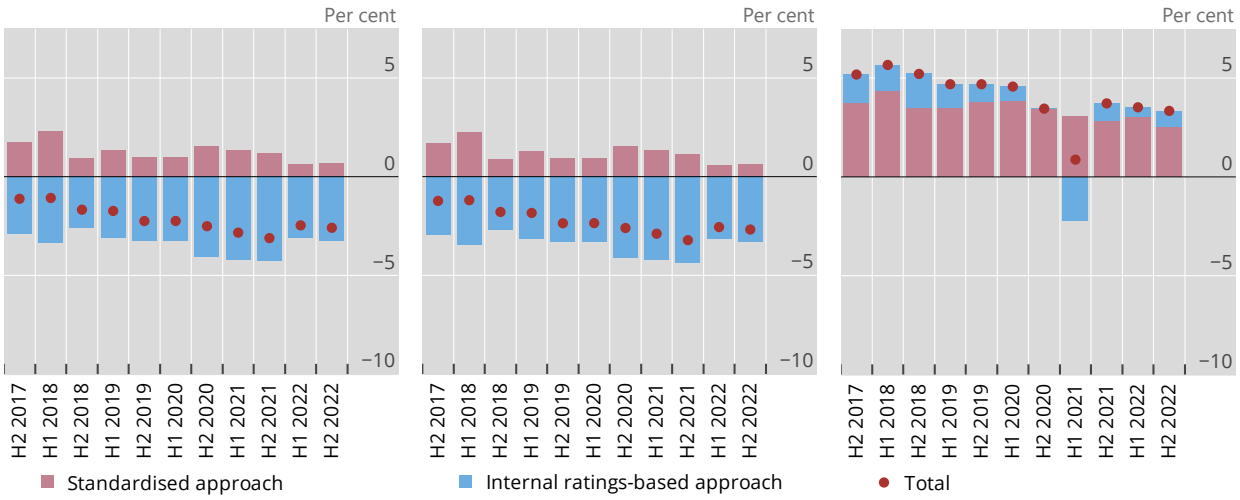
This report presents the impact of the finalised Basel III framework since end-2017. As such, the report now includes time series analysis starting from the December 2017 reporting period up until the current reporting period. Graph 53 and Graph 54 below show the estimated changes in Tier 1 MRC by credit risk approach across this period, for a balanced data set of banks, by bank group and region respectively.

The estimated impact of the credit risk reforms as a whole on aggregate MRC shows a negative trend over time, driven mainly by exposures under the IRB approach. Looking at the regional breakdown, there is a consistent negative trend for banks in the rest of the world which, when considering the increase over time of their share in global credit risk RWA, drives the overall results at the global level. In Europe, the increase in MRC remains at its lowest over the whole period (5.5%) after reaching a peak in December 2020 (7.0%). For the Americas, the change in MRC was negative (-0.3%) for the first time this semester.

The evolution of credit risk MRC impact over time could be explained by three drivers. First, every Basel III monitoring exercise is a snapshot at a given reporting period where a static balance sheet is assumed. Banks' balance sheets naturally evolve over time, which affects the MRC impact. Second, familiarity with the revised Basel III framework is naturally higher in the later reporting periods. Consequently, banks may be able to reflect the revised framework more accurately without having to rely on (often overly conservative) assumptions – the so-called "QIS bias" – in more recent reporting periods. Third, when measuring the impact over time the starting point, ie the current MRC, may have increased due to national legislation changes or supervisory practices (eg stricter supervision on asset classification under the standardised approach or more stringent model validations under the IRB approach).

Changes in Tier 1 MRC for credit risk exposures due to the final Basel III standards over time

Balanced data set — Graph 53



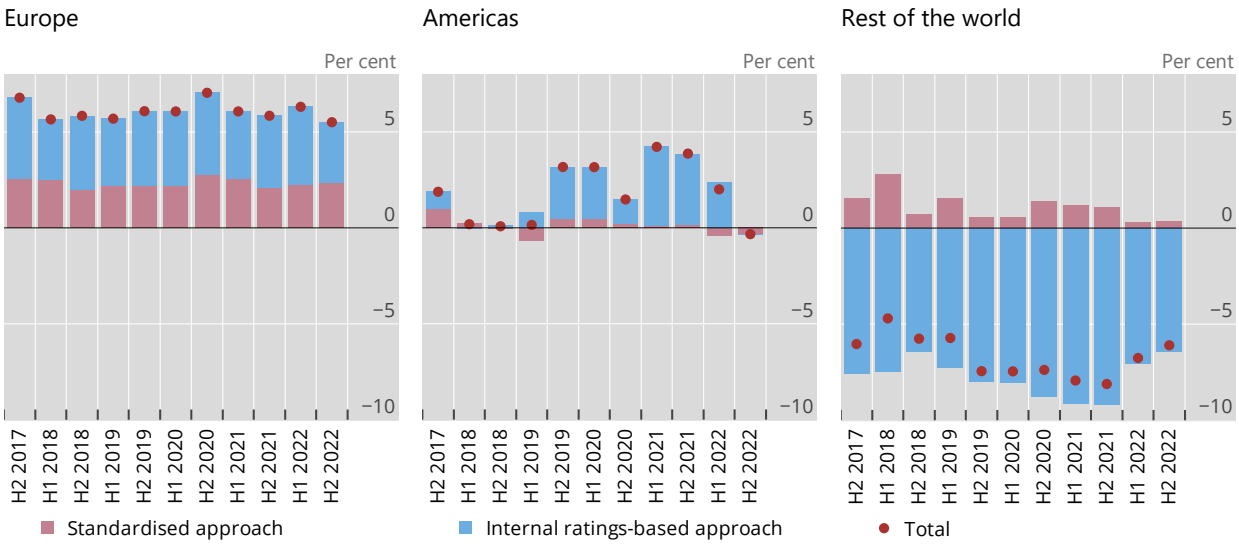
Since the Committee did not collect these data through its Basel III monitoring exercise for the end-June 2020 reporting date, results for H1 2020 show the same values as for H2 2019.

Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

Changes in Tier 1 MRC for credit risk exposures due to the final Basel III standards over time

Balanced data set

Graph 54



Since the Committee did not collect these data through its Basel III monitoring exercise for the end-June 2020 reporting date, results for H1 2020 show the same values as for H2 2019.

Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

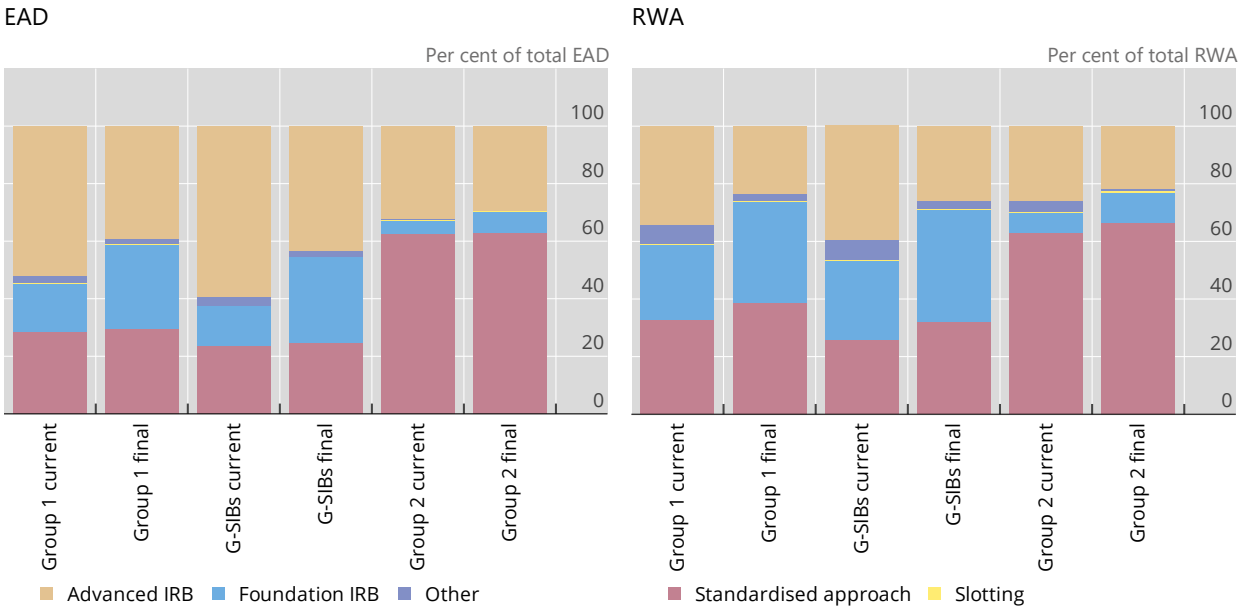
4.2.6 Distribution of exposure at default and risk-weighted assets across approaches

The left-hand panel of Graph 55 shows the composition of exposure at default (EAD) under different modelling and non-modelling approaches. For this section, "slotting" refers to the EAD that is subject to the supervisory slotting criteria approach for specialised lending. For Group 1 banks, the portion of exposures under the advanced IRB approach decreases from 51.9% to 39.0% under the revised framework, while exposures under the foundation IRB approach increase from 16.9% to 29.5% of total exposure value. Exposures under the standardised approach increase from 28.4% to 29.4%. These changes are driven by the removal of the option to use the advanced IRB approach for exposures to financial institutions and large corporates, which migrate to the foundation IRB approach, and by the removal of the option to use the IRB approach for equity exposures (included in the "Other" category), which move to the standardised approach. For Group 2 banks, the changes follow a similar trend but are less pronounced due to the relatively larger share of exposures under the standardised approach.

The right-hand panel of Graph 55 replicates the exercise for the distribution of RWA. For Group 1 banks, RWA under the advanced IRB approach decrease from 34.3% to 23.4%, RWA under the foundation IRB approach increase from 26.3% to 35.0% and RWA under the standardised approach increase from 32.6% to 38.6% of total RWA. For Group 2 banks, RWA under the advanced IRB approach decrease from 25.9% to 21.8%, RWA under the foundation IRB approach increase from 6.8% to 10.4% and RWA under the standardised approach increase from 63.0% to 66.5%. These changes follow from the change in the allocation across IRB and standardised approaches described above.

Distribution of EAD and RWA by approach under the current rules and the final Basel III standard

Graph 55



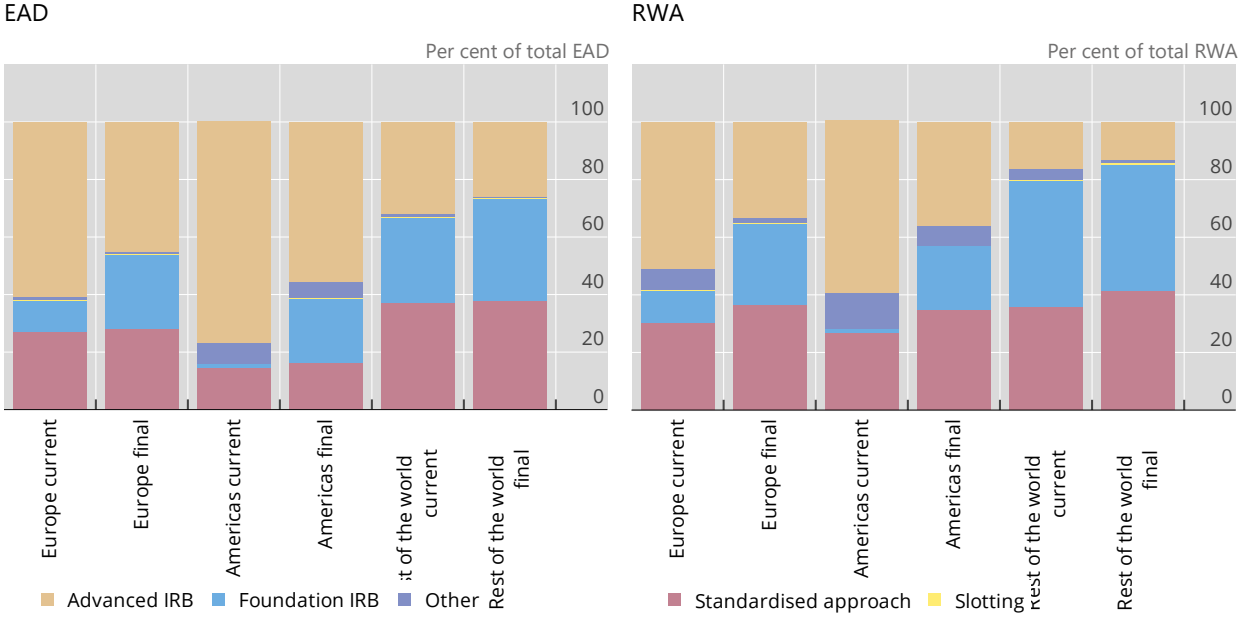
[1] "Other" includes equity exposures, equity investments in funds, failed trades and non-DVP transactions and other assets under the IRB approach for credit risk.

Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

Distribution of EAD and RWA by approach under the current rules and the final Basel III standard, by region

Group 1 banks

Graph 56



[1] "Other" includes equity exposures, equity investments in funds, failed trades and non-DVP transactions and other assets under the IRB approach for credit risk.

Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

Additional constraints to modelling will apply due to the introduction of risk parameter floors. The risk parameter floors introduce a five basis points PD floor,[32] which will be binding for some IRB exposures. Furthermore, some exposures subject to the advanced IRB approach will be bound by the risk parameter floors on LGD and EAD. These risk parameter floors together with the output floor further reduce the shares of EAD and RWA that are effectively subject to unconstrained modelling; these effects are however not shown in the graphs above.

4.2.7 Impact of the revised securitisation framework

This section explores the impact of the Basel III securitisation framework.[33] In particular, the analysis focuses on the following issues:

- the estimated impact on RWA for securitisation exposures of the implementation of the Basel III securitisation framework, when compared with the Basel 2.5 framework; and
- the prevalence of "simple, transparent and comparable" (STC) vs non-STC exposures and its relationship with the approach used for the calculation of capital requirements.

General overview of the securitisation framework

The main changes of the Basel III securitisation framework in comparison to the previous framework are:

- harmonisation of the treatment of banks operating under the standardised or IRB approaches;
- adjustment of the hierarchy of approaches in order to avoid the mechanistic reliance on external ratings;
- inclusion of additional risk drivers and better recognition of existing risk drivers;
- introduction of preferential risk weights for simple, transparent and comparable (STC) term and short-term securitisations, typically in asset-backed commercial paper (ABCP) structures; and
- complete recalibration of all available approaches and increase in the risk weight floor from currently 7% to 10% and 15% for STC exposures and for non-STC exposures, respectively.

The Basel III securitisation framework provides banks with three approaches to calculate RWAs. The definition of which approach will apply follows a defined hierarchy – the capital requirements for securitisation exposures are calculated according to the following sequence:

- Securitisation Internal Ratings-Based Approach (SEC-IRBA);
- Securitisation External Ratings-Based-Approach (SEC-ERBA);[34]
- Securitisation Standardised Approach (SEC-SA).

In addition, banks that are allowed to use SEC-ERBA may also use an additional approach, the Internal Assessment Approach (SEC-IAA) to calculate RWAs for unrated securitisation exposures (predominantly liquidity facilities or credit enhancements) to an SA pool within an asset-backed commercial paper (ABCP) conduit. And in November 2020, the Committee approved a technical amendment setting out capital requirements for non-performing loan (NPL) securitisations.[35]

[32] The PD floor will be 10 basis points for certain qualifying revolving retail (QRRE) exposures.

[33] Basel Committee on Banking Supervision, *Revisions to the securitisation framework, amended to include the alternative capital treatment for "simple, transparent and comparable" securitisations*, July 2016, www.bis.org/bcbs/publ/d374.htm and Basel Committee on Banking Supervision, *Capital treatment for simple, transparent and comparable short-term securitisations*, May 2018, www.bis.org/bcbs/publ/d442.htm.

[34] National supervisors are provided with a national discretion to not implement the SEC-ERBA.

[35] Basel Committee on Banking Supervision, *Capital treatment of securitisations of non-performing loans*, November 2020, www.bis.org/bcbs/publ/d511.htm.

The internationally-agreed date of implementation of the Basel III securitisation framework is 1 January 2018. According to the most recent *Progress report on adoption of the Basel regulatory framework*,[36] in September 2022, 23 Committee member jurisdictions have implemented the Basel III securitisation framework, including the member states of the European Union that introduced a transition period until the end of 2019 allowing banks to use the Basel 2.5 framework for legacy exposures. In all these jurisdictions except one the Basel III securitisation framework is also already in force. It is important to highlight that this implementation assessment does not refer to the term and short-term STC criteria, which are optional, and neither to the capital treatment of NPL securitisations.

Data description

A total of 105 banks submitted data of sufficient quality for securitisation, including 75 Group 1 banks and 30 Group 2 banks. The Group 1 sample represents 98.7% of total securitisation exposures of all banks. Total securitisation exposures and RWA across Group 1 banks are €2.06 trillion and €446.7 billion respectively, compared with €27.6 billion and €6.3 billion for Group 2 banks.

Data description

Table 8

	Group 1 banks	Group 2 banks	All banks
Number of banks	75	30	105
Exposure (EUR bn)	2,059.7	27.6	2,087.3
Exposure (% of total)	98.7	1.3	100.0
RWA (EUR bn)	446.7	6.3	453.0
RWA (% of total)	98.6	1.4	100.0

Source: Basel Committee on Banking Supervision.

Banks are included in the following analyses only if their data are complete and of sufficient quality. Accordingly, some banks have been excluded from certain sections of the analysis. Hence, certain results reported in the following sections reflect slightly different sample sizes. Even for banks included in the sample, differences in how they complete the Basel III monitoring template could impact the comparability of the results. The most material issue is the classification as STC or non-STC exposure, which is detailed in Table 9 below.

Overview of securitisation exposures

Table 9 describes the aggregate securitisation exposure and its RWA according to the bank role, ie as an originator of the securitisation transactions, investor, or sponsor. It should be noted that, while Table 9 presents aggregate figures, the breakdown of a jurisdiction's overall exposure according to the role of the bank differs significantly across jurisdictions, given the idiosyncrasies among securitisation markets and varying business models among banks.

[36] Basel Committee on Banking Supervision, *Progress report on adoption of the Basel regulatory framework*, October 2021, www.bis.org/bcbs/publ/d525.htm.

Bank role exposure amounts and RWAs

In billions of euros

Table 9

	Originator	Investor	Sponsor	Total
Exposure amounts	518.1	1,139.5	325.2	1,982.9
RWA	105.8	261.1	59.9	426.8

Source: Basel Committee on Banking Supervision.

The Basel III securitisation framework distinguishes between STC and non-STC exposures, providing preferential capital treatment to STC exposures. For this exercise, not all banks have performed STC classification for their securitisation exposures, possibly due to the effort required to assess their exposures against the STC criteria.[37] It is likely that some banks have applied a portfolio-wide classification, assigning either all or none of their exposures as STC-eligible. Furthermore, some jurisdictions have not implemented the Basel III securitisation framework or implemented it without the capital treatment for STC securitisations, which is optional. Under this assumption, the majority of banks that reported no STC exposures underestimate the actual amount of STC-eligible securitisation exposures and correspondingly, overestimate the capital increase due to the implementation of the Basel III securitisation framework. The share of STC-compliant securitisation exposures can be expected to increase as jurisdictions implement the Basel III securitisation framework.

Number of banks per range of STC share

Table 10

	Share = 0%	0% < share ≤ 25%	25% < share ≤ 50%	50% < share ≤ 75%	75% < share < 100%	Share = 100%
Total	47	16	11	9	11	11

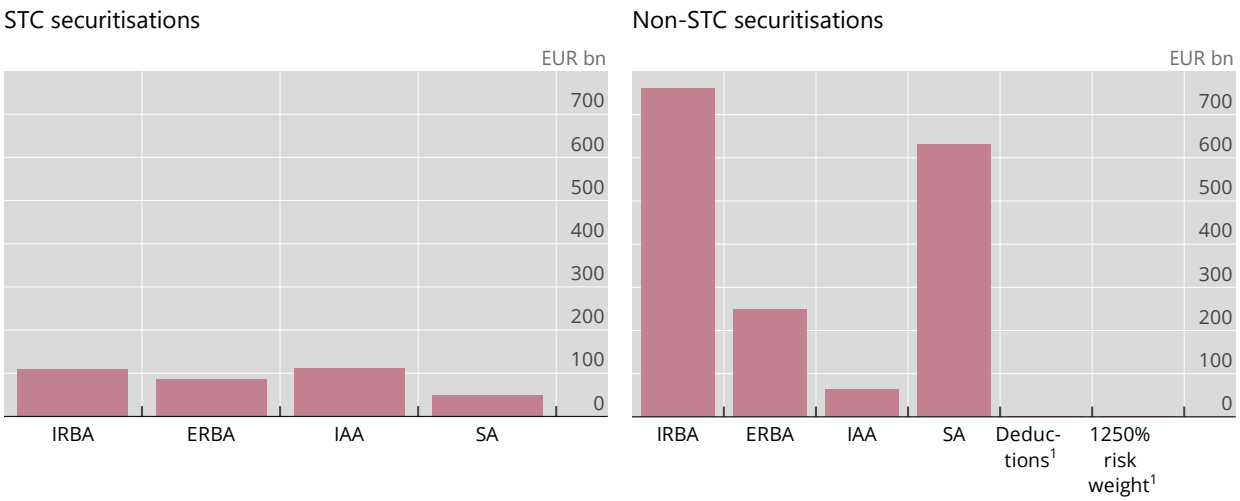
Source: Basel Committee on Banking Supervision.

The Basel III securitisation framework also introduced a new hierarchy of three approaches (SEC-IRBA, SEC-ERBA and SEC-SA) for calculating risk weights. Because of this hierarchy, it is expected that banks have, in aggregate, a larger share of their securitisation exposures risk weighted by SEC-IRBA, then SCE-ERBA and SEC-IAA, and then SEC-SA, whenever these exposures are available to the bank. Graph 57 shows the distribution of approaches for all banks in the sample.

[37] To classify a securitisation exposure as STC, it must be analysed against a set of criteria that assess the risk of the underlying assets, the securitisation's structure, and risks associated with the securitisation's servicers and other agents with a fiduciary duty to the securitisation's investors.

Securitisation exposure amounts by approach

All banks Graph 57



[1] Note that deducted exposures and exposures subject to a 1250% risk weight are comparatively small but non-zero.

Source: Basel Committee on Banking Supervision. See also Table 11 and the Excel data file for underlying data and sample size.

Impact of the Basel III securitisation framework

Change in RWA for securitisation exposures

The sample of banks considered in this analysis is limited to the banks located in the jurisdictions that have not yet implemented the final Basel III securitisation standards. For these banks, Table 11 presents both the securitisation exposures and RWA using the current and final standards, broken down by risk weighting approach. Only the non-STC information is shown due to insufficient sample size for STC data. The expectation is that the exposure values remain broadly constant (reflecting the template reporting instructions), while RWA would increase in line with the objectives of the securitisation standard reforms. However, for individual rows it is possible that RWAs decrease. For the same sample of non-STC exposure, the increase in RWA applicable to exposures under the Basel III securitisation framework as compared with the current framework is 13.1% as shown in Table 11. As the securitisation standard is almost fully implemented the expected RWA impact from the remaining implementation is minimal.

Total amounts and change of securitisation exposures and RWAs under the current national rules and the final standards

Table 11

	Exposure			RWA		
	Current framework (EUR bn)	Final standards (EUR bn)	Change (%)	Current framework (EUR bn)	Final standards (EUR bn)	Change (%)
Non-STC securitisations: SEC-IRBA	331.8	331.7	0.0	76.8	83.1	8.2
Non-STC securitisations: SEC-ERBA	0.0	0.0		0.0	0.0	
Non-STC securitisations: SEC-IAA	0.0	0.0		0.0	0.0	
Non-STC securitisations: SEC-SA	360.3	360.4	0.0	95.9	112.2	17.0
Of which: resecuritisation	2.4	2.5	3.0	0.6	2.6	339.1
Non-STC securitisations: total	692.1	692.1	0.0	172.7	195.3	13.1
Others (1250% RW)	0.6	0.6	0.0	7.8	7.3	–6.4
Total[1]	692.7	692.7	0.0	180.5	202.6	12.2
Number of banks	14					

[1] Also reflecting STC securitisations.

Source: Basel Committee on Banking Supervision.

Graph 58 compares more directly the average risk weights between STC and non-STC exposures under the Basel III securitisation framework. In line with the calibration of the parameters, the average risk weights for non-STC exposures are expected to be higher than for STC exposures. The sample for this graph consists of all banks with sufficiently good data, regardless of actual implementation status of the Basel III securitisation rules. While the risk weight appears more than twice as high for total non-STC than STC securitisations, the STC levels remain relatively very small as shown in Graph 57.

Average risk weight by approach, final standards[1]

All banks

Graph 58

[1] Results for STC and non-STC securitisations refer to different exposures.

Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

4.3 Counterparty credit risk and credit valuation adjustment risk

4.3.1 Counterparty credit risk

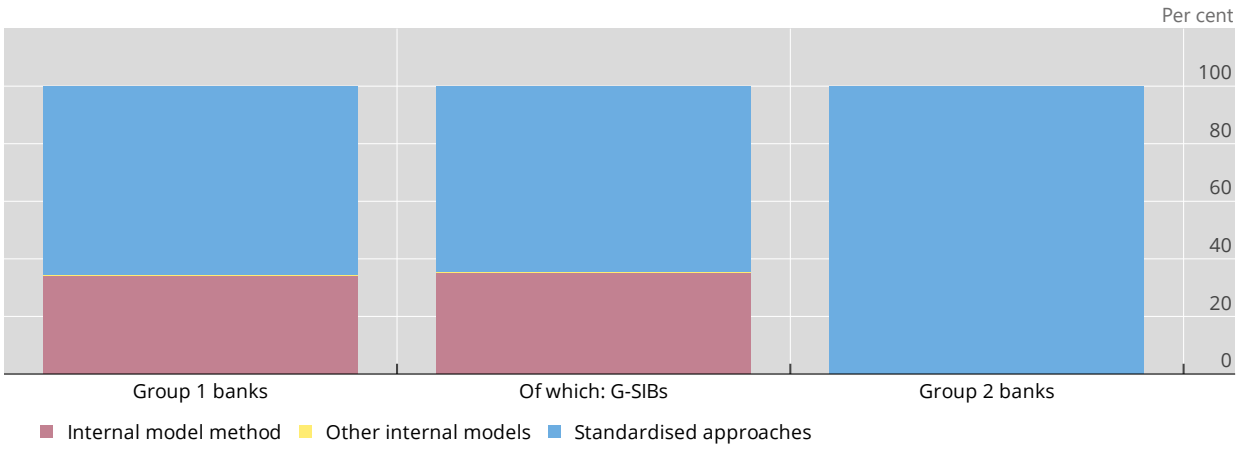
In understanding overall MRC, counterparty credit risk (CCR) is part of credit risk capital requirements. This section provides detailed analysis of the current and revised counterparty credit risk capital requirements.

Current rules for counterparty credit risk

Graph 59 shows the relative composition of counterparty credit risk capital requirements by exposure calculation approach per bank group at end-December 2022. A significant number of banks in the sample use standardised approaches (SA) to calculate CCR exposures. Amongst them, the SA-CCR is the most widely used as a considerable number of jurisdictions have already implemented this new approach for calculating SA exposures for derivatives, such as the European Union (as of end of June 2021), Canada and the United States (as of June 2022). A large number of Group 1 banks use the internal model approach, mainly the internal model method (IMM), to calculate CCR exposures for derivatives and securities financing transactions (SFTs). Group 2 banks do not apply the IMM and instead use standardised approaches to calculate CCR exposures. As of end-December 2022, for the 65 Group 1 banks in the sample (of which 23 are using the IMM), CCR IMM capital requirements contribute 34.0% to total CCR capital requirements. CCR capital requirements calculated using standardised approaches contribute 65.4% for these banks. For G-SIBs, around 35% of total CCR capital requirements stem from capital requirements calculated using the IMM. Other internal model methods (Repo-VaR and the comprehensive approach using own estimates of haircuts) are generally used for smaller portions of exposures (0.6% for Group 1 banks).

Contribution to current CCR capital requirements by approach to EAD calculation

All banks Graph 59



Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

Overall impact of the revised minimum capital requirements for counterparty credit risk

This section shows the estimated impacts from the introduction of the revised minimum capital requirements for counterparty credit risk. It reflects changes to the exposure calculation methodologies, with the introduction of the standardised approach for counterparty credit risk (SA-CCR) published in March 2014, the amendments to the comprehensive approach using supervisory haircuts (CA(SH)) and the removal of the comprehensive approach using own estimates of haircuts (CA(OE)), published in December 2017. In addition, CCR capital requirements are affected by the changes to the credit risk framework that impact the risk weights applied to CCR exposures. Both changes to the framework contribute to the impact

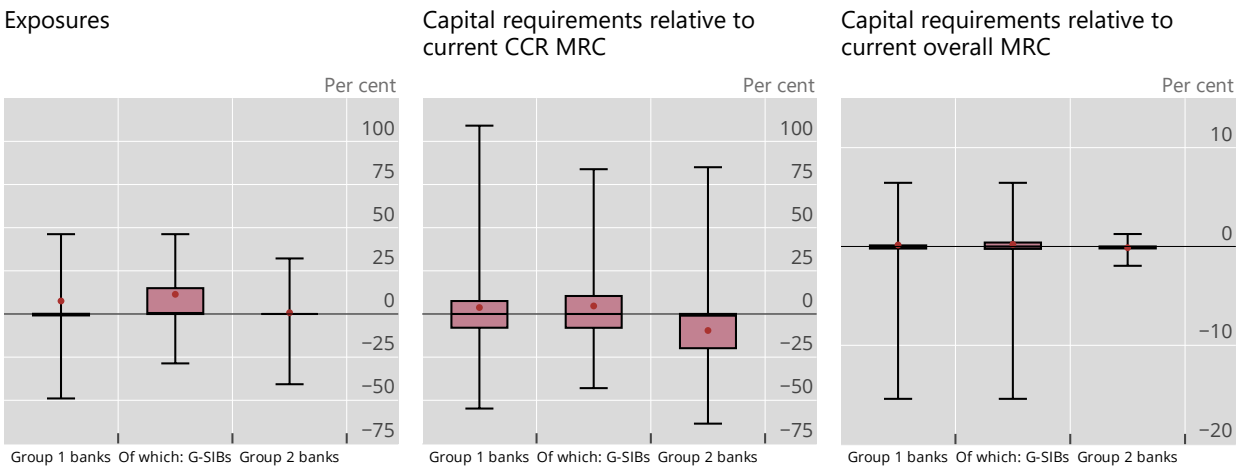
of CCR capital requirements. Generally, these changes lead to an increase in CCR capital requirements under the revised framework relative to the current rules but in some cases, the impact is negative. For some banks, the impact from changes in exposure and risk weight calculations offset each other so that the overall impact is neutral.

A total of 107 banks, including 65 Group 1 banks, of which 23 G-SIBs, and 42 Group 2 banks are included in the analyses regarding the revised minimum capital requirements for counterparty credit risk for the end-December 2022 reporting date. The centre panel of Graph 60 shows the impact on CCR capital requirements from the introduction of the revised CCR framework compared with the current CCR MRC. Capital requirements for Group 1 banks and G-SIBs exhibit an average increase of 3.7% and 4.6%, respectively. The average decrease for Group 2 banks is 9.6%, compared with –4.7% at end-June 2022. The decrease is attributable to the better reflection of margin agreements under the SA-CCR and, if compared with results from earlier exercises, to the implementation of the SA-CCR under the current rule in the European Union and other jurisdictions such as Canada and the United States resulting in zero exposure impacts between current and revised framework for derivatives under SA-CCR. The right-hand panel of Graph 60 displays the impact of the CCR revisions on current overall MRC. Group 1 banks and G-SIBs show a similar impact with an increase of 0.2%, while there is a decrease by 0.1% observable for the Group 2 banks.

The left-hand panel of Graph 60 shows the impact on CCR exposures of the revised CCR framework relative to the current framework. CCR exposures increase on average by 7.5% for Group 1 banks in the sample. The average impact is higher for the subsample of G-SIBs (11.4%), however for Group 2 banks the CCR exposures increased by only 0.7% on average. Group 2 banks show a different impact on exposures than Group 1 banks, likely due to the adoption of the SA-CCR methodology in the European Union since most of the Group 2 banks are European banks. For the median banks in all groups there is no change in CCR exposures.

Impact of revised CCR standards relative to current rules[1]

All banks — Graph 60



[1] See Section 1.3.3 for details on box plots.

Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

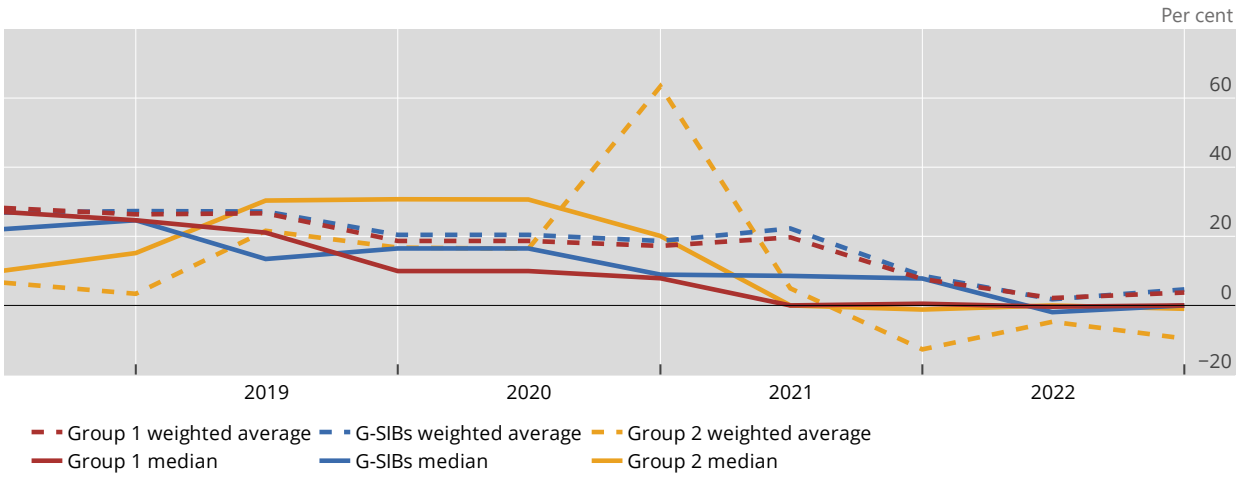
One of the factors that drive the changes between the current standardised approaches and SA-CCR is the treatment of margin collateral under the current rules (ie CEM or SM). In case banks currently do not recognise the margin collateral, while they do take it into account under the SA-CCR, SA-CCR exposures decrease significantly (sometimes leading to SA-CCR exposures and consequently capital requirements close to zero). In cases where banks have already accounted for margin collateral under CEM,

banks see higher exposures due to the SA-CCR framework, with greater impacts if the banks' positions are more material in risk classes that are more significantly impacted by the SA-CCR framework. Changes in the credit risk framework can amplify these impacts. Also, changes to the supervisory haircuts for SFT exposures as well as the minimum haircut floors influence the exposures. Changes in the credit risk framework can amplify these impacts.

Graph 61 shows the average and median impacts of the revised CCR capital requirements relative to the current ones for an unbalanced data set of 60 to 79 Group 1 banks (of which between 18 and 26 G-SIBs) and 23 to 42 Group 2 banks. The impact for Group 1 banks averages between 2.1% (end-June 2022) and 28.2% (end-June 2018). The average impact for G-SIBs ranges between 1.8% (end-June 2022) and 27.3% (end-December 2018). For the Group 2 banks the impact ranges between -12.7% (end-December 2021) and 63.4% (end-December 2020). The estimated impact of the changes to the framework is more volatile for Group 2 banks than for Group 1 banks and G-SIBs.

Impact of total revised CCR capital requirements relative to current across time

Unbalanced data set — Graph 61



Since the Committee did not collect these data through its Basel III monitoring exercise for the end-June 2020 reporting date, results for H1 2020 show the same values as for H2 2019.

Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

4.3.2 Credit valuation adjustment risk

Current rules for credit valuation adjustment risk

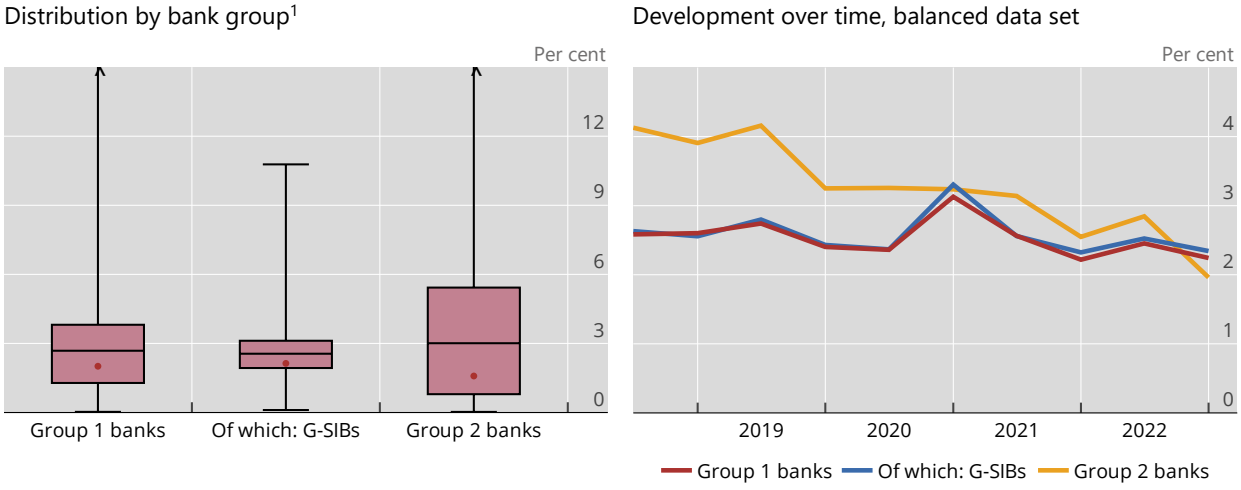
The sample for the analysis of the credit valuation adjustment (CVA) risk component consists of 109 banks, including 75 Group 1 banks, of which 27 G-SIBs, and 34 Group 2 banks.

The left-hand side of Graph 63 shows the average share of CVA capital requirements in total MRC. For 75% of the Group 1 banks this share is 3.8% or less, for the Group 2 banks 75% of the banks have a CVA share of at most 5.4% in total MRC. The maximum share is 37.9% for Group 1 banks and 45.9% for Group 2 banks, respectively.

The right-hand side of Graph 63 displays for a balanced data set of 21 Group 1 banks (thereof 12 G-SIBs) and three Group 2 banks the average share of current CVA capital requirements relative to total MRC over time. Generally, for Group 2 banks exhibit a tendency for decreasing CVA capital requirements in total MRC across time, while for Group 1 banks and G-SIBs the average CVA contribution to total MRC is more stable fluctuating around 2.5%. In the past, Group 2 banks usually reported a higher average share of CVA capital requirements in total current MRC than Group 1 banks. This picture is different for this end-

December 2022 exercise, where Group 1 banks report on average 2.2% CVA in total MRC and Group 2 banks' average CVA share in total MRC drops below 2%. However, due to the restriction of the analysis to a sample of banks which reported consistent data across all exercises in scope, results are based only on the observations of three Group 2 banks. For Group 1 banks, a peak is observed for the end-December 2020 exercise, where an increase in absolute CVA capital requirements drives the increase of the relative share of CVA capital requirements in total MRC. For end-June 2021, numbers have decreased again to a level like end-December 2019.

Share of CVA capital requirements in total MRC under the current rules — Graph 62



[1] See Section 1.3.3 for details on box plots.

Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

Overall impact of the revised minimum capital requirements for credit valuation adjustment risk

This section discusses the estimated impacts from the introduction of the revised minimum capital requirements for CVA risk including the targeted revisions to the framework published in July 2020.[38]

The sample includes 19 banks that currently apply the advanced method for CVA (A-CVA), of which 17 indicate to use the standardised approach for CVA (SA-CVA) under the revised framework. The other two banks indicate to be using the reduced and full BA-CVA under the revised framework, respectively. The 90 banks that currently apply only the standard method for CVA (S-CVA) include 12 banks that indicate to intend to apply the SA-CVA and 70 banks that indicate to move to the reduced basic approach for CVA (reduced BA-CVA) [39] under the revised framework. Overall, only nine banks in the sample indicate to use only the full basic approach for CVA (full BA-CVA) in the future.

The left-hand side panel of Graph 63 shows that the average impact when moving to the revised CVA framework in relation to current CVA MRC is a decrease by 6.7% for Group 1 banks. Group 2 banks report a much higher average impact with an increase of up to 17.6%. This higher average and median impact for Group 2 banks is attributable to the relatively more conservative calibration of the reduced BA-CVA approach that is employed by most Group 2 banks compared with the full BA-CVA, which allows for hedging, as does the SA-CVA. The average impact reported by G-SIBs is comparable to the one for Group 1 banks. Some banks report decreasing capital requirements when moving to the revised CVA framework

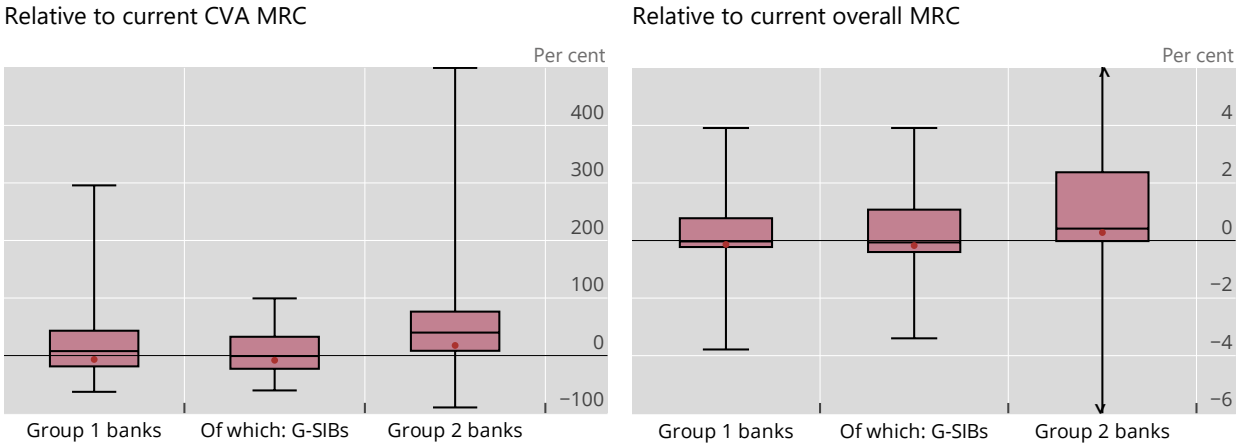
[38] See Basel Committee on Banking Supervision, *Targeted revisions to the credit valuation adjustment risk framework,* July 2020, www.bis.org/bcbs/publ/d507.htm.

[39] Thirteen of these banks are eligible and willing to use CCR MRC for the calculation of revised CVA MRC, but also provided reduced BA-CVA figures.

(with CVA capital requirements decreasing up to as much as 90.2%) whereas other banks report significant increases in the CVA capital requirements relative to the current standards (up to 500% of the current capital requirements). Very high increases appear more frequently for banks using S-CVA that are planning to use the reduced BA-CVA. This is explained by the combination of the increase in exposures from the application of the SA-CCR and the higher risk weights in the BA-CVA compared with the current standardised approach. But also banks currently using the A-CVA and moving to the SA-CVA show increasing CVA MRC.

The right-hand side panel of Graph 63 provides the impact of the revised CVA capital requirements relative to current overall MRC. Given the small share of CVA capital requirements in overall MRC for most banks, the average impact of the CVA revisions on overall MRC is approximately 0% for both Group 1 and Group 2 banks. Overall, the impact ranges between -12.3% and 21.5% for all banks in the sample.

Impact of revised CVA capital requirements compared with current rules[1] Graph 63



One Group 1 bank in the sample provided CVA data but no data on current overall capital requirements. It is therefore excluded from the right-hand panel. [1] See Section 1.3.3 for details on box plots.

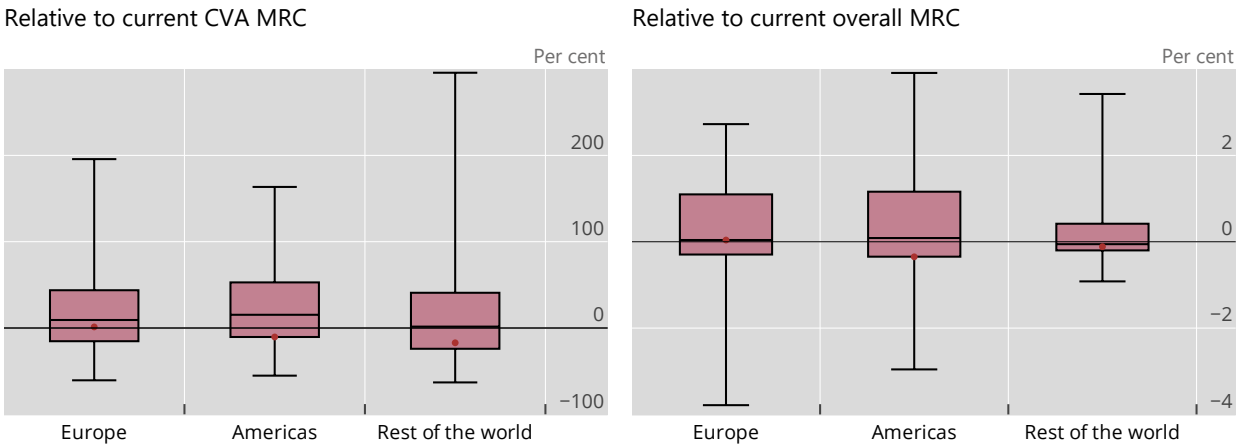
Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

Graph 64 shows based on the sample of Group 1 banks that results differ across regions: The average impacts to current CVA MRC are 1.3% for Europe, -10.4% for the Americas and -17.1% for the rest of the world. While the variability of results for Europe and the Americas is somewhat comparable, it differs significantly for the rest of the world (ranging from -63% to 296%). In some countries, all banks show comparable impacts, and in others, large increases due to the differences in the methodology between the current and revised CVA frameworks can be observed. The average impact of the revised CVA capital requirements relative to current overall MRC demonstrate no impact for Europe and a slightly decreasing impact of -0.4% for the Americas and -0.1% for the rest of the world.

Impact of revised CVA capital requirements compared with current rules, by region[1]

Group 1 banks

Graph 64



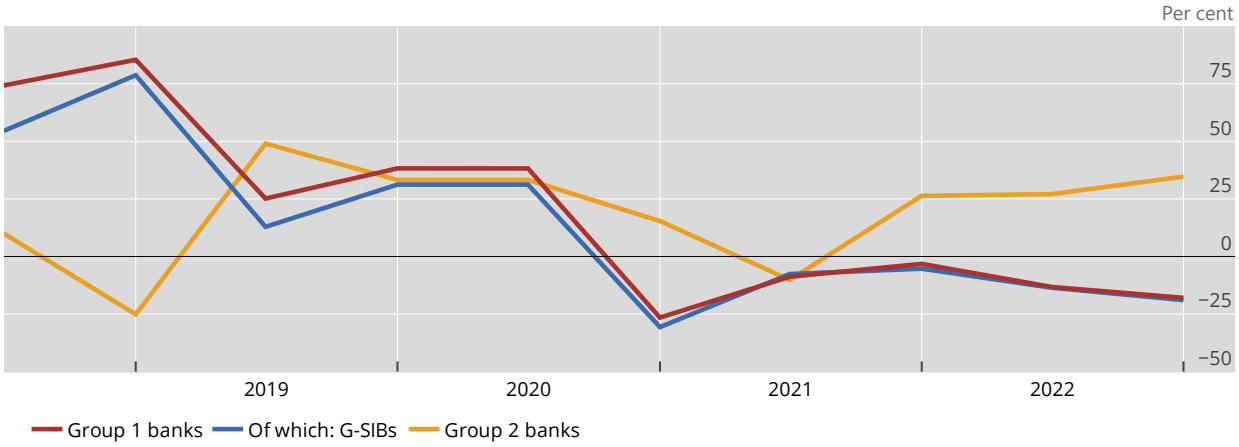
One bank in the sample provided CVA data but no data on current overall capital requirements. It is therefore excluded from the right-hand panel. [1] See Section 1.3.3 for details on box plots.

Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

Graph 65 shows the average impact on CVA capital requirements of the revised framework compared with the current rules across time for a balanced data set of 21 Group 1 banks (thereof 12 G-SIBs) and three Group 2 banks. The observed impacts for Group 1 banks reduce from 85.4% at end-December 2018 to 25.2% at end-June 2019. For the end-June 2020 data, the impact shows an average increase of 38.3% for Group 1 banks with a large drop to an impact of -26.5% at the end of December 2020 due to the effects of the recalibration to the revised CVA framework. The end-December 2022 data show a decrease in CVA capital requirements of 18.0% when moving to the revised framework. The impacts for Group 2 banks' CVA show generally an increase in capital requirements under the revised standards, with much lower levels for the exercises following the recalibration. However, recently average impacts are seemingly returning to pre-recalibration levels above 25% increase in CVA MRC.

Impact of total revised CVA capital requirements relative to current across time

Balanced data set | Graph 65



Since the Committee did not collect these data through its Basel III monitoring exercise for the end-June 2020 reporting date, results for H1 2020 show the same values as for H2 2019.

Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

4.4 Market risk

4.4.1 Current market risk rules

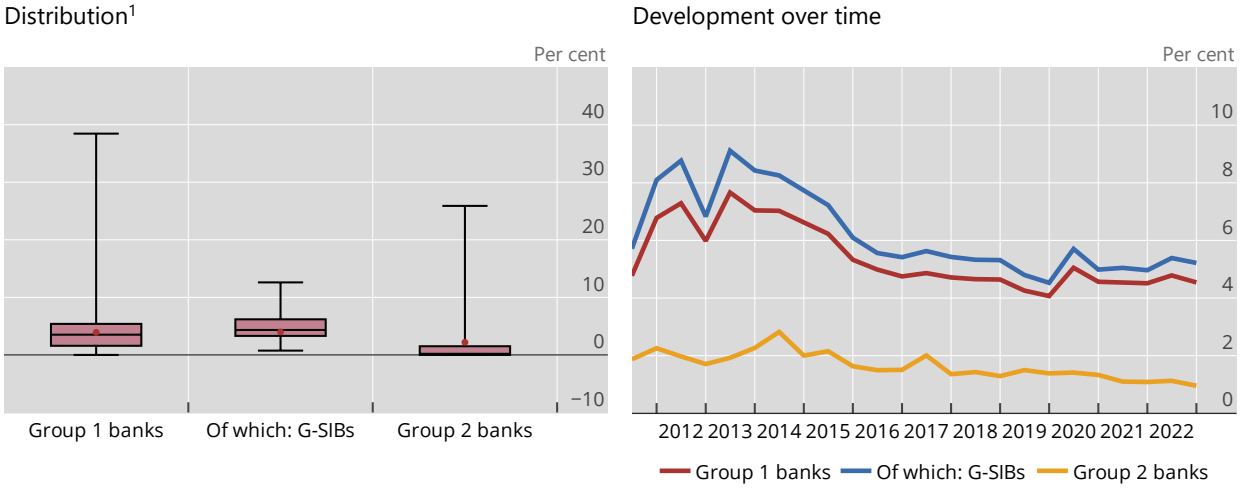
The left-hand panel of Graph 66 shows the distribution of the share of minimum market risk capital requirements in total MRC under the current rules, ie jurisdiction-specific Basel 2.5 implementations. The weighted average share of market risk MRC is 3.9% of total MRC for Group 1 banks and 2.2% of total MRC for Group 2 banks. However, there is significant dispersion in shares of MRC from 0% to over 38.5%.

As seen in the trends starting in 2011, shown in the right-hand panel of Graph 66, the June 2022 upturn in the share of market risk (which was likely due to increased value-at-risk (VaR) estimates driven by higher market volatility in response to the war in Ukraine and the significant central banking tightening cycle that commenced in the first half of 2022) has abated somewhat. As of December 2022, the contribution from market risk for Group 1 banks and G-SIBs ticked down from the June 2022 levels to around 4.5% and 5.2% respectively. Group 2 banks saw the share from market risk decline below 1% for the first time in the history of this series.

The latest downturn in market risk capital requirements continues the longer-term trend for Group 2 banks, which have seen their share of capital requirements attributed to market risk decline by more than 60% since the peak in 2014, although from lower levels. As of December 2022, the average share for Group 1 banks and G-SIBs was slightly below the level seen at end-June 2011 even after the recent spike in volatility. However, data from 2011 should be viewed in light of the fact that many jurisdictions implemented Basel 2.5 beginning in 2012, so the 2011 numbers were reflective of the prior Basel II standards that resulted in significantly lower capital requirements. Group 2 banks' average share of market risk MRC as of December 2022 is about half the level at the beginning of the time series after experiencing a peak of 2.8% in 2014.

Share of market risk MRC in total MRC under the current rules

Graph 66



[1] See Section 1.3.3 for details on box plots.

Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

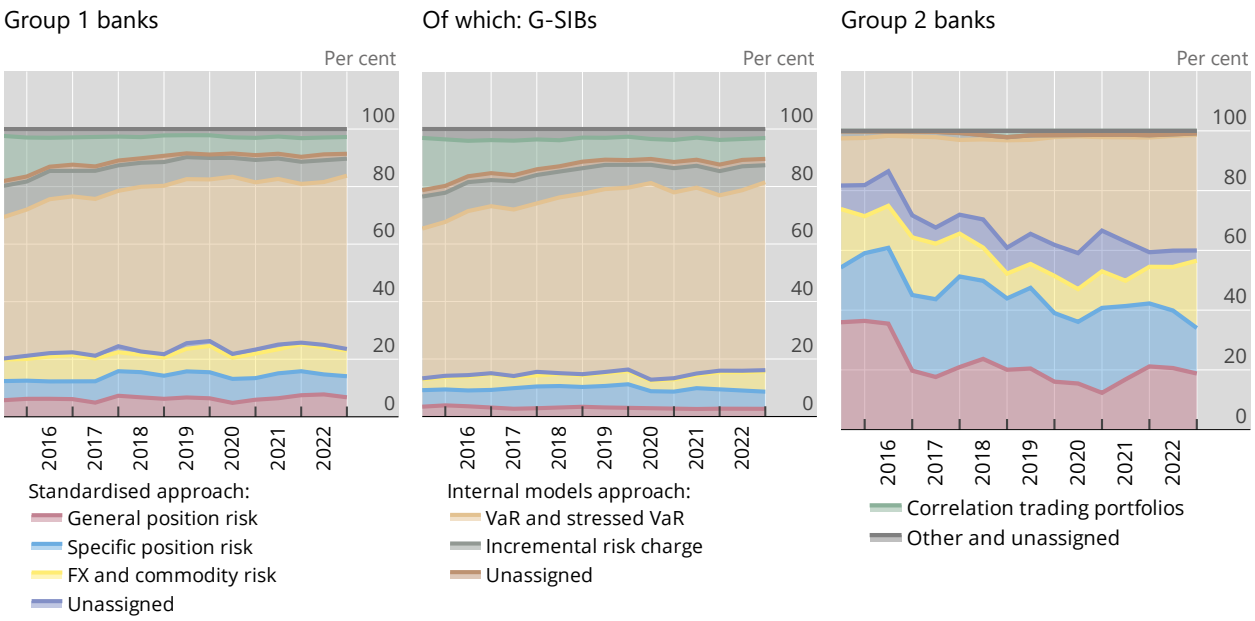
Graph 67 below shows time series decompositions of reported market risk MRC by sub-components since end-June 2015. For Group 1 banks and the G-SIBs among them, the internal models approach (IMA) contributed 76.4% and 73.5% of overall market risk MRC respectively as of the end of 2022. This contribution from IMA was somewhat higher than as of year-end 2021, due to banks' VaR estimates increasing in response to higher market volatility, which was driven by the war in Ukraine and continued central bank tightening in the second half of the year.

Since 2015, the share of overall market risk MRC composed of VaR and stressed VaR (SVaR) has generally increased over time while the MRC shares of both the incremental risk capital charge and correlation trading portfolios (CTPs) have generally decreased. The second half of 2022 saw a continued drop in the contribution from the incremental risk charge for both G-SIBs and Group 1 banks along with a decline in contribution from banks' market risk measured under the standardised approach.

For Group 2 banks, the IMA is less relevant, composing around 39.2% of market risk MRC. The contribution from CTPs of 0.8% (a slight decline from June) is relatively negligible for Group 2 banks, although their share remains elevated compared to 2015.

Components of MRC for market risk under the current rules

Unbalanced data set, in per cent — Graph 67



Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

Graph 68 below shows the ratio of the 10-day 99th percentile stressed VaR to the current 10-day 99th percentile VaR under current market risk rules using two sets of balanced data from Group 1 banks. The left-hand panel shows the time series since end-2011 for 22 banks. Under this longer-run balanced data set, for the initial several years, the ratio of stressed VaR to VaR fluctuated around 200% with a local peak at 236% in end-June 2014 and a second peak at end-December 2019 of 280%. However, the ratio has subsequently recovered to a new time-series high of 382% as of year-end 2021 before dropping again in 2022 to 214.3% by the end of the year.

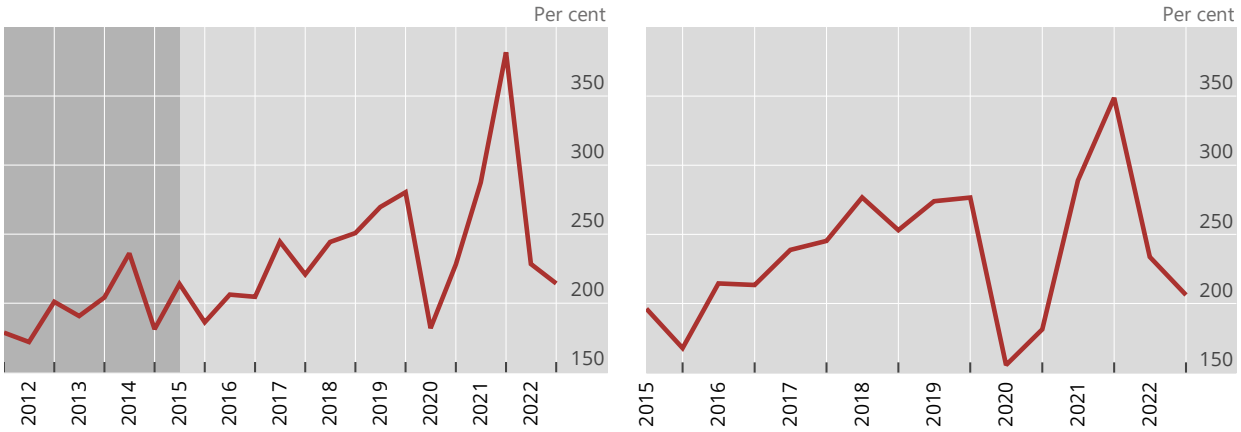
The right-hand panel of Graph 68 shows the same ratio for a shorter-run balanced data set including banks that have provided data since 2015. For this larger sample of overall 44 banks, the ratio has generally increased, reaching its pre-pandemic peak in end-June 2018 at 276% before dropping by nearly half below 155% as of end-June 2020 and subsequently rebounding to a new high above 349% as of year-end 2021 and subsequently falling to 206.2% as of December 2022.

VaR models are typically based on a fixed backward-looking period, often one year, that rolls forward over time. In contrast, SVaRs are based on historical high volatility stress periods, such as the 2008 global financial crisis, that typically change infrequently. In both time series, the increasing trend prior to the outbreak of Covid-19 can be attributed at least partially to the lower volatility environment that had been observed in the markets over the several years preceding the Covid-19 pandemic, which reduced VaR without reducing SVaR. The pandemic-related volatility experienced in markets in the first quarter of 2020 increased banks' VaRs substantially more than their SVaRs. This led the SVaR/VaR ratio to decline significantly across the banks. Thus, as banks' current VaRs fall in low volatility periods, the ratio becomes elevated. However, the huge increase in volatility seen during March 2020 with the onset of the Covid-19 pandemic reversed this trend, sending the ratio as of June 2020 to its lowest level since 2014 for the smaller sample and to the lowest level since the start of the time series in 2015 for the larger sample. 2021 was much more stable than even the pre-pandemic period due in part to the extraordinary official sector policy responses to the pandemic across the globe. This effect, combined with the fact that the one-year lookback periods no longer included the volatility seen in March 2020, led to the ratio reaching new highs across both samples at year-end 2021. As mentioned above, 2022 has seen a return of volatility across all risk classes due to the war in Ukraine and its impact on energy, grain and metals markets, the tightening cycle,

a bear market in equities from the record levels seen around the new year of 2022 and considerable movements in foreign exchange as the US dollar appreciated to levels not seen in 20 years. These developments corresponded with the largest drops in the SVaR/VaR ratios observed since both time series began, which continued at a slower pace in the second half of the year.

Stressed value-at-risk in relation to current value-at-risk

Group 1 banks, balanced data set — Graph 68



Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

4.4.2 Overall impact of the revised minimum capital requirements for market risk

Basel III monitoring market risk data tend to be more variable both over time and across reporting banks than that of other areas of the Basel III monitoring exercise owing to the short term and ever-changing nature of trading portfolios when compared with banking book portfolios, which are mostly held-to-maturity or revolving. In addition, while improving in data quality with each collection, the Basel III monitoring estimates for market risk under the final market risk standard are less robust than those which banks make for the banking book as the impact estimates still require significant manual intervention for many trading positions at banks that have yet to develop systems reflecting their local implementations. Although prior collections included banks' estimates of the capital impact of the final standard, the additional time has allowed banks to refine their calculations, which likely improved the accuracy of their estimates.

The estimates below show impacts based on banks' current portfolios and do not reflect potential changes to their portfolios upon implementation of the final standard. Banks had the opportunity to report their capital requirements based either on the current or intended set of model-approved trading desks. This methodology likely overstates the ultimate impact subsequent to implementation, as banks may reduce their exposures to positions with high capital requirements. In the other direction, these impacts do not reflect the consequences of trading desks potentially failing backtesting or P&L attribution tests (PLATs) based on the banks' submitted desk-level VaR and P&L data. This assumption understates the impact for IMA banks since the new tests are very stringent and desk-level performance is expected to lead to fewer desks passing and being able to use IMA for capital calculations. It is not clear which of these countervailing effects will dominate, although market risk capital requirements are generally expected to increase significantly.

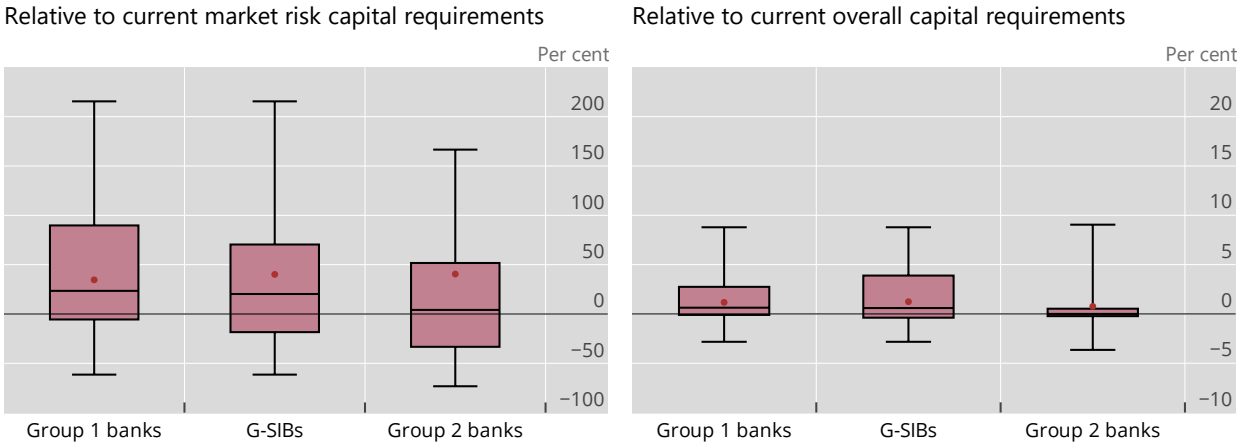
A total of 98 banks from 22 jurisdictions provided at least some market risk data as of the end-December 2022 reporting date including 83 Group 1 and 15 Group 2 banks. Of these banks, 55 banks provided data sufficiently complete to estimate the overall impact from the revised market risk framework.

Graph 69 below shows the revised market risk standards' impact versus current market risk capital and total capital requirements. The prospective Basel III market risk capital requirements relative to current market risk capital requirements increase by 23.5% for the median Group 1 bank and by 20.3% for the G-SIB cohort, while Group 2 banks saw only a 4.1% increase in their median. The weighted average expected increase was 34.6%, 40.1% and 40.5% for Group 1 banks, G-SIBs and Group 2 banks, respectively. There is wide variability at the bank level. Outliers are far more extreme ranging from a tripling in capital requirements (+215.5%) at a G-SIB bank, to a nearly three-quarters reduction (-73.2%) at a Group 2 bank. This is the first collection since 2020 in which the median Group 2 bank shows an expected increase in minimum required capital related to the implementation of the final market risk standard, though this increase is quite small relative to the Group 1 banks.

As a portion of the banks' overall capital requirement (MRC) rather than only market risk capital requirements, the revised standards result in a much more modest median increase of 0.6% for Group 1 banks and for the G-SIB cohort and no change from current requirements for Group 2 banks. On a weighted average basis, all three groups saw increases in market risk's contribution to total capital of 1.2%, 1.2% and 0.8%, respectively.

Impact on MRC of the revised standards for minimum capital requirements for market risk[1]

Graph 69



[1] See Section 1.3.3 for details on box plots.

Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

Graph 70 decomposes the total market risk capital requirements under the current rules and under the revised standards. The breakdown includes components due to the standardised approach (SA) and internal models approach (IMA), and further breaks them down into their sub-components for the revised standards.

Group 1 banks expect their share of standardised approach capital requirements to increase from 39.1% to 55.0%. The vast majority of Group 2 banks' market risk capital requirements comes from the standardised approach and this is not expected to change under the revised standard.

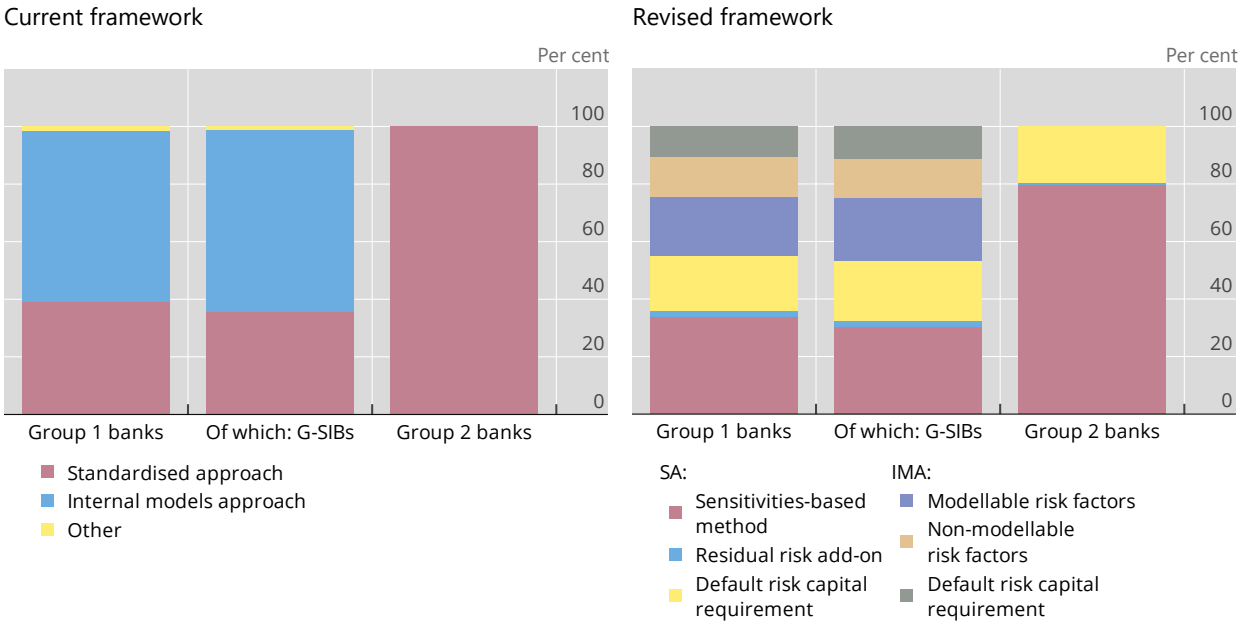
For positions subject to the revised standardised approach, for Group 1 banks, 61.8% of the standardised approach capital requirement are expected to be attributed to the sensitivities-based method (SbM). For Group 2 banks, the share of the SbM is 56.8%. The default risk capital (DRC) requirement contributes 34.7% and 39.0% to the total standardised approach capital requirements for Group 1 and Group 2 banks, respectively. The residual risk add-on (RRAO), which accounts for risks not fully covered by the SbM or the DRC (including risks related to exotic derivatives and instruments containing gap risk, correlation risk and behavioural risks including prepayment risk), contributes 3.4% to

the standardised approach capital requirement for Group 1 banks and 4.2% for Group 2 banks' SA capital requirement.

With respect to the revised IMA, the capital requirement for modellable risk factors would contribute 45.9% to the total internally modelled capital requirements (modellable, non-modellable risk factors and DRC) for Group 1 banks. The corresponding share of IMA capital requirements from non-modellable risk factors and DRC is 30.5% and 23.6%, respectively. No Group 2 banks reported that they intend to adopt IMA under the revised framework.

Breakdown of MRC for market risk by approach and risk component under the current rules and the revised standard

Graph 70



Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

4.4.3 Revised model validation tests

The revised market risk standard introduces additional trading desk-level model validation tests for the use of the IMA on an ongoing basis – VaR backtesting and profit and loss attribution (PLA) tests. If a trading desk's model performs poorly on these tests, then the trading desk is either subject to a capital surcharge (amber zone) or must calculate capital requirements under the standardised approach (red zone).

Data on risk measures and profit and loss (P&L) have been collected. Given that most banks have not yet built the trading desk-level infrastructure to produce some of the requisite time series data to perform these new tests, especially the risk-theoretical profit and loss, it is too early to draw meaningful conclusions based on the data collected for this exercise. Overall, 13 banks in nine jurisdictions were able to provide sufficient data to perform VaR backtesting (versus 14 last year and 15 in the end-2020 data collection). Banks provided enough data for 224 desks for all tests to be performed. Of these, 24 were able to pass all tests in the green zone and another 19 passed in the amber zone for a total pass rate of 19.2%, a slight improvement over the rates as of June 2021 and December 2021.[40]

[40] Since 2022, this part of the exercise is currently only included at the end-year reporting dates.

4.5 Operational risk

4.5.1 Current operational risk rules

MRC for operational risk of Group 1 banks increased until end-2016 and levelled-off since then. The share of operational risk MRC as a percentage of total MRC is also declining (see Graph 71); it is currently 11.5% for Group 1 banks and 13.7% for G-SIBs (see Graph 73). For Group 2 banks, the share of operational risk MRC as a percentage of total MRC is 10.4%.

The evolution of losses over the past 10 years is depicted in Graph 72. MRC for operational risk first increased with growing losses, yet as losses have started to decline it has stabilised in recent years. In total, €490 billion of gross and €435.7 billion of net operational risk losses have been reported over the past 10 years. Operational risk gross losses were €68 billion in 2013 and peaked in 2014 at €81.6 billion. Since then, gross losses have decreased significantly to €31 billion in 2022, the lowest value of the past 10 years. This decreasing trend was observed also in 2021 despite the Covid-19 pandemic.

The time-lagged impact of the financial crisis on banks' profits, notably due to long-standing lawsuits, appears to be nearly completed. Nevertheless, banks still face risk due to the digitalisation that amplifies IT risk, potential afterpains of the Covid-19 pandemic or the war in Ukraine with its imponderabilities that could, for example, increase legal risks.

For Group 1 banks and G-SIBs, most of which use the Advanced Measurement Approach (AMA) as the primary method for calculating operational risk capital, the increase in the first half of the 2010s is largely explained by the surge in the number and severity of operational risk events during and after the financial crisis.

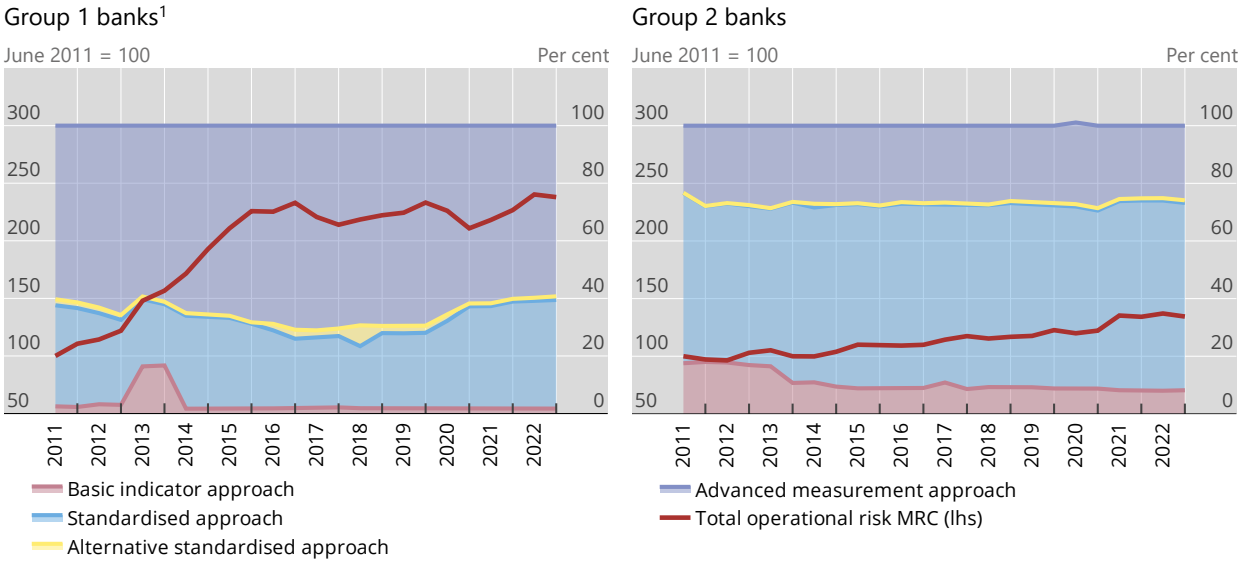
For Group 1 banks as a whole (see Graph 71), this resulted in a significant increase of total MRC for operational risk and an increasing share of MRC for operational risk under the AMA from 60.3% in 2011 to about 71.1% at end-June 2017. On the other hand, AMA banks benefit from recently decreased losses which resulted in stable MRC for operational risk despite an increasing business volume. This development explains the lower share of MRC for operational risk under the AMA of currently 59.3% and the increasing share of the indicator-based approaches.

The increase in MRC for operational risk for Group 2 banks, most of which calculate operational risk capital requirements under the framework's non-model-based approaches,[41] is largely due to an increase in business volume, a factor captured by the financial statement-based components of the standardised approaches.

[41] These comprise the Basic Indicator Approach (BIA), the Standardised Approach (TSA) and its variant, the Alternative Standardised Approach (ASA).

Total MRC for operational risk and share of approaches

Balanced data set — Graph 71

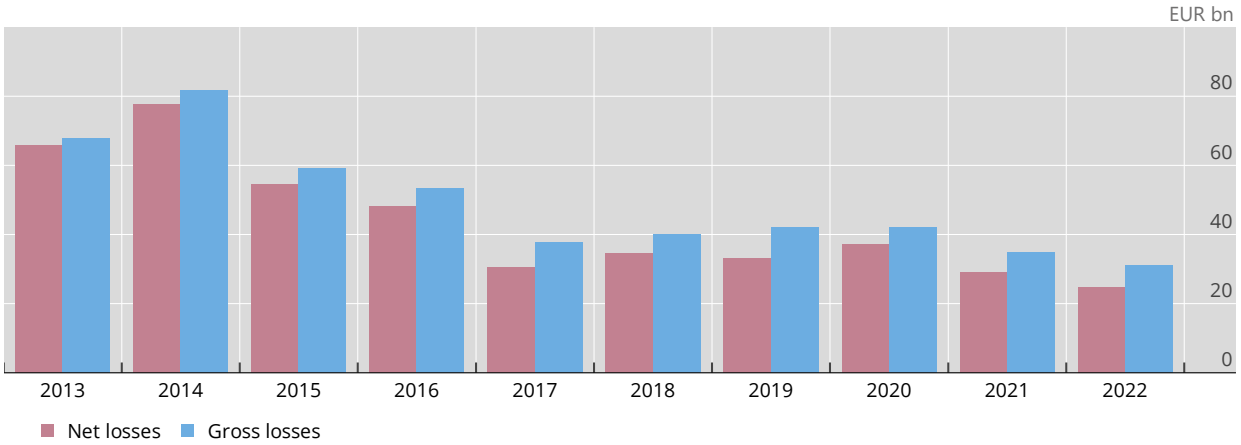


[1] Some banks started reporting operational risk RWAs under the Basic Indicator Approach in 2013 and eventually migrated to the Standardised Approach in 2014.

Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

Loss evolution over the past 10 years

All banks, sample and exchange rates as of the current reporting date — Graph 72

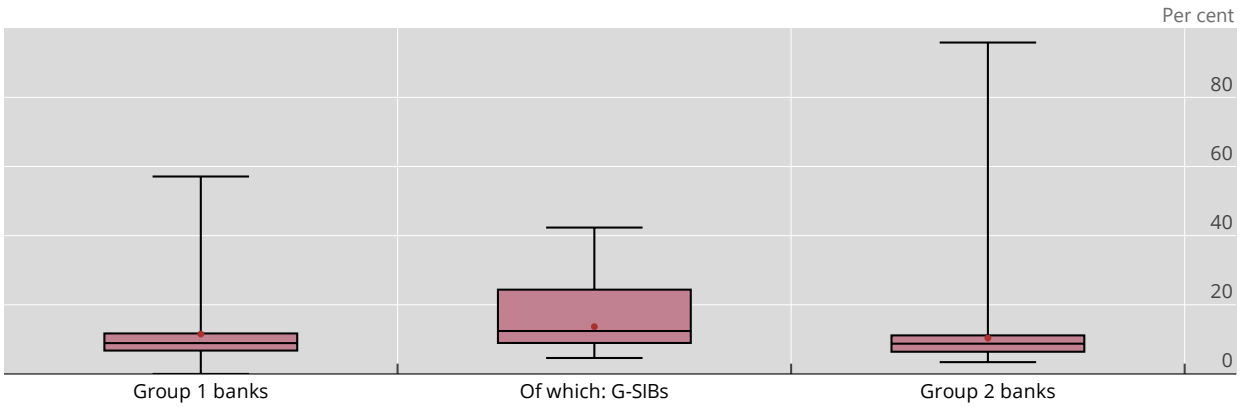


Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

The dominance of indicator-based properties found in the standardised approaches for operational risk reflects the size or business volume of a bank rather than its risk exposure, explaining the lower variance of MRC for most Group 2 banks (see Graph 73). For Group 2 banks, the difference between the 25th and 75th quantiles of the share of MRC for operational risk in total MRC is 4.7 percentage points. Although the difference of 5.0 percentage points for Group 1 banks is similar, the difference for G-SIBs (15.4 percentage points) is significantly higher. This observation in combination with the weighted average (11.5% for Group 1 banks and 13.7% for G-SIBs) being significantly higher than the median (8.9% for Group 1 banks and 12.4% for G-SIBs) indicates a positive correlation between size and an above average

operational risk profile. The outliers among Group 2 banks are mostly fee business-specialised banks where operational risk is largely an exclusive risk, while outliers among Group 1 banks and G-SIBs are banks that use AMA where past loss events influence future operational risk exposure.

Distribution of share of MRC for operational risk in total MRC[1] Graph 73



[1] See Section 1.3.3 for details on box plots.

Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

4.5.2 Final operational risk standards

The objective of the design and calibration of the revised operational risk framework is to ensure stable capital requirements that are simple to estimate and comparable while remaining risk-sensitive. The revisions aim to accomplish this objective by replacing the existing set of approaches[42] used for the estimation of operational risk capital requirements with the standardised approach. The standardised approach is comprised of a single non-model-based method that combines a financial statement proxy of operational risk exposure (termed the "business indicator" or BI) with bank-specific operational risk-related losses (termed the "internal loss multiplier" or ILM). The following analysis applies the standardised approach to estimate the changes in operational risk MRC and evaluates the impact of the final against the existing framework. It also considers two national discretions: (1) to set the internal loss multiplier equal to one and hence base capital requirements for operational risk solely on the business indicator component for all banks in a jurisdiction; and (2) to have Bucket 1 banks measure their ILM using their loss history, rather than apply ILM=1 to all Bucket 1 banks.[43]

According to Table 12, the final operational risk framework generates an aggregate increase in operational risk MRC of approximately 1.8% for all Group 1 banks. Nevertheless, G-SIBs will benefit from a decrease of -7.2% while an increase of 6.8% for the Group 2 banks in the sample is observed. Compared to previous reports primarily European jurisdictions indicted for the first time to opt for the national discretion of ILM=1 what decreased the impact by more than 3 percentage points globally. Despite this option, Europe still faces a significant increase of around 25.9% for its Group 1 banks but this is already significantly lower as it would be with the application of the ILM. The Americas (-3.1%) and the rest of the world (-11.0%) experience significant decreases.

However, if all banks used the less risk-sensitive BI component only ("ILM=1", shaded brown in Table 12), the operational risk MRC for Group 1 banks would slightly increase by 0.5% and decrease

[42] Comprised of the basic indicator approach (BIA), the standardised approach (TSA) and its variant, the alternative standardised approach (ASA), along with the internal model-based advanced measurement approach (AMA).

[43] This has been reflected in the calculation by setting the internal loss multiplier to one whenever national supervisory authorities have indicated that they will most likely apply the national discretion.

by -10.2% for G-SIBs. If all Group 1 banks applied the ILM based on the average losses above €20,000 of the past 10 years ("20k 10Y", shaded green in Table 12), the impact would be 9.7% and around 0% for G-SIBs. This indicates that the past losses due to the financial crisis would still have a measurable impact on possible MRC.. The comparison between ILM=1 and ILM 20k on a regional level shows that the MRC in Europe (delta of 37 percentage points) and the Americas (delta of 20.7 percentage points) – those regions most affected by the operational risk losses during the financial crisis – would still face MRC increases due to these past losses, while the low loss experiences in the rest of the world would (delta of -35.2 percentage points) result in significant discounts.

Nevertheless, given the decreasing trend of losses and the fading out of the financial crisis losses in the upcoming years (see Graph 72), the MRC impact at the time of first implementation of the final Basel III framework may be overestimated due to the risk-sensitive feature of the ILM. In case that the current average losses above €20,000 remain the same as the past five years, the impact for Group 1 banks could drop to -0.1% (-11.7% for G-SIBs), which would be a quite similar result as for ILM=1. In case that even the average losses of the past three years remain, the MRC would decrease by -1.8% (-12.5% for G-SIBs). From this decreasing trend in MRC, Europe and the Americas – the most affected regions – would benefit most but starting from a much higher MRC level.

Unlike the previous Basel III monitoring exercise, the impact described above is based on data accounting for possible exclusion of losses not relevant anymore for a bank's risk exposure, and possible correction of the business indicator (eg due to divested activities, mergers or acquisitions).[44] In light of improved data quality, the default methodology that was used to calculate the impact of the new standardised approach was changed to be consistent with the current and future operational risk capital requirement methodologies. These allow to exclude divested activities from the relevant indicator component of the standardised approaches as well as the losses that are not relevant anymore for AMA banks. With this change a more realistic impact of the new standardised approach will be achieved. In case the possible loss exclusions and the BI adjustments reported by banks are not considered (as shown in unadjusted figures reported on the right side of Table 12), the estimated capital impact of Group 1 banks would be quite similar in case of ILM=1 (0.4%) and a bit higher for the risk sensitive ILM (10%). This analysis suggests that the decreasing effect of loss exclusion could be slightly more important than the BI adjustments.

Finally, it should be noted that the results exclude current supervisory-imposed capital add-ons under Pillar 2 for certain banks in the sample that would otherwise cause the impact of the reforms to the operational risk framework on MRC to be lower compared with current MRC levels for the Group 1 bank sample. Given that some of these Pillar 2 capital requirements may be removed or reduced, the size of the increases in MRC shown in Table 12 may be overstated and reductions may be understated.

[44] As the new standardised approach is not yet applied in any of the jurisdiction that take part in this exercise, it is still possible that the reported corrections do not reflect the full potential of adjustments as these are used just at the time when banks must apply the rules.

Changes in MRC for operational risk

Table 12

	With indicated approach	ILM=1	20k 10Y	100k 10Y	20k 5Y	20k 3Y	ILM=1, unadjusted	20k10y, unadjusted
Group 1 banks	1.8	0.5	9.7	7.5	–0.1	–1.8	0.4	10.0
Of which: Europe	25.9	21.3	58.3	54.4	37.7	29.8	21.2	60.0
Of which: Americas	–3.1	–23.8	–3.1	–5.2	–14.8	–12.9	–23.8	–3.1
Of which: RW	–11.0	24.1	–11.1	–12.0	–8.1	–10.5	23.9	–11.3
Of which: G-SIBs	–7.2	–10.2	0.0	–1.7	–11.7	–12.5	–10.2	0.5
Group 2 banks	6.8	10.0	20.7	15.2	23.8	23.7	10.2	23.7

Source: Basel Committee on Banking Supervision.

With Graph 74 it is possible to explain the effect of differences in the evolution in BIC and LC on the impact on the final MRC of the new standardised approach for operational risk. Especially the decreasing losses since 2015 as shown in Graph 72 might change the interaction between BIC and LC. To make numbers comparable without showing confidential data, the values are converted to a fraction of the *reported 2017 operational risk MRC*.[45] The analysis comprises a balanced set of 82 banks, 33 of them are AMA banks.

For AMA banks, the left-hand panel of Graph 74 shows that the business-driven BIC is constantly growing from 66.5% in 2017 to 79.5% in 2022 (a change of +13 percentage points), only interrupted in the 2020 pandemic year. On the other hand, the loss component was more or less stable until 2019 and decreases since then. Despite the decreasing losses since 2015, the loss component could not directly decrease as until 2019, pre-financial crisis low-loss years were just replaced by similar low-loss years after 2014. This changed in 2020, as high-loss years triggered by the financial crisis started to be replaced by the lately observed low-loss years. This caused a quick decrease of the loss component from its peak of 248.6% in 2018 by about 47 percentage points to 201.3% in 2022. This trend might continue for some further years as still high-loss years of the financial crisis affect the loss component of many AMA banks. These high-loss years can be replaced if the lately observed trend of low-loss years continues.

Although the loss component decreases similarly as the BIC increases, the final MRC of the new standardised approach is still increasing by almost 10% (or 8.3 percentage points) over the past six years as due to the logarithm feature of the ILM, the loss component has only a diminished impact. This diminishing effect is even stronger for banks whose loss component is already significantly higher than the BIC. This is currently true for the "average Group 1 bank", whose average loss component of 2022 is still about 2.5 times higher than the average BIC of 2022. The average ILM in such a case is roughly 1.34 and is reflected in the difference between 79.5% BIC and 102.3% "20k new SA". This ratio is already significantly lower as in 2017 when the loss component to BIC ratio was about 3.7. Nevertheless, despite the fade out of losses in the 10-year window, they still drive the "20k new SA" capital requirements and even the current AMA MRC. If these banks would use the Basic Indicator Approach instead of the AMA (hypothetical BIA), the current MRC in 2022 would be 65.9%, ie about 40 percentage points lower than with the current AMA (105.7%).

A different picture can be observed for the non-AMA Group 1 banks presented in the right-hand panel of Graph 74. In 2022, the hypothetical BIA is about 10.5% higher than current MRC, which indicates that these banks use a less conservative approach to measure their risk exposure and benefit from the use of the current indicator-based approaches of ASA or SA. Furthermore, both the BIC and the loss component increased with a quite similar rate. While the BIC increased from 118% to 153% – by about

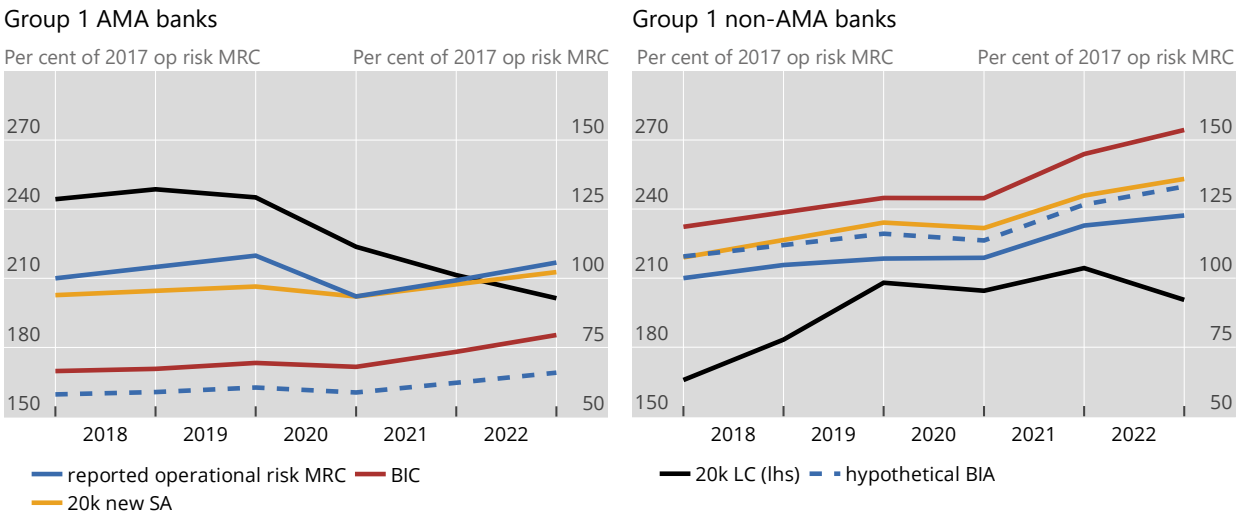
[45] In the previous Basel III monitoring report, data were converted to a fraction of 2021 operational risk MRC. The choice to adopt a different value base to normalise data prevents a comparison of Graph 74 with the one shown in the previous monitoring report.

30% – the loss component increased by about 21% from 166% in 2017 to 200% in 2022.[46] Thus, for non-AMA banks, which are usually smaller Group 1 banks, a phase-out of financial crisis losses cannot be identified. This can be explained as these banks did not experience high (legal) losses after the financial crisis and thus have a loss component closer to the BIC. The ratio of the average LC to the average BIC for these banks is only 1.3 in 2022, which would lead to an ILM of about 1.08.

Nevertheless, despite an ILM>1 derived from average LC/BIC, the aggregated "20k new SA" is below the aggregated BIC and indicates – contrary to what is expected – a real ILM of less than 1 ("20k new SA"/BIC=0.88). This can be explained by the cumulative LC, which is mainly influenced by just a few banks experiencing high losses while most of the banks have low losses compared to their BIC. Thus, the high losses of these few banks lead to a below average contribution of their losses to its capital requirements resulting in an aggregated "20k new SA" requirement of Group 1 non-AMA banks lower than the aggregated BIC requirement despite the aggregated LC is greater than the aggregated BIC.

Evolution of new SA components

Graph 74

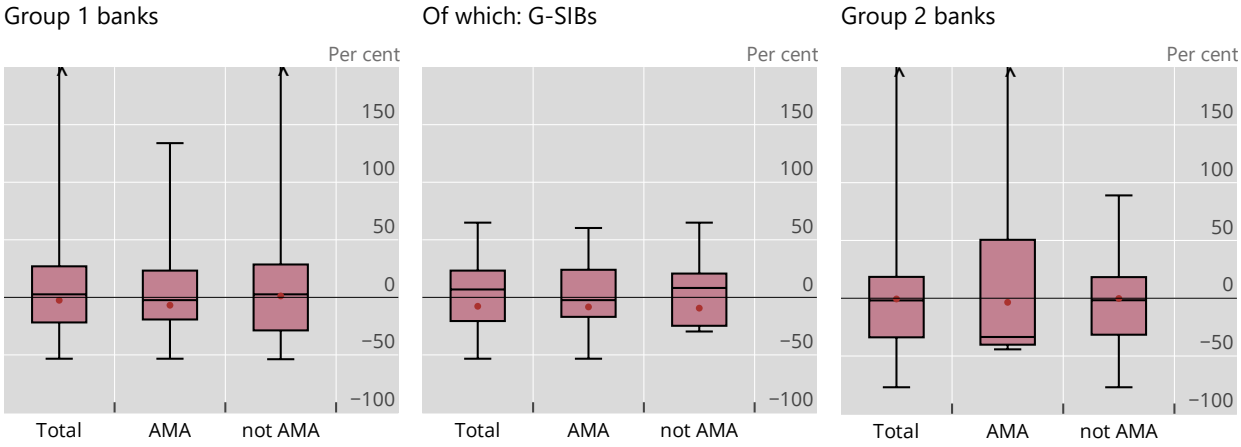


Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

Graph 75 depicts the distribution of changes in operational risk capital requirements for Group 1 banks, G-SIBs and Group 2 banks that calculate operational risk capital requirements using the existing set of standardised and advanced approaches in the framework.

[46] Differences in the hypothetical BIA show that the values of non-AMA banks and AMA banks cannot be compared easily. Although the financial crisis losses in 2022 with the loss component of 200.6% for non-AMA banks seems to be not that different from 201.3% for AMA banks, they are twice as high for AMA banks if the loss component values are divided by their hypothetical 2022 BIA (66% for AMA and 133% for non-AMA banks). With this further adjustment, the value for AMA banks at 306% would be more than twice as high as for non-AMA banks with 151%.

Changes in MRC for operational risk[1] Graph 75



[1] See Section 1.3.3 for details on box plots. For the purpose of this graph, AMA banks are banks that currently calculate some part of their operational risk capital requirements using the AMA.

Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

5. Interactions between risk-based, output floor and leverage ratio capital requirements

5.1 Relationship between the Basel III leverage ratio and risk-based capital requirements under initial Basel III standards

Graph 76 below shows the interaction between the initial Basel III Tier 1 leverage ratios (horizontal axis) and the initial Basel III Tier 1 risk-weighted capital ratios (vertical axis). Ratios of Group 1 banks are marked with red dots and those of Group 2 banks with blue dots. The dashed horizontal line represents a Tier 1 target risk-based capital ratio of 8.5%,[47] whereas the dashed vertical line represents a Basel III Tier 1 leverage ratio of 3%. The diagonal line represents points where an 8.5% initial Basel III Tier 1 target risk-based capital ratio results in the same amount of required initial Basel III Tier 1 capital as an initial Basel III Tier 1 leverage ratio of 3%. By construction, it also represents a multiple of 8.5% / 3% ≈ 2.83 between RWA and the Basel III leverage ratio exposure measure. Therefore, for banks plotted above the diagonal line, the Basel III Tier 1 leverage ratio requires more Tier 1 capital than the Tier 1 risk-based capital ratio (ie the Basel III Tier 1 leverage ratio becomes the constraining requirement).[48] For banks plotted below the diagonal line, the target Tier 1 risk-based capital ratio requires more capital than the leverage ratio (ie the Tier 1capital ratio remains the constraining requirement).

As shown in Graph 76, all banks meet the minimum Basel III Tier 1 leverage ratio of 3% and the Tier 1 target risk-based capital ratio under initial Basel III standards of 8.5%. The graph also shows that the Basel III Tier 1 leverage ratio under initial Basel III standards is constraining for 66 banks out of 164, of which 40 are Group banks and 26 are Group 2 banks (plotted above the diagonal line).

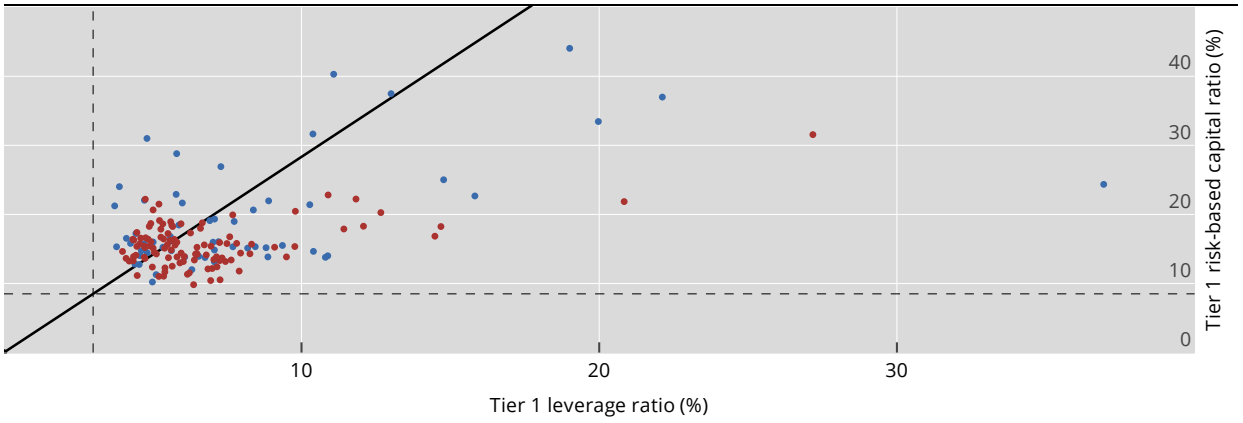
47 Calculated as the sum of a 6.0% Tier 1 minimum capital ratio plus 2.5% capital conservation buffer.

48 Note that the effect of the G-SIB surcharge is not considered here. As the G-SIB surcharges only apply to the risk-based requirement under the initial Basel III framework, the relevant proportion between RWA and total leverage ratio exposure that determines whether the Basel III leverage ratio is constraining or not and hence the slope of the diagonal line would be different by bank.

National implementation initial Basel III Tier 1 risk-based capital and leverage ratios

In per cent

Graph 76



The dashed horizontal line represents a Tier 1 target risk-based capital ratio of 8.5%, whereas the dashed vertical line represents a Basel III Tier 1 leverage ratio of 3%. The diagonal line represents points where an 8.5% Basel III Tier 1 target risk-based capital ratio results in the same amount of required Basel III Tier 1 capital as a Basel III Tier 1 leverage ratio of 3%.

Source: Basel Committee on Banking Supervision.

5.2 Interactions between risk-based, output floor and leverage ratio capital requirements under the final Basel III standards

This section discusses the interaction between Tier 1 risk-based, output floor and Basel III leverage ratio capital requirements, all including the capital conservation and G-SIB buffers as applicable. The purpose of this analysis is to gain deeper insight into which capital requirement component of the framework is constraining for the banks in the sample. The *constraining* requirement in this analysis refers to the requirement that imposes the largest amount of Tier 1 MRC among the three requirements mentioned above. Accordingly, the Tier 1 MRC for a bank is determined as the highest of the requirement under the risk-based framework, the requirement using the output floors and the requirement measured using the Basel III leverage ratio.

Note that in contrast to the analyses presented in Section 2.1 and Section 2.2, the risk-based capital requirements here denote the risk-based capital framework *prior* to the application of any output floor. Also note that while all banks are by definition constrained by one of the measures, this does not necessarily result in a capital shortfall for any of them. Finally, some capital requirements, such as D-SIB buffer and Pillar 2 requirements, are not considered in the analysis. This tends to give more importance to leverage ratio requirements relative to risk-based requirements. In the actual situation where those additional requirements would be considered fewer banks could be constrained by the leverage ratio all other things equal.

Graph 77 shows which of the three parts is constraining under both the current standard and the final Basel III framework. For Group 2 banks, results are presented separately for IRB banks and banks only using the standardised approach for credit risk ("pure SA").[49]

Under the current initial Basel III framework, the output floor is constraining for eight out of the 94 Group 1 banks. For the remaining Group 1 banks, the risk-based ratio is constraining for a larger number of banks than the leverage ratio (52 and 34 banks respectively). Globally, under the fully phased-

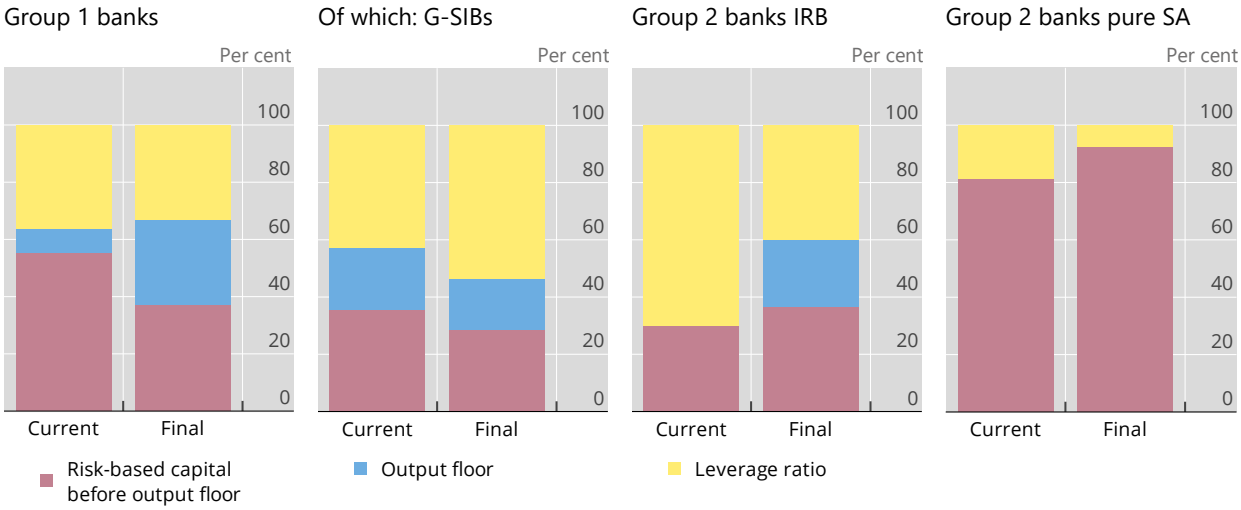
[49] Graph 77 does not distinguish between IRB and "pure SA" Group 1 banks as the number of "pure SA" Group 1 banks is small.

in final Basel III framework, the output floor becomes more constraining for Group 1 banks, especially at the expense of the risk-based ratio as the constraining requirement: The number of banks for which the output floor is constraining increases from eight to 28. In parallel, the number of Group 1 banks for which the risk-based ratio is the constraining requirement drops from 52 to 35.

Contrary, the number of G-SIBs constrained by the minimum leverage ratio remains high under the current initial Basel III framework with 12 banks, followed by 10 banks constrained by the risk-based ratio and six banks constrained by the transitional Basel I-based floor. Under the fully phased-in final Basel III framework however, the minimum leverage ratio remains the most dominant restriction as only eight banks are now constrained by the risk-based ratio and five banks are constrained by the output floor.

For Group 2 banks, for analysis purposes, Graph 77 distinguishes between IRB and pure SA banks (30 and 27 respectively). Under the current initial Basel III framework, the leverage ratio is binding for 21 Group 2 IRB banks. Under the final Basel III framework, 12 Group 2 IRB banks are constrained by the leverage ratio, whereas the output floor is constraining for seven Group 2 IRB banks. For pure SA Group 2 banks, the number of banks constrained by risk-based capital requirements increases by three banks while and the number of banks constrained by the leverage ratio requirements decreases correspondingly. No Group 2 pure SA banks are constrained by the output floor.

Percentage of banks constrained by different parts of the framework — Graph 77



Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

Graph 78 shows the percentage of Group 1 banks constrained by different parts of the framework, by region. In Europe, under the current initial Basel III framework, no bank is constrained by the transitional Basel I based floor and the main binding ratio is the leverage ratio, by which 22 banks out of 38 European banks are constrained. This could be partially driven by the non-consideration of some risk-based capital requirements, such as D-SIB buffer and Pillar 2 requirements in the analysis. Against this background, the numbers in this section might overestimate ethe impact of the leverage ratio constraint. Under the fully phased-in final Basel III framework, the output floor significantly gains relevance, constraining 11 European banks. Consequently, the number of banks constrained by the leverage ratio or the risk-based requirements decreases (10 and 17 European banks respectively).

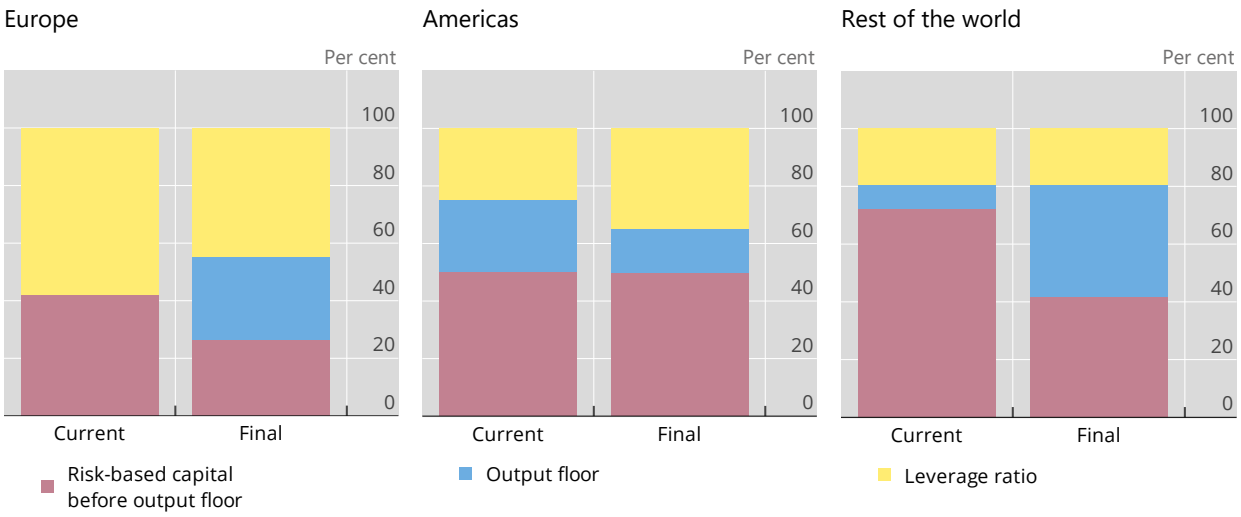
In contrast, the development in the Americas is very different. Under the current initial Basel III framework, the Basel I-based floor and the leverage ratio are equally relevant, both constraining five banks out of 20) while 10 banks are constrained by the risk-based capital requirements before floor-application. Under the fully phased-in final Basel III framework, the number of banks constrained by the leverage ratio slightly increases, constraining seven banks from the Americas whereas the output floor loses significance (only three banks constrained). Consequently, under the fully phased-in final Basel III framework, the

majority of banks in the Americas (10 banks) is constrained by the risk-based capital requirements before application of the output floor.

For the rest of the world, most banks (26 out of 36) are constrained by the risk-based capital requirements before floor-application under the initial Basel III framework. Under the final Basel III framework, this is the case for only 15 out of 36 banks. In contrast, the number of banks constrained by the output floor increases significantly from three to 14 while the number of banks constrained by the leverage ratio remains the same (7 banks for both initial and final Basel III frameworks).

Percentage of banks constrained by different parts of the framework, by region

Group 1 banks — Graph 78



Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

6. Liquidity[50]

6.1 Liquidity Coverage Ratio

One of the two liquidity standards introduced by the Committee is the 30-day Liquidity Coverage Ratio (LCR), which promotes short-term resilience against potential liquidity disruptions. The LCR requires global banks to have sufficient high-quality liquid assets to withstand a stressed 30-day funding scenario specified by supervisors. The LCR numerator consists of a stock of unencumbered, high-quality liquid assets (HQLA) that must be available to cover any net outflow, while the denominator comprises cash outflows minus cash inflows (subject to a cap at 75% of outflows) that are expected to occur in a severe stress scenario. The LCR was revised by the Committee in January 2013 and came into effect on 1 January 2015. The requirement increased to 100% as of January 2019, which marks the end of the phase-in of the LCR.

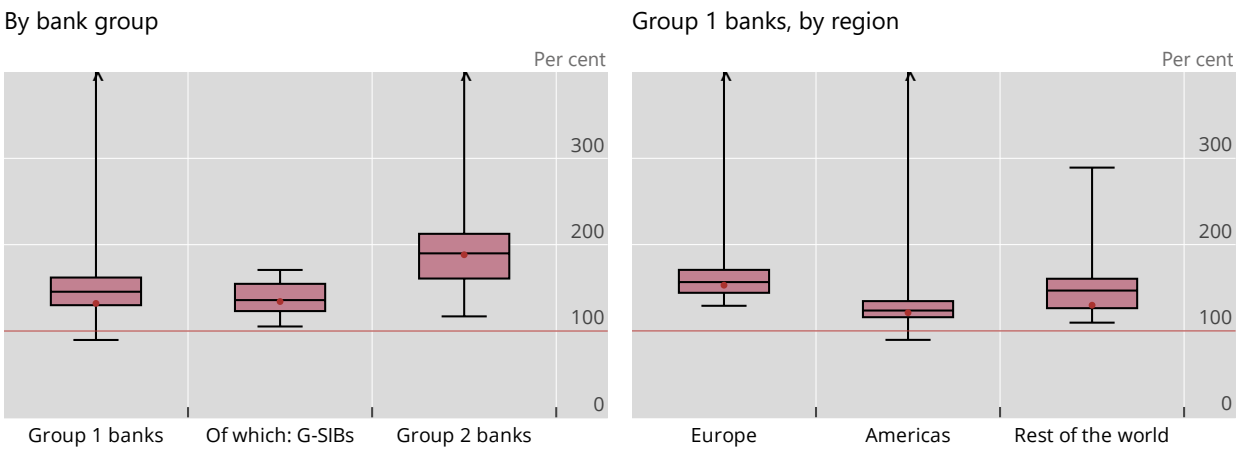
Data provided by 167 banks (107 Group 1 banks and 60 Group 2 banks) was of sufficient quality and coverage to be incorporated in the LCR analysis in this report. As of the reporting date, banks within the LCR sample had total assets of approximately €85.9 trillion. Based on an unbalanced data set of banks, the weighted average LCR for the Group 1 banks reporting data for the December 2022 reporting date

[50] The dashboards on the Committee's website provide more detailed insights into the components of the LCR and the NSFR.

decreased by 6.2 percentage points from June 2022 to 132.0%. The weighted average LCR for Group 2 banks decreased by 31.6 percentage points from 220.0% in June 2022 to 188.4% at the end of December 2022.

While the weighted average LCR decreased for Group 1 banks, at end-December 2022, three Group 1 banks in the Americas reported an LCR below 100%. This is the same number of banks as at end-June 2022.

Liquidity Coverage Ratio[1] Graph 79



[1] See Section 1.3.3 for details on box plots. The sample is capped at 400%, meaning that all banks with an LCR above 400% were set to 400%. The horizontal line represents a 100% LCR (applicable as from 1 January 2019).

Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

As highlighted above, in the current reporting period there are several Group 1 banks with an LCR below 100% and hence a shortfall (ie the difference between HQLA and net cash outflows) which amounts to €15.1 billion.

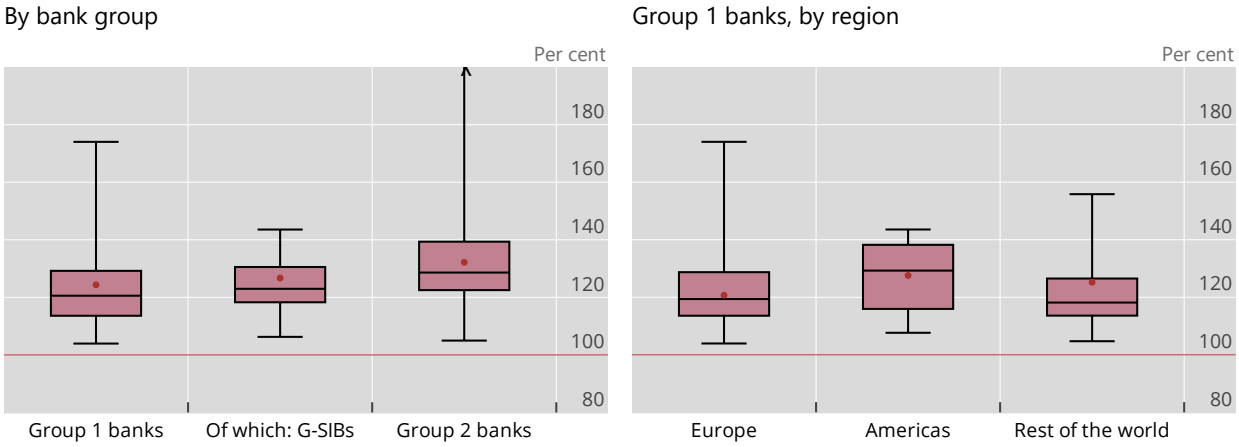
6.2 Net Stable Funding Ratio

The second liquidity standard introduced by the Basel III reforms is the Net Stable Funding Ratio (NSFR), a longer-term structural ratio designed to reduce funding risk by requiring banks to fund their activities with sufficiently stable sources of funding to mitigate the risk of future funding stress.

For the NSFR, data provided by 158 banks (102 Group 1 and 56 Group 2 banks) was of sufficient quality and coverage to be incorporated in the analysis in this report. As of the reporting date, these banks had total assets of approximately €84.8 trillion.

Based on an unbalanced data set, the weighted average NSFR was 124.4% for Group 1 banks and 132.2% for Group 2 banks at end-December 2022 compared with 123.5% and 132.3%, respectively, at end-June 2022. Overall, all Group 1 and Group 2 banks reported an NSFR that met or exceeded 100% which was also the situation observed in June 2022.

Net Stable Funding Ratio[1] Graph 80



[1] See Section 1.3.3 for details on box plots. The red line is set at 100% (minimum NSFR level).

Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

Since all Group 1 and Group 2 banks exceeded 100%, there are no shortfalls.[51] For the evolution of the shortfall for a consistent sample of banks, please refer to Section 6.3.

6.3 Liquidity Coverage Ratio and Net Stable Funding Ratio shortfalls over time

Graph 81 below displays the weighted average LCR, weighted average NSFR and shortfalls associated with each standard for a balanced data set of banks across reporting periods since end-December 2012.[52] Given the different samples of banks, results for the end-December 2021 and end-June 2022 periods in this section may differ from the ones in Sections 6.1 and 6.2.

Group 1 banks that have reported LCR data for each of the reporting periods since end-December 2012 showed a decline in weighted average LCR for the third consecutive reporting period and to the pre-pandemic level. The weighted average LCR for these banks was 135.3% at end-December 2022, compared with 138.4% at end-June 2022. The LCR was slowly increasing from end-December 2012 before decreasing end-December 2019, followed by a distinct uptick during the pandemic. The aggregate LCR shortfall increased slightly from €6.5 billion at end-June 2022 to €11.3 billion at end-December 2022. This shortfall is larger than the recent peak observed at end-June 2021, which was €10.3 billion.

The graph also displays NSFRs since end-December 2012.[53] The weighted average NSFR for Group 1 banks was 125.1% at end-December 2022 and was 123.2% at the previous end-June 2022 reporting date. The weighted average NSFR for Group 2 banks was 129.7% at end-December 2022 and was 127.7% at previous reporting date. Overall, the NSFR has shown a steady increase for both Group 1

[51] The shortfall in stable funding measures the difference between balance sheet positions after the application of available stable funding factors and the application of required stable funding factors for banks where the former is less than the latter.

[52] Only those banks are included in this analysis that are reporting LCR and NSFR data for each reporting period since end-December 2012. LCR and NSFR samples are different.

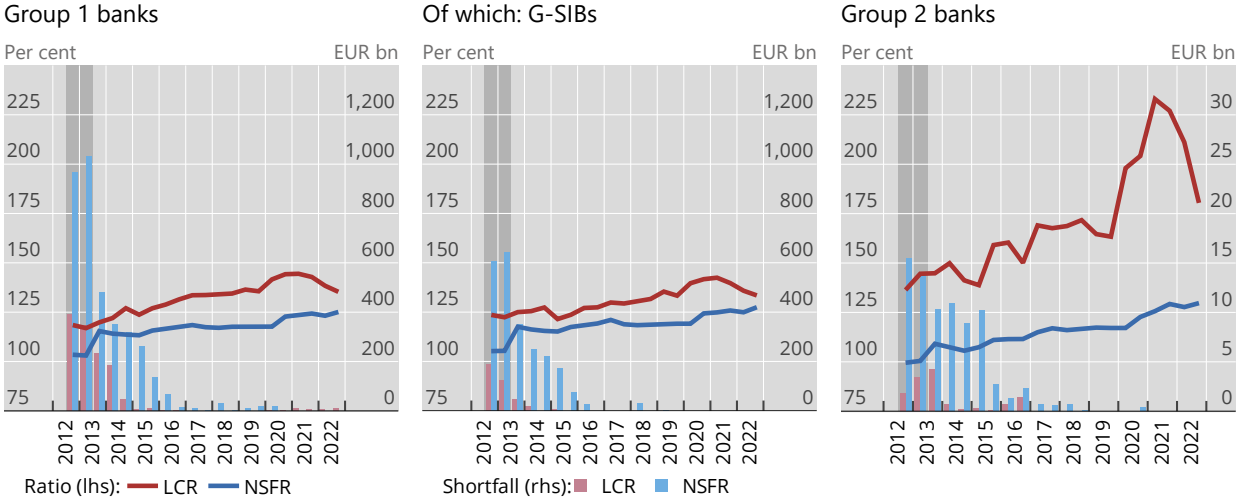
[53] Graph 81 depicts the NSFR as calculated under different versions of the NSFR framework (released in December 2010, January 2014 and October 2014, respectively). Calculations performed according to the final standard approved by the Committee in October 2014 start with the end-December 2014 reporting period. See Basel Committee on Banking Supervision, *Basel III: the net stable funding ratio*, October 2014, www.bis.org/bcbs/publ/d295.htm. Since the Committee did not collect NSFR data through its Basel III monitoring exercise for the end-June 2020 reporting date, the relevant data points show the same values as for end-December 2019.

and Group 2 banks. For the fourth period in a row, there was no aggregate shortfall with regard to the 100% NSFR minimum requirement for both Group 1 banks and Group 2 banks at end-December 2022.

The aggregate shortfall for Group 1 banks that do not meet the 100% requirement generally declined for each of the respective standards from end-June 2012 through end-December 2017. Since then, the aggregate shortfall has consistently been relatively small.

LCR, NSFR and related shortfalls at a 100% minimum requirement[1]

Balanced data set, exchange rates as at the reporting dates — Graph 81



[1] As described in the text, the NSFR time series depicts data reflecting NSFR standards released in December 2010, January 2014 and October 2014. Since the Committee did not collect NSFR data through its Basel III monitoring exercise for the end-June 2020 reporting date, the relevant data points show the same values as for end-December 2019.

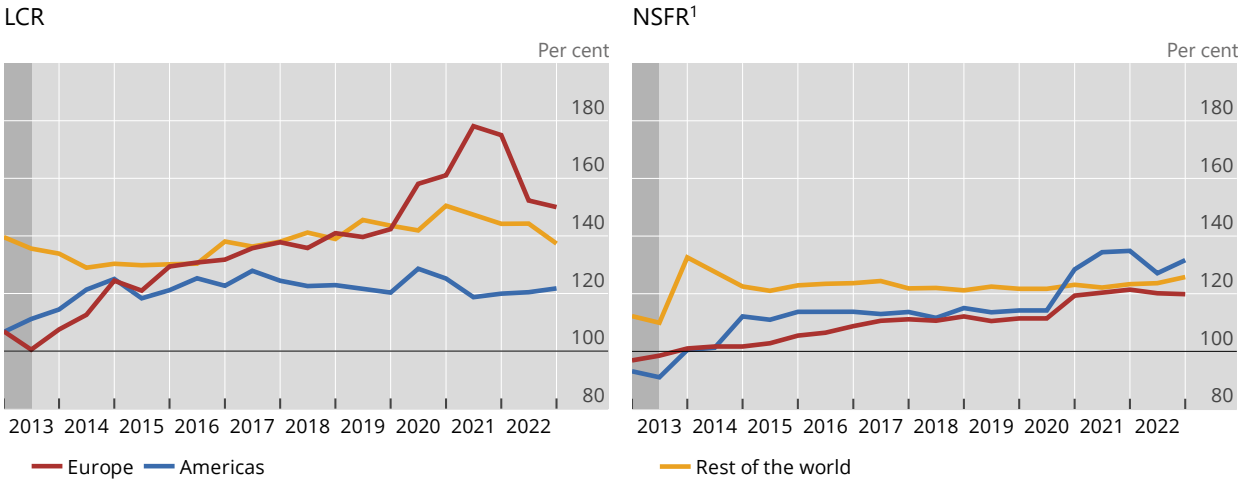
Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

Graph 82 displays the regional breakdown of the weighted average LCR and the weighted average NSFR for a balanced data set of Group 1 banks across reporting periods since end-December 2012. The weighted average LCR at end-December 2022 for Europe and the rest of the world was respectively 150.0% and 137.3%, while the average LCR of the Americas was around 121.8%. While Europe and the Americas had initially lower average LCRs compared with the rest of the world, the average LCRs of Europe and the rest of the world tended to converge gradually before the onset of the pandemic. The regions with lower end-2012 average ratios saw significant increases in particular between end-December 2012 and end-December 2014, and again since the start of the pandemic. The increases in Europe and the rest of the world are now reversing, although the average LCR of European banks is still above end-2019 levels. The average LCR for the Americas has remained stable after correcting the increase experienced in the beginning of the pandemic.

The weighted average NSFR at end-December 2022 for Group 1 banks in each of the three regions was well in excess of 100%. While the NSFR has been roughly stable across all regions since end-December 2016, the average NSFRs of banks in Europe and the Americas have significantly increased over the past three years, from 111.4% and 114.2% since end-December 2019 to respectively 119.8% and 131.7% at end-December 2022 (despite the decrease observed between December 2021 and December 2022 for banks in Europe and between December 2021 and June 2022 for banks in the Americas). This increase brought both regions to a level in line with the rest of the world, which reported an average NSFR of 125.8% at end-December 2022. After decreasing from a peak of 134.9% at end-December 2021 to 127.1% at end-June 2022, the average NSFR of banks in the Americas has increased again to a level of 131.7% at end-December 2022.

LCR and NSFR by region

Group 1 banks, balanced data set — Graph 82



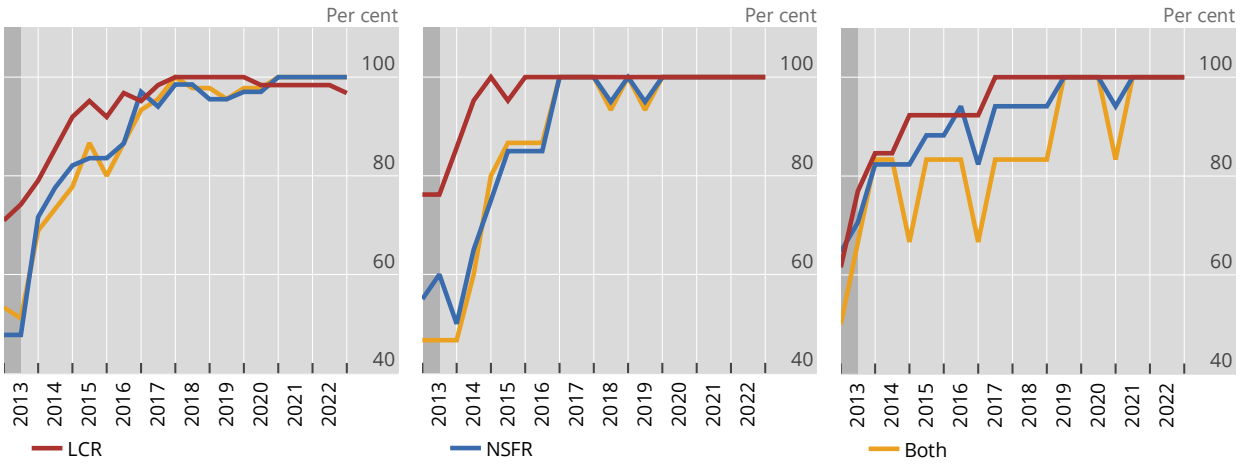
[1] See footnote 1 to Graph 88.

Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size. The LCR dashboard on the Committee's website provides the same regional breakdown for G-SIBs.

Graph 83 displays the share of banks, in a balanced data set, that meet the 100% LCR and NSFR requirements. The share of Group 1 banks meeting both requirements has increased from 53.3% at end-December 2012 to 100.0% at end-December 2022, while the share of Group 2 banks meeting both requirements increased from 50.0% to 100.0% during the same period.

Share of banks meeting the LCR and NSFR requirements

Balanced data set[1] — Graph 83



[1] Samples for LCR and NSFR may differ.

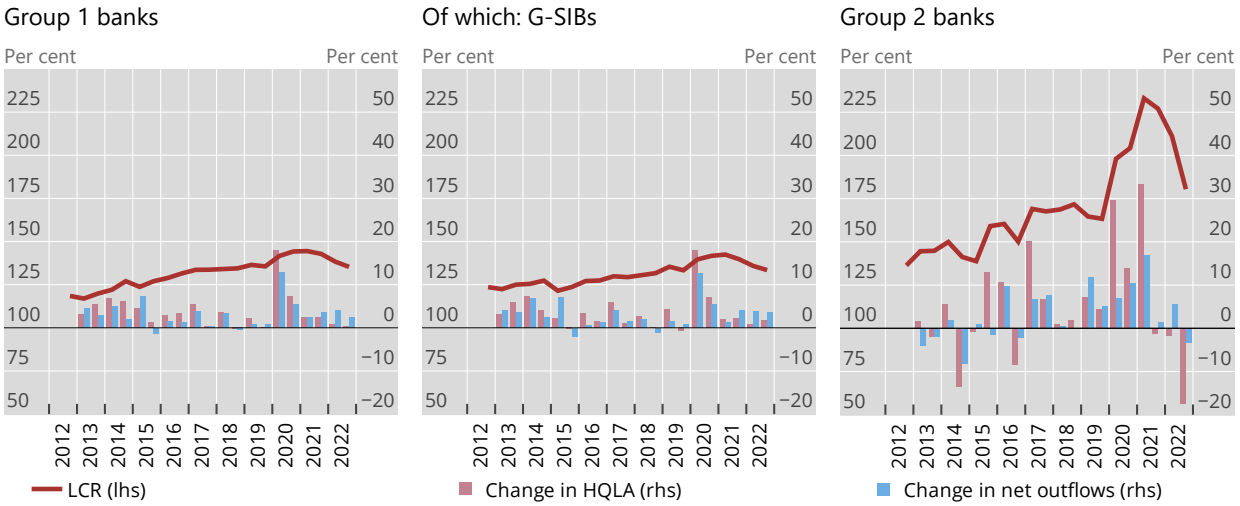
Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

Graph 84 displays the weighted average LCR for a balanced data set of banks across reporting periods since end-December 2012, along with a breakdown of the period-to-period changes of the LCR into changes in HQLA and changes in net outflows. This decomposition shows that the recent decrease in the weighted average LCR for Group 1 banks is driven by increases in net outflows which was only partially

offset by increases in HQLA. The decrease since June 2021 in weighted average LCR for Group 2 banks has been driven by a stagnation followed by a significant decrease in HQLA and an increase in net outflows (which was partially offset by a decrease at end-December 2022). This follows three reporting periods where HQLA increased significantly driven by central bank reserves.

LCR and change in HQLA and net outflows

Balanced data set, exchange rates as of the current reporting date — Graph 84

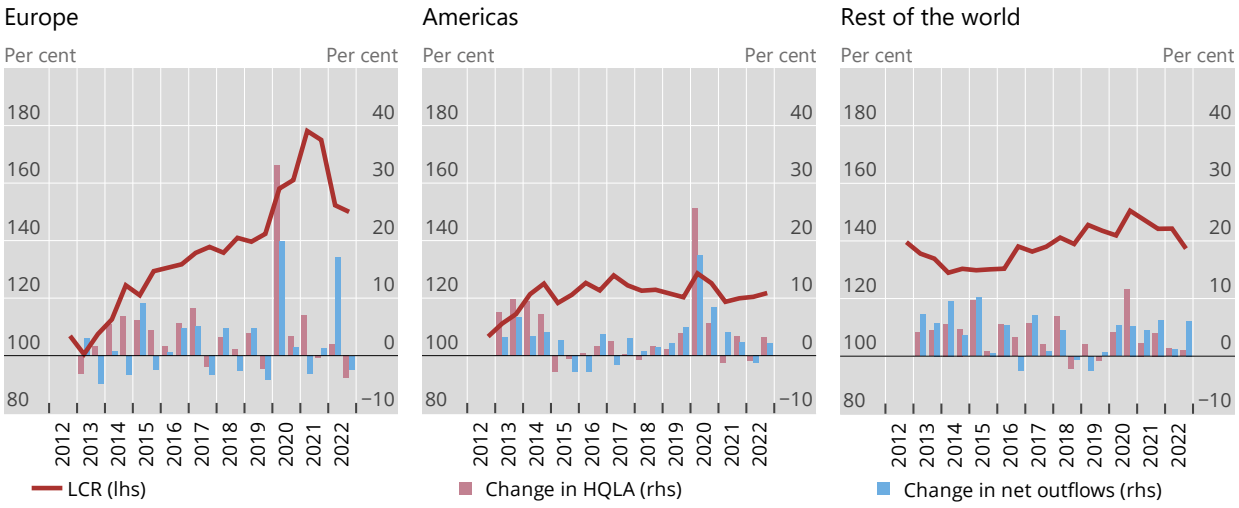


Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

Graph 85 provides a breakdown by region of the results in Graph 84 for Group 1 banks. It displays the weighted average LCR and a decomposition of period-to-period LCR changes into changes in HQLA and net outflows. As can be seen in the graph, the LCR of banks in Europe has decreased as net outflows significantly increased while the amount of HQLA remained overall stable. The LCR of banks in the Americas picked up at end-June 2020 as a result of the increase in HQLA that exceeded the increase in net outflows before declining and stabilising around 120% since June 2021. For the rest of the world, both net outflows and HQLA increased until end-December 2020 and since then the LCR decreased to 137.3% driven mostly by an increase of the net outflows in H2 2022.

LCR and change in HQLA and net outflows, by region

Group 1 banks, balanced data set, exchange rates as of the current reporting date — Graph 85

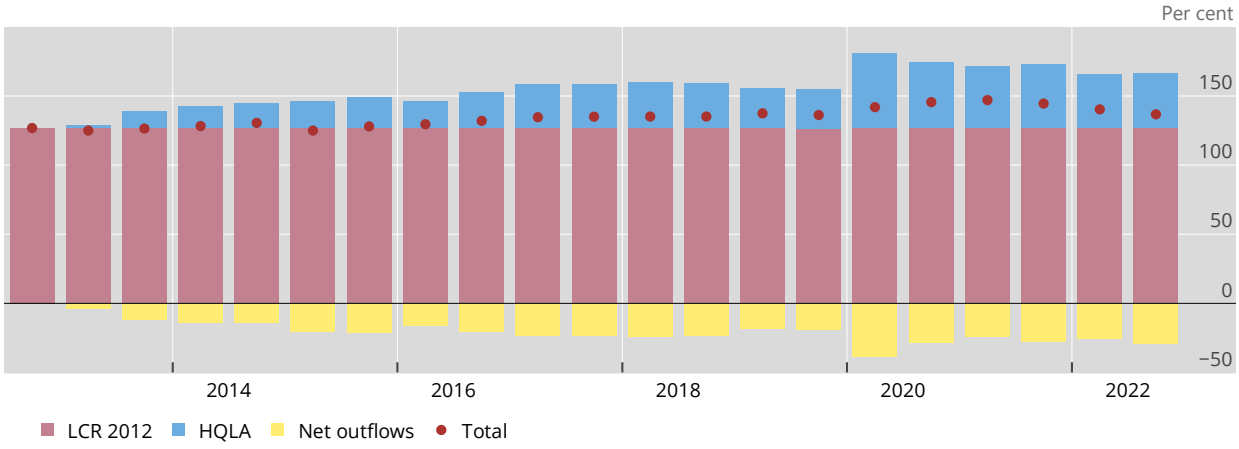


Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size. The LCR dashboard on the Committee's website provides the same regional breakdown for G-SIBs.

Graph 86 shows the evolution of the LCR and its drivers. Starting with the June 2012 LCR, the cumulative effect on the LCR of an increase in HQLA is added to the LCR, while the impact of cumulative increases in net outflows is subtracted from the baseline LCR. HQLA have grown faster over the years compared with the net outflows, which has resulted in an overall improvement in the LCR over time.

Evolution of the LCR and its drivers

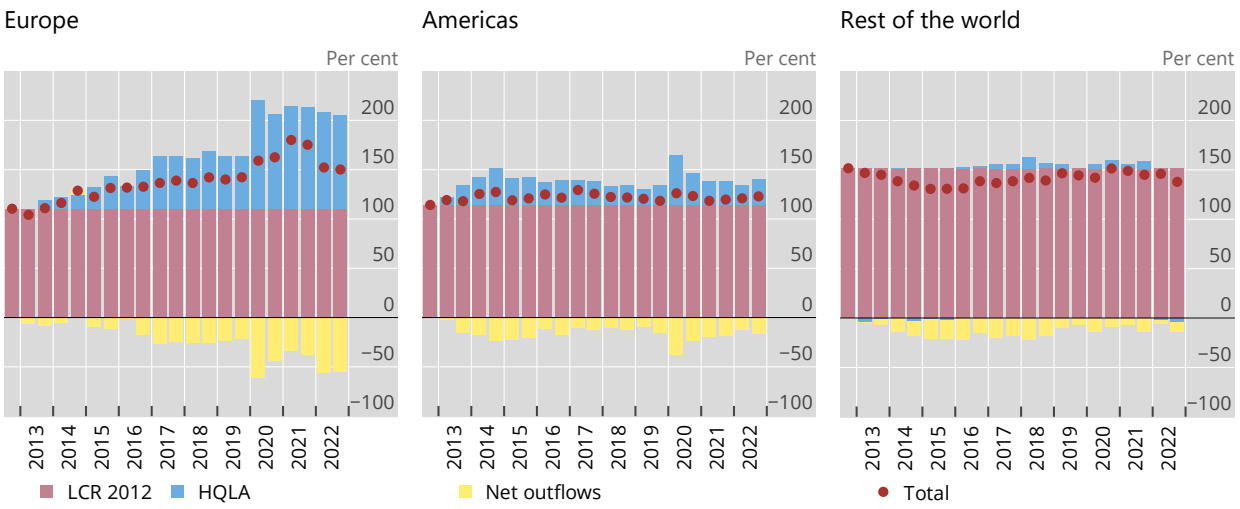
Group 1 banks, balanced data set — Graph 86



Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

Evolution of the LCR and its drivers, by region

Group 1 banks, balanced data set — Graph 87



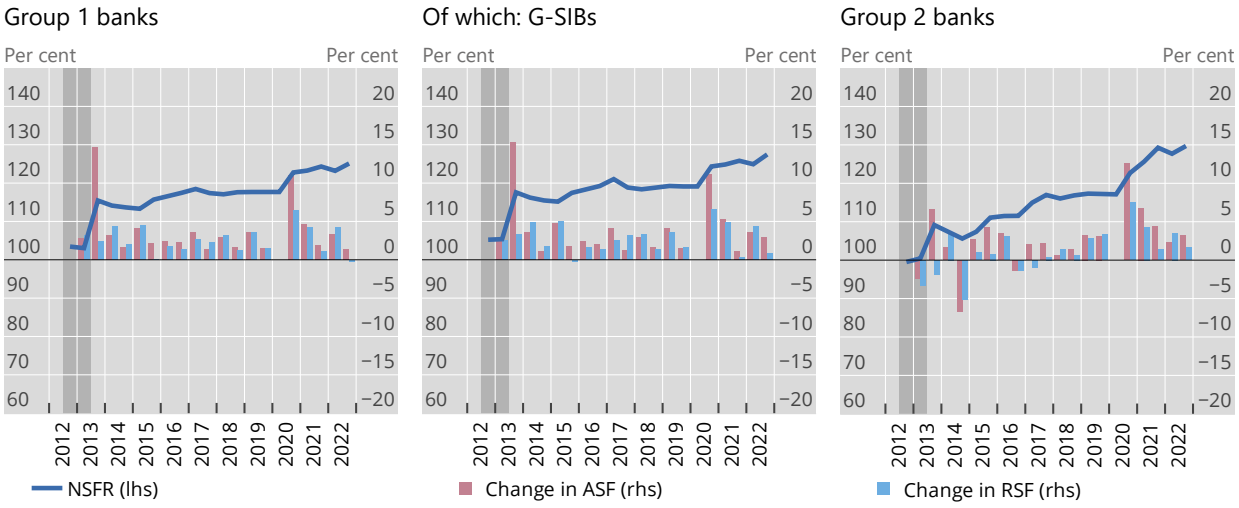
Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size. The LCR dashboard on the Committee's website provides the same regional breakdown for G-SIBs.

Graph 88 depicts the change in Available Stable Funding (ASF) and Required Stable Funding (RSF) over time. For all bank groups, there were significant positive changes in ASF of more than 6.6 percentage points for the end-December 2013 reporting date, also reflecting the changes to the definition of the NSFR standard. Since 2015, the change in ASF and RSF have generally stabilised for Group 1 banks within 5% over a six-month period but experienced a turbulence during the pandemic. For the period from end-December 2019 to end-December 2021, the cumulative effect of the increase in ASF outpaced the positive change in RSF from the prior period. This resulted in an overall increase to average NSFR for Group 1 banks, which showed a maximum increase of 11.0% in ASF and a 6.4% increase in RSF in H2 2020. After a milder increase in both ASF and RSF in H2 2022, Group 1 banks experienced the lowest increase in ASF and the first decrease in RSF since end-December 2012. The average NSFR is on an increasing trend since end-December 2022 for Group 1 and Group 2 banks, respectively, from 117.7% to 125.1% and from 117.3% to 129.7% at end-December 2022. Figures of Group 2 banks were, historically, slightly more volatile for both ASF and RSF but also stabilised since 2015 until the pandemic. For Group 2 banks, H2 2022 reporting period shows less important variation than for Group 1 banks with a 3.2% increase in ASF and a 1.6% increase in RSF, compared with a 2.3% increase in ASF and a 3.6% increase in RSF in H1 2022 period.

Graph 89 illustrates a regional breakdown of the evolution of the weighted average NSFR and changes in ASF and RSF for Group 1 banks over time. For all regions, figures in 2013 reflect changes to the definition of the NSFR standard.

NSFR and change in ASF and RSF[1]

Balanced data set, exchange rates as of the current reporting date — Graph 88

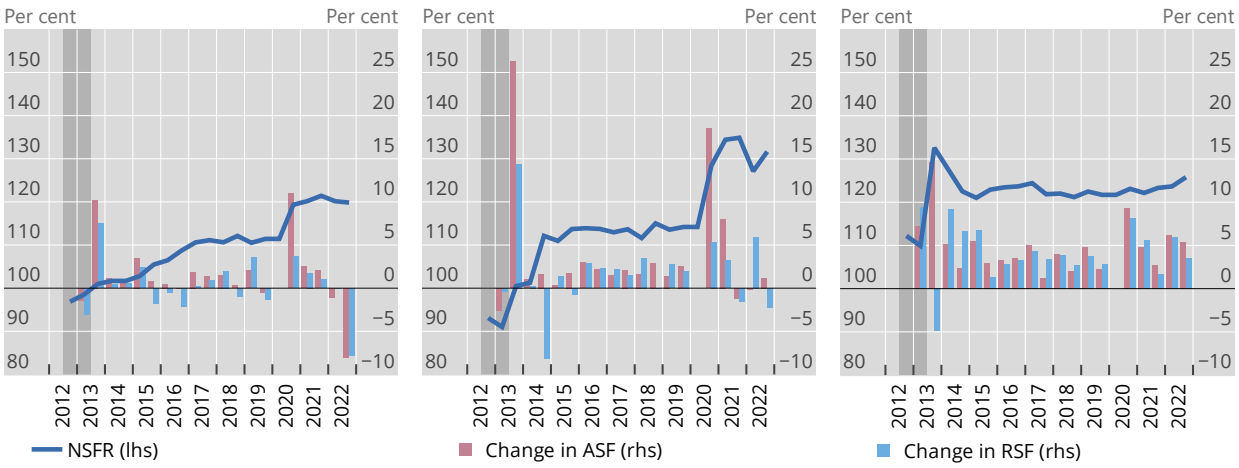


[1] See footnote 1 to Graph 81.

Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

NSFR and change in ASF and RSF,[1] by region

Group 1 banks, balanced data set, exchange rates as of the current reporting date — Graph 89



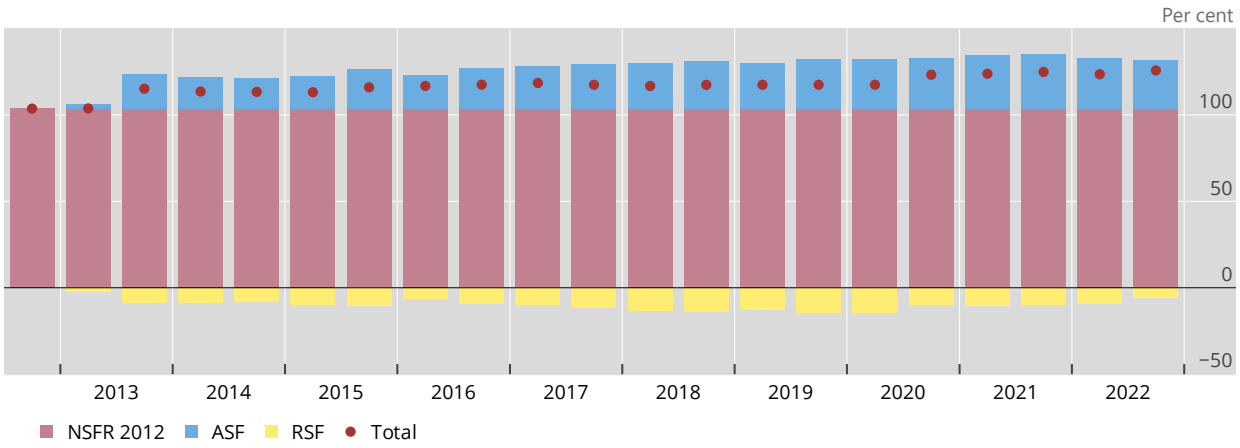
[1] See footnote 1 to Graph 81.

Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size. The NSFR dashboard on the Committee's website provides the same regional breakdown for G-SIBs.

Graph 90 shows the evolution of the NSFR and its drivers.[54] Starting with the June 2012 NSFR, the cumulative effect on the NSFR of an increase in ASF is added to the NSFR, while the impact of cumulative increases in RSF is subtracted from the baseline NSFR. ASF has grown faster over the years compared with RSF, which has resulted in an overall improvement in the NSFR over time. Graph 91 shows the same evolution for the three regions.

Evolution of NSFR and its drivers[1]

Group 1 banks, balanced data set — Graph 90



[1] See footnote 1 to Graph 81.

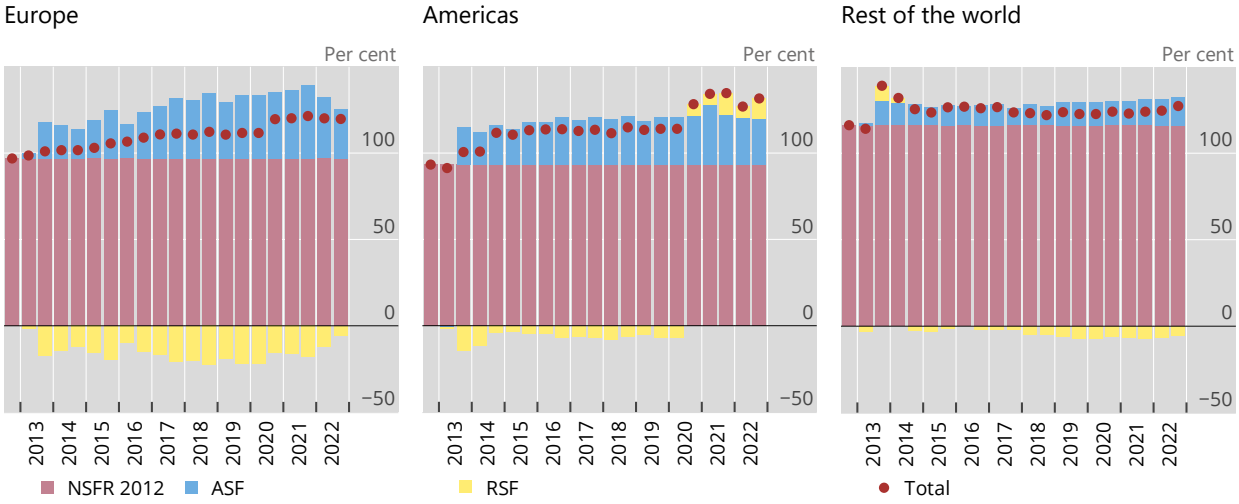
Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

[54] Please note that while Graph 88 shows significant increases in both ASF and RSF, this is not the case for Graph 90. Graph 90 uses a different methodology in which the growth rate of both ASF and RSF is deflated by the growth in total assets/liabilities to avoid continuously growing stacks of ASF and RSF, which cancel each other out. Consequently, it will show an increase in ASF/RSF if this increase is more than proportionate to the growth of assets and cause a discrepancy in the evolution of ASF/RSF as shown in Graph 88. To give an example, at end-December 2020 there was an RSF increase of 6.0%. However, this increase was less than proportionate to the growth of assets, resulting in a decrease of the yellow RSF stack in Graph 90 compared with the previous period. The same remark goes for the discrepancy between Graph 89 and Graph 91.

Evolution of NSFR and its drivers,[1] by region

Group 1 banks, balanced data set

Graph 91



[1] See footnote 1 to Graph 81.

Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size. The NSFR dashboard on the Committee's website provides the same regional breakdown for G-SIBs.

Annex A: Basel III standards and phase-in arrangements

Basel III minimum requirements and buffers

Table A.1

	As of 1 January 2019
Leverage ratio	3.0%
Minimum CET1 ratio	4.5%
Capital conservation buffer	2.50%
G-SIB surcharge	1.0%–2.5%
Minimum common equity plus capital conservation buffer	7.0%
Phase-in of deductions from CET1 (including amounts exceeding the limit for DTAs, MSRs and financials)	100%
Minimum Tier 1 capital	6.0%
Minimum total capital	8.0%
Minimum total capital plus capital conservation buffer	10.5%
Capital instruments that no longer qualify as Tier 1 capital or Tier 2 capital	Phased out over 10-year horizon beginning 2013
Liquidity Coverage Ratio	100%
Net Stable Funding Ratio	100%[1]

[1] Note that as of May 2020, a final rule for the Net Stable Funding Ratio is in force in 12 out of 27 Basel Committee member jurisdictions. See Basel Committee on Banking Supervision, *Eighteenth progress report on adoption of the Basel regulatory framework*, July 2020, www.bis.org/bcbs/publ/d506.htm, p 8.

Final Basel III phase-in arrangements

Shading indicates transition periods – all dates are as of 1 January.

Table A.2

	2023	2024	2025	2026	2027	2028
Revisions to the standardised and internal ratings-based approaches to credit risk	Introduce					
Revised CVA and market risk frameworks	Introduce					
Revised operational risk framework	Introduce					
Output floor	50%	55%	60%	65%	70%	72.5%
	Increase in RWA subject to 25% cap at national discretion.					
Leverage ratio exposure measure and G-SIB surcharge	Introduce					

Definition of different Basel III regimes

Table A.3

	Initial Basel III framework	Transitional final Basel III framework	Fully phased-in final Basel III framework
Definition of capital	*Basel III: A global framework for more resilient banks and the banking system*, www.bis.org/publ/bcbs189.htm		
Credit risk	*Basel III: A global framework for more resilient banks and the banking system*, www.bis.org/publ/bcbs189.htm *Capital requirements for bank exposures to central counterparties,* www.bis.org/publ/bcbs227.htm	Basel III: Finalising post-crisis reforms, www.bis.org/bcbs/publ/d424.htm Capital requirements for bank exposures to central counterparties, www.bis.org/publ/bcbs227.htm Capital requirements for banks' equity investments in funds, www.bis.org/publ/bcbs266.htm	
Operational risk	Basel II: International Convergence of Capital Measurement and Capital Standards: A Revised Framework, www.bis.org/publ/bcbs128.htm	Basel III: Finalising post-crisis reforms, www.bis.org/bcbs/publ/d424.htm	
Market risk	Revisions to the Basel II market risk framework, www.bis.org/publ/bcbs158.htm Guidelines for computing capital for incremental risk in the trading book, www.bis.org/publ/bcbs159.htm	Minimum capital requirements for market risk, www.bis.org/bcbs/publ/d457.htm	
Counterparty credit risk	Basel III: A global framework for more resilient banks and the banking system, www.bis.org/publ/bcbs189.htm	The standardised approach for measuring counterparty credit risk exposures, www.bis.org/publ/bcbs279.htm	
CVA	Basel III: A global framework for more resilient banks and the banking system, www.bis.org/publ/bcbs189.htm	Basel III: Finalising post-crisis reforms, www.bis.org/bcbs/publ/d424.htm Targeted revisions to the revised CVA framework published in July 2020 are **not** yet considered for the end-December 2019 reporting date. They will be reflected in the exercise on the end-2020 reporting date. www.bis.org/bcbs/publ/d507.htm	
Securitisation	Basel III: A global framework for more resilient banks and the banking system, www.bis.org/publ/bcbs189.htm	Revisions to the securitisation framework, www.bis.org/bcbs/publ/d374.htm	
Floor	Basel II: International Convergence of Capital Measurement and Capital Standards: A Revised Framework, www.bis.org/publ/bcbs128.htm	Output floor of 50%, Basel III: Finalising post-crisis reforms, www.bis.org/bcbs/publ/d424.htm	Output floor of 72.5%, Basel III: Finalising post-crisis reforms, www.bis.org/bcbs/publ/d424.htm
Leverage ratio	Basel III: A global framework for more resilient banks and the banking system, www.bis.org/publ/bcbs189.htm; Basel III leverage ratio framework and disclosure requirements, www.bis.org/publ/bcbs270.htm	Basel III: Finalising post-crisis reforms, www.bis.org/bcbs/publ/d424.htm; Leverage ratio treatment of client cleared derivatives www.bis.org/bcbs/publ/d467.htm	

Minimum and target risk-based capital and leverage ratio requirements

Fully phased-in final Basel III standards, in per cent — Table A.4

	Fully implemented risk-based requirement			Fully implemented leverage ratio requirement	
	Minimum	Target non-G-SIBs	Target G-SIBs	Minimum all banks and target non-G-SIBs	Target G-SIBs
CET1 capital	4.5	7.0	8.0–9.5		
Tier 1 capital	6.0	8.5	9.5–11.0	3.0	3.5–4.25
Total capital	8.0	10.5	11.5–13.0		

Annex B: Sample statistics

Number of banks for which data have been included[1] Table B.1

	Group 1 banks						Group 2 banks					
	All	RWA and capital	Leverage	LCR	NSFR	Securitisation	All	RWA and capital	Leverage	LCR	NSFR	Securitisation
Argentina (AM)	0	0	0	0	0	0	3	3	3	3	3	3
Australia (RW)	4	4	0	4	4	1	1	1	0	1	1	0
Belgium (EU)	3	3	3	3	0	2	2	2	2	2	0	2
Brazil (AM)	2	2	2	2	2	2	0	0	0	0	0	0
Canada (AM)	6	6	6	6	5	5	0	0	0	0	0	0
China (RW)	5	5	5	5	5	0	0	0	0	0	0	0
Finland (EU)	1	1	1	1	1	1	0	0	0	0	0	0
France (EU)	5	5	5	5	5	5	2	2	2	2	2	1
Germany (EU)	11	11	11	11	11	7	23	23	22	21	20	12
India (RW)	8	8	8	8	6	3	0	0	0	0	0	0
Indonesia (RW)	0	0	0	0	0	0	2	2	0	1	2	2
Italy (EU)	2	2	2	2	2	2	6	6	6	6	6	6
Japan (RW)	13	13	13	13	13	12	1	1	1	1	1	1
Korea (RW)	7	7	7	0	7	7	0	0	0	0	0	0
Luxembourg (EU)	0	0	0	0	0	0	3	3	3	3	3	2
Mexico (AM)	2	2	2	2	2	2	4	4	4	4	4	4
Netherlands (EU)	4	4	4	4	4	3	4	4	4	4	4	2
Saudi Arabia (RW)	3	3	3	3	3	2	0	0	0	0	0	0
Singapore (RW)	3	3	3	3	3	2	0	0	0	0	0	0
South Africa (RW)	4	4	4	4	4	4	2	2	2	2	2	1
Spain (EU)	2	2	2	2	2	2	4	4	4	4	4	4
Sweden (EU)	3	3	3	3	3	3	3	3	3	3	3	0
Switzerland (EU)	2	2	2	2	2	2	4	4	4	0	0	0
Türkiye (EU)	3	3	2	3	3	0	0	0	0	0	0	0
United Kingdom (EU)	5	5	5	5	3	5	3	3	3	3	1	3
United States (AM)	13	13	13	13	10	9	0	0	0	0	0	0
Total	111	111	106	104	100	81	67	67	63	60	56	43
Of which: G-SIBs	29	29	29	29	26	26	0	0	0	0	0	0

[1] The regional grouping to which a country is assigned is included in parentheses. AM denotes Americas, EU Europe and RW the rest of the world.

Source: Basel Committee on Banking Supervision.

Additional sample statistics[1]

In billions of euros

Table B.2

	Number of banks	Tier 1 capital	Risk-weighted assets	Accounting total assets	Leverage total exposure
Group 1 banks	102	5,078	34,047	80,915	83,814
Of which: Europe	39	1,416	8,586	27,532	27,038
Of which: Americas	22	1,421	10,064	21,808	24,274
Of which: Rest of the world	41	2,241	15,397	31,576	32,501
Of which: G-SIBs	28	3,416	22,621	55,405	57,291
Group 2 banks	58	244	1,366	4,193	3,882

[1] Tier 1 capital, RWA and leverage ratio exposure assume full implementation of Basel III.

Source: Basel Committee on Banking Supervision.

Number of banks for which data have been included in the assessment of the impact of the final Basel III framework[1]

Table B.3

	Group 1 banks	Group 2 banks
Argentina (AM)	0	3
Belgium (EU)	3	2
Brazil (AM)	2	0
Canada (AM)	5	0
China (RW)	5	0
Finland (EU)	1	0
France (EU)	5	2
Germany (EU)	11	22
India (RW)	4	0
Italy (EU)	2	6
Japan (RW)	11	1
Korea (RW)	4	0
Luxembourg (EU)	0	3
Mexico (AM)	2	4
Netherlands (EU)	4	4
Saudi Arabia (RW)	2	0
Singapore (RW)	3	0
South Africa (RW)	4	1
Spain (EU)	2	4
Sweden (EU)	3	3
Switzerland (EU)	2	0
Türkiye (EU)	2	0
United Kingdom (EU)	4	3
United States (AM)	11	0
Total	92	58

[1] The regional grouping to which a country is assigned is included in brackets. AM denotes Americas, EU Europe and RW the rest of the world.

Source: Basel Committee on Banking Supervision.

Previous monitoring reports published by the Basel Committee

December 2010	*Results of the comprehensive quantitative impact study*, December 2010, www.bis.org/publ/bcbs186.htm	
April 2012	*Results of the Basel III monitoring exercise as of 30 June 2011*, www.bis.org/publ/bcbs217.htm	
September 2012	*Results of the Basel III monitoring exercise as of 31 December 2011*, www.bis.org/publ/bcbs231.htm	
March 2013	*Results of the Basel III monitoring exercise as of 30 June 2012*, www.bis.org/publ/bcbs243.htm	
September 2013	*Basel III monitoring report,* www.bis.org/publ/bcbs262.htm	
March 2014	*Basel III monitoring report,* www.bis.org/publ/bcbs278.htm	
September 2014	*Basel III monitoring report,* www.bis.org/publ/bcbs289.htm	
	Main findings of the trading book hypothetical portfolio exercise	Diana Iercosan, Derek Nesbitt and Arnaud Sandrin
March 2015	*Basel III monitoring report,* www.bis.org/bcbs/publ/d312.htm	
	Analysis of the QIS for the fundamental review of the trading book	
September 2015	*Basel III monitoring report,* www.bis.org/bcbs/publ/d334.htm	
March 2016	*Basel III monitoring report,* www.bis.org/bcbs/publ/d354.htm	
	Comprehensive QIS on interest rate risk in the banking book	Ethan Goh, Kamil Pliszka and Davy Reinard
September 2016	*Basel III monitoring report,* www.bis.org/bcbs/publ/d378.htm	
	Results of the quantitative impact study on the large exposures review clause	Marie-Céline Bard, Ken Taniguchi and Lynnette Withfield
February 2017	*Basel III monitoring report*, www.bis.org/bcbs/publ/d397.htm	
	Impact of the revised minimum capital requirements for market risk	Scott Nagel
	Results of the survey on the interaction of regulatory instruments	Diana Hancock and Doriana Ruffino
September 2017	*Basel III monitoring report*, www.bis.org/bcbs/publ/d416.htm	
	Impact of the revised minimum capital requirements for market risk	Scott Nagel
	Impact of the revised securitisation framework	Bernardo D'Alessandro, Thomas Morck and Emanuela Piani
December 2017	*Basel III monitoring report – Results of the cumulative quantitative impact study*, www.bis.org/bcbs/publ/d426.htm	
March 2018	*Basel III monitoring report*, www.bis.org/bcbs/publ/d433.htm	
	Impact of the revised securitisation framework	Bernardo D'Alessandro, Thomas Morck and Emanuela Piani
October 2018	*Basel III monitoring report*, www.bis.org/bcbs/publ/d449.htm	
March 2019	*Basel III monitoring report,* www.bis.org/bcbs/publ/d461.htm.	

September 2019	*Basel III monitoring report*, www.bis.org/bcbs/publ/d477.htm.	
	Counterparty credit risk and credit valuation adjustment risk	Alexandra Gebauer, Evariste Beigneux and Giulio Malberti
April 2020	*Basel III monitoring report*, www.bis.org/bcbs/publ/d500.htm.	
	Counterparty credit risk and credit valuation adjustment risk	Thomas Blumentritt
December 2020	*Basel III monitoring report*, www.bis.org/bcbs/publ/d512.htm.	
	Counterparty credit risk and credit valuation adjustment risk	Thomas Blumentritt and Alexandra Gebauer
September 2021	*Basel III monitoring report*, www.bis.org/bcbs/publ/d524.htm.	
	Exclusions from the leverage ratio exposure measure due to Covid-19	Renzo Corrias
February 2022	*Basel III monitoring report*, www.bis.org/bcbs/publ/d531.htm	
September 2022	*Basel III monitoring report*, www.bis.org/bcbs/publ/d541.htm	
	Banks' exposures to cryptoassets – a novel dataset	Renzo Corrias
	Capital buffers and total CET1 requirements including Pillar 2	Irina Barakova and Roberto Ottolini
February 2023	*Basel III monitoring report*, www.bis.org/bcbs/publ/d546.htm	
	Regional distributions of Group 1 and Group 2 banks and their impact on results in the Basel III monitoring reports	Martin Birn, Lea Charlotte Neugebauer and Verena Seidl