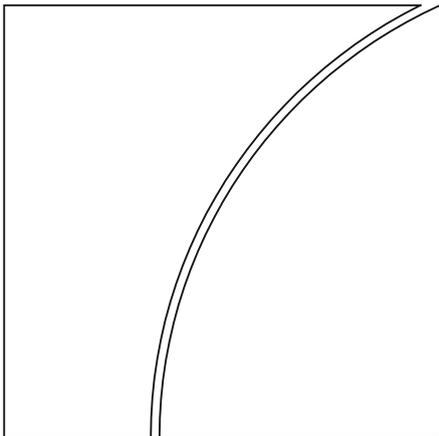


# Basel Committee on Banking Supervision



## Basel III Monitoring Report

September 2022



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

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

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September 2022

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## 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 27 July 2022.

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## Highlights of the Basel III monitoring exercise as of 31 December 2021

Initial Basel III capital ratios increase to the highest level since the beginning of the exercise

Impact of final Basel III standards lower compared to previous exercises

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.<sup>1</sup> This report summarises the aggregate results using data as of 31 December 2021.<sup>2</sup> It includes special features on *Banks' exposures to cryptoassets – a novel dataset* and *Capital buffers and total CET1 requirements including Pillar 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. On jurisdictional level, there may be mandatory data collections ongoing which also feed into this report. Data were included for 182 banks, including 117 large internationally active ("Group 1") banks, among them all 30 G-SIBs, and 65 other ("Group 2") banks.<sup>3</sup> 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 take into account 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 2021. 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, any higher loss absorbency requirements for domestic systemically important banks, nor does it reflect any countercyclical capital buffer requirements.

<sup>1</sup> Basel Committee on Banking Supervision, *High-level summary of Basel III reforms*, December 2017, [www.bis.org/bcbs/publ/d424\\_hlsummary.pdf](http://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](http://www.bis.org/bcbs/publ/d424.htm).

<sup>2</sup> A list of previous publications is included in the Annex.

<sup>3</sup> 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

Table 1

	30 June 2021			31 December 2021		
	Group 1	Of which: G-SIBs	Group 2	Group 1	Of which: G-SIBs	Group 2
<i>Initial Basel III framework</i>						
CET1 ratio (%)	13.2	12.9	16.2	13.3	13.1	17.2
Target capital shortfalls (€ bn); <sup>2</sup> of which:	0.0	0.0	0.0	0.0	0.0	0.0
CET1	0.0	0.0	0.0	0.0	0.0	0.0
Additional Tier 1	0.0	0.0	0.0	0.0	0.0	0.0
Tier 2	0.0	0.0	0.0	0.0	0.0	0.0
TLAC shortfall 2022 minimum (€ bn)	24.2	24.2		7.5	7.5	
Total accounting assets (€ bn)	76,606	53,753	2,808	82,175	56,627	3,034
Leverage ratio (%) <sup>3</sup>	6.3	6.1	5.9	6.4	6.3	6.4
LCR (%)	143.8	142.7	224.6	141.3	138.7	224.2
NSFR (%)	124.5	125.9	129.6	125.1	126.9	134.0
<i>Fully phased-in final Basel III framework (2028)</i>						
Change in Tier 1 MRC at the target level (%)	3.3	3.7	8.4	2.4	2.2	5.7
CET1 ratio (%)	12.7	12.5	15.2	13.0	12.9	14.5
Target capital shortfalls (€ bn); of which:	2.3	2.3	1.3	0.1	0.1	1.2
CET1	0.0	0.0	0.4	0.0	0.0	0.4
Additional Tier 1	0.0	0.0	0.4	0.0	0.0	0.4
Tier 2	2.3	2.3	0.5	0.1	0.1	0.5
TLAC shortfall 2022 minimum (€ bn)	11.5	11.5		7.9	7.9	
Leverage ratio (%) <sup>3</sup>	6.2	6.1	5.9	6.4	6.3	6.2

See Table A.4 for the target level capital requirements. <sup>1</sup> The values for the previous period may slightly differ from those published in the end-December 2020 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. <sup>2</sup> Uses the 2017 definition of the leverage ratio exposure measure. <sup>3</sup> The leverage ratios reflect temporary exclusions from leverage exposures introduced in some jurisdictions.

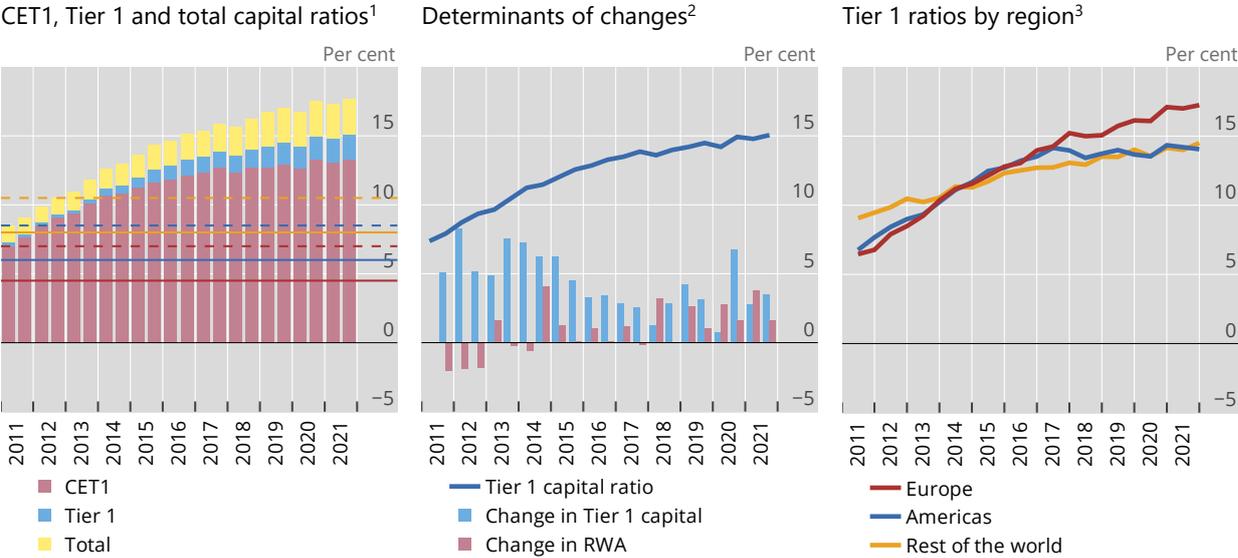
Source: Basel Committee on Banking Supervision.

- Compared with the end-June 2021 reporting period, the average Common Equity Tier 1 (CET1) capital ratio under the initial Basel III framework increased slightly to 13.3% for Group 1 banks. The increase to 17.2% for Group 2 banks is driven by sample changes.
- The average impact of the final Basel III framework on the Tier 1 Minimum Required Capital (MRC) of Group 1 banks is lower (+2.4%) when compared to the 3.3% increase at end-June 2021.
- The total capital shortfalls under the fully phased-in final Basel III framework as of the end-December 2021 reporting date for Group 1 banks further decreased to €0.1 billion in comparison to end-June 2021 at €2.3 billion.
- Applying the 2022 minimum TLAC requirements and the initial Basel III framework, one of the 25 G-SIBs reporting total loss-absorbing capacity (TLAC) data reported an aggregate incremental shortfall of €7.5 billion.
- Group 1 banks' average Liquidity Coverage Ratio (LCR) decreased from 143.8% to 141.3% while the average Net Stable Funding Ratio (NSFR) increased from 124.5% to 125.1%. For Group 2 banks, there was also a decrease for the LCR and a significant increase by more than four percentage points for the NSFR. The latter is driven by sample changes.

Initial Basel III capital ratios increase to the highest level since the beginning of the exercise

Group 1 banks, balanced data set

Graph 1



<sup>1</sup> 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. <sup>2</sup> Exchange rates as of the current reporting date. <sup>3</sup> See Table B.1 for the composition of the regions.

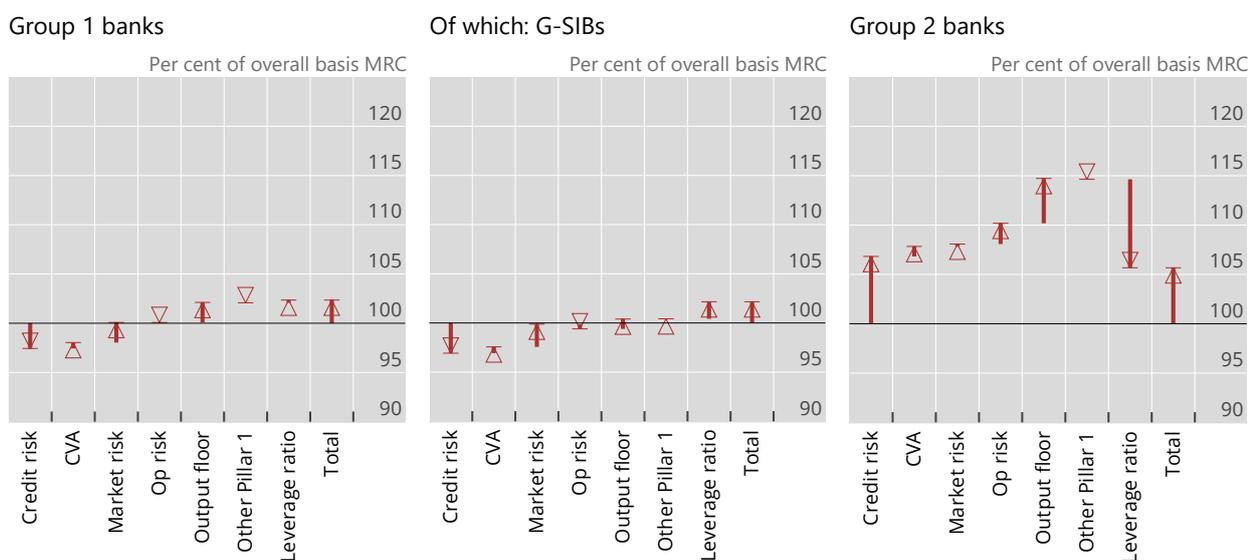
Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

- The balanced data set for Group 1 banks showed a slight increase in initial Basel III capital ratios in H2 2021, driven by an increase in Tier 1 capital that was higher than the increase in RWA. Capital ratios are at the highest level since the beginning of the exercise. The overall CET1 capital ratios for Group 1 banks in the balanced data set were 13.3% in December 2021.
- 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 used to be reversed before 2014.

## Impact of final Basel III standards lower compared to previous exercises

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.

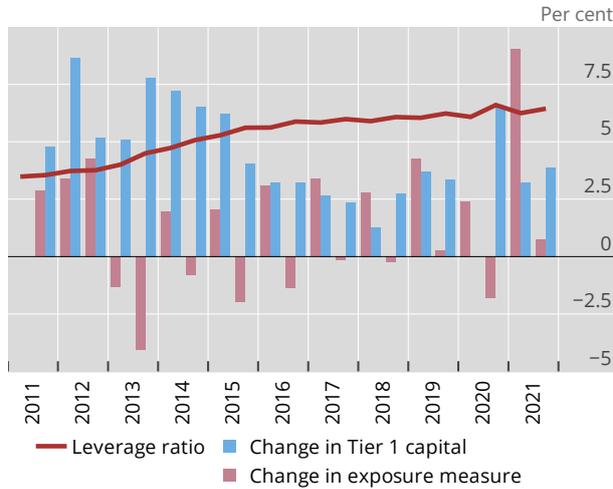
- For Group 1 banks, the Tier 1 minimum required capital (MRC) would increase by 2.4%, following full phasing-in of the final Basel III standards. This increase is composed of a 2.1% rise in the combined risk-based components. Those are driven by positive contributions of the output floor (+2.0%), market risk (+2.0%), CVA (+0.6%) on the one hand and a reduction in credit risk (-2.6%) on the other hand. The rise of the combined risk-based components is accompanied by a positive effect of the leverage ratio requirements (+0.3%).
- The impact on MRC across regions is very heterogeneous for Group 1 banks with a moderate decrease in the rest of the world (-6.9%), a small increase shown in the Americas (+3.9%) and in contrast to this a strong increase in MRC for European banks (+17.5%).
- For Group 2 banks, the overall 5.7% increase in Tier 1 MRC is driven by an increase in the risk-based measure of 14.6%, mainly stemming from credit risk (+6.8%) and the output floor (+4.5%), while the leverage ratio measure partially offsets this increase at -9.0%.
- The average impact of the final Basel III framework on Group 1 banks at +2.4% is 50 basis points lower than at the end-2020 reporting date (+2.9%). It has also decreased during 2021 for Group 2 banks.

## Fully phased-in Basel III leverage ratios<sup>1</sup> of large internationally active banks increased in H2 2021

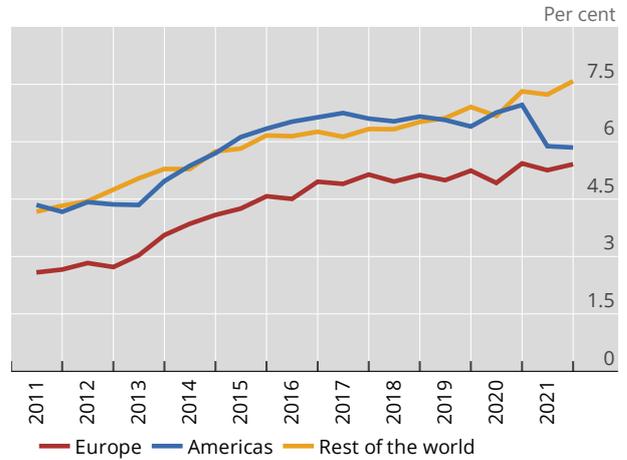
Group 1 banks, balanced data set, exchange rates as of the current reporting date

Graph 3

Leverage ratios and their determinants



Leverage ratios by region



<sup>1</sup> 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.

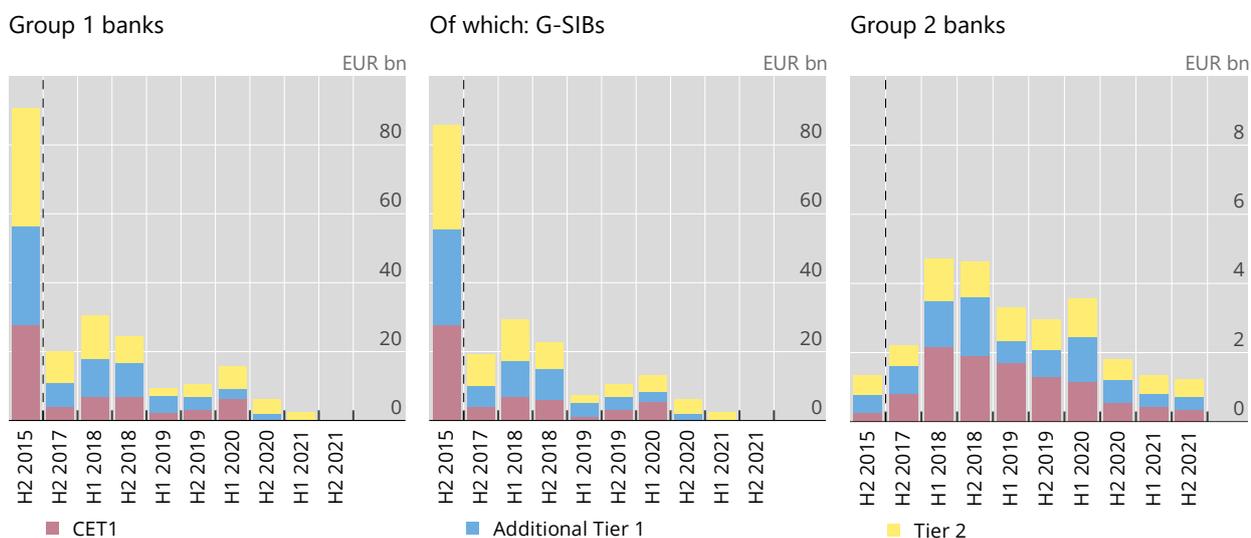
Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

- For the full sample at the end-December 2021 reporting date, the average fully phased-in final Basel III Tier 1 leverage ratios are 6.4% for Group 1 banks, 6.3% for G-SIBs and 6.2% 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 rest of the world regions.
- Leverage ratios are still lower in Europe (5.4%) as compared to the Americas (5.9%) and the rest of the world (7.6%).

## Combined capital shortfalls at the target level under the final Basel III standards at all-time lows

Fully phased-in final Basel III standards,<sup>1</sup> sample and exchange rates as at the reporting dates

Graph 4



<sup>1</sup> 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 to H2 2017 and H1 2018, the results since H2 2018 include the revised market risk framework as finalised in January 2019.

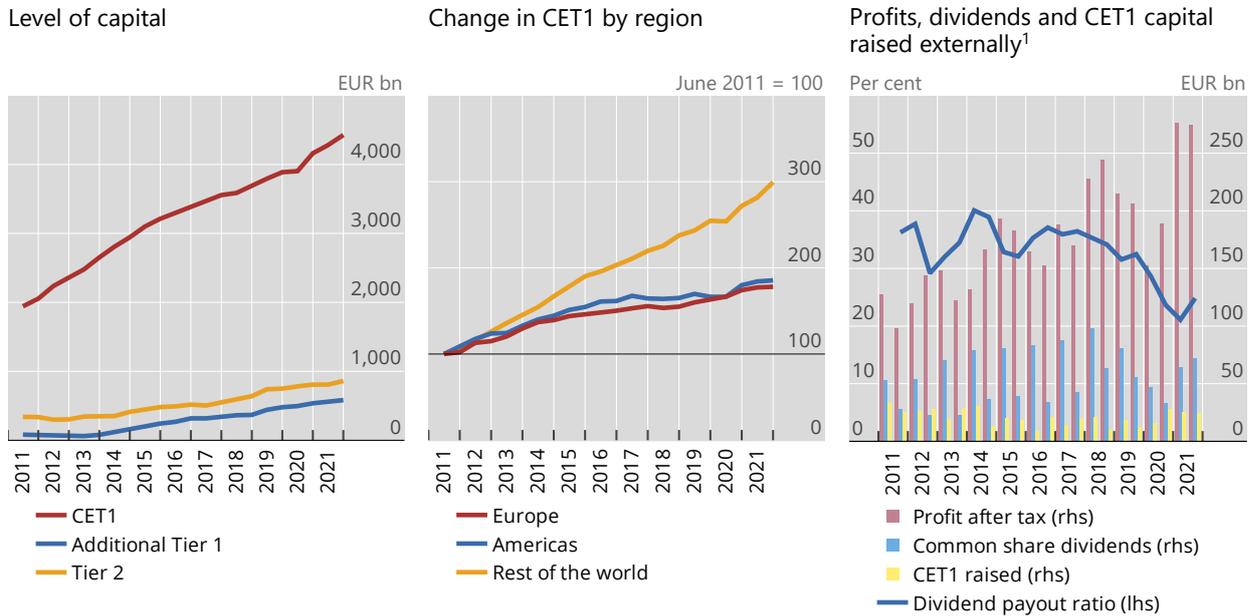
Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

- For this reporting date, Group 1 banks registered total regulatory capital shortfalls amounting to €0.1 billion, compared to €2.3 billion at end-June 2020.
- For the second reporting date in a row, capital shortfalls are at a historically low level for Group 1 banks and there is again no shortfall of CET1 and additional Tier 1 capital. Dividend distribution constraints during the Covid-19 period in several jurisdictions may have contributed to the decrease of the shortfall as well as temporary capital buffer relief measures.
- For Group 2 banks, the aggregate total capital shortfall decreased to €1.2 billion.

## Fully phased-in regulatory CET1 increased by 3.4% during H2 2021 for large internationally active banks

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

Graph 5



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

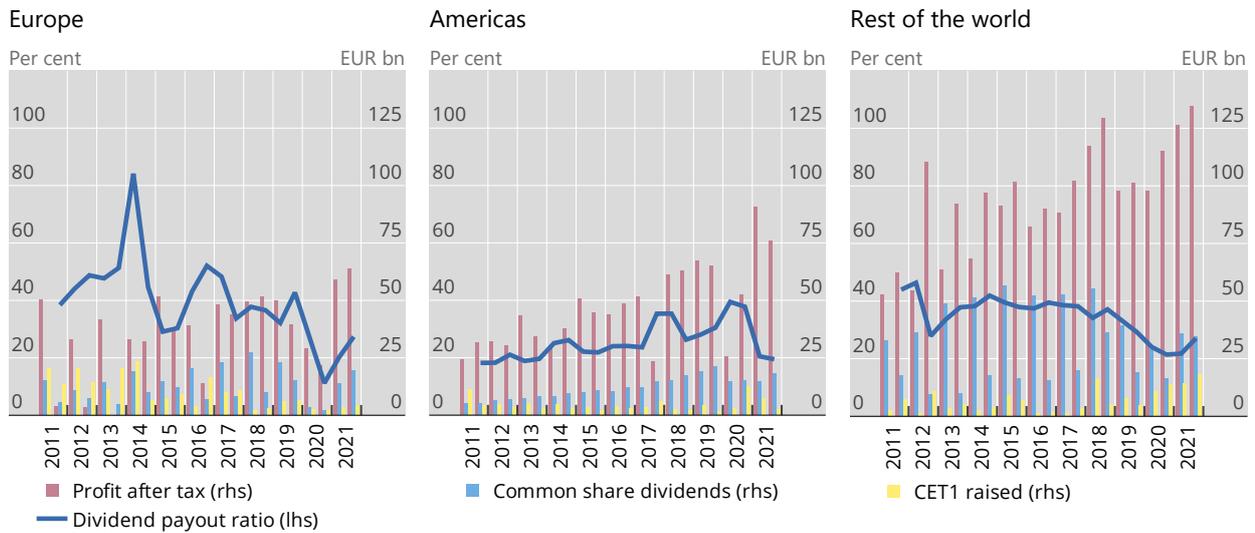
Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size. Worksheets "Graph 33a", and "Graph 36" provide an additional regional breakdown for Group 1 banks.

- From end-June 2011 to end-December 2021, the level of Group 1 banks' CET1 capital has increased by 128% from €1,874 billion to €4,428 billion. Since end-June 2021, Group 1 CET1 capital has increased by €147 billion (or 3.4%).
- At a regional level, while CET1 capital in the rest of the world is now almost three times of its value in 2011, the increase in Europe and in the Americas was more limited at 78% and 86%, respectively.
- Overall, Group 1 banks' profits after tax only decreased marginally from the record-high level in June 2021 for the banks in the sample and stand at €274 billion in H2 2021.

## Profits remained at or near record high levels across all 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.

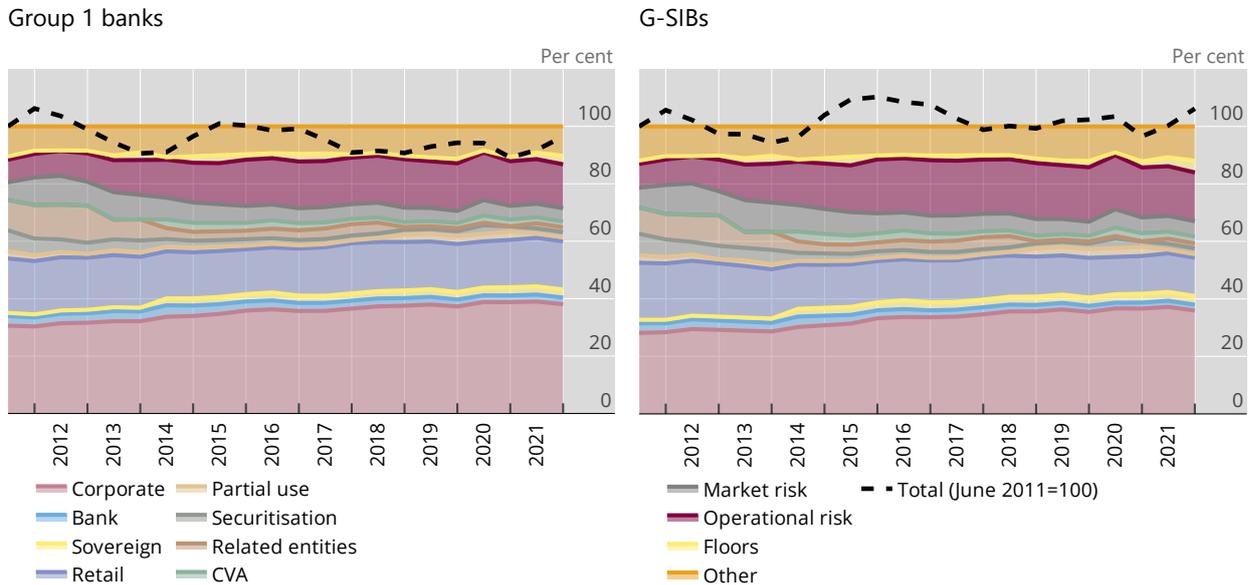
Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

- Annual after-tax profits for the Group 1 banks in the sample saw a particularly strong increase in Europe and the Americas (143% and 113%, respectively) compared to the full year 2020.
- Since the previous reporting date, the annual dividend payout ratios for Europe and the rest of the world continued to increase while those in the Americas slightly decreased.

Analysis of share of MRC by asset class<sup>1</sup> according to current rules shows increase in operational risk MRC and decrease in securitisations and market risk

Balanced data set

Graph 7



<sup>1</sup> 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.

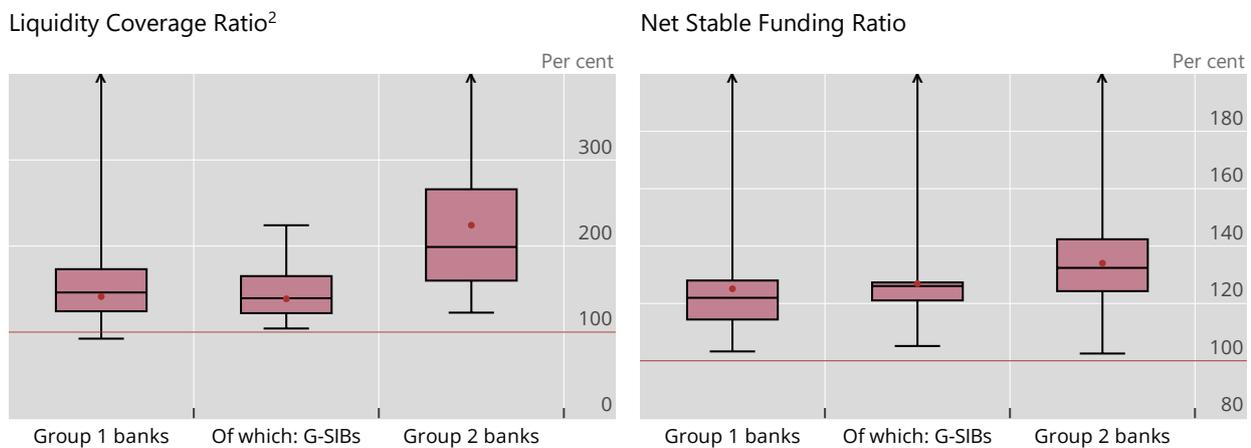
- As of end-2021 and for a balanced data set of Group 1 banks, credit risk<sup>4</sup> continues to compose the dominant portion of overall minimum required capital (MRC), on average comprising 64.9% of total MRC. However, the share of credit risk has declined significantly from 74.3% at the end of June 2011.
- Conversely, the share of operational risk MRC increased sharply from 7.9% at end-June 2011 to 16.1% at end-2015 and decreased slightly since. 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 crisis, which are factored into the calculation of MRC for operational risk under the advanced measurement approach. More recently, we observe 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 do not yet have 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 from 30.6% to 39.0% between June 2011 and June 2021 before decreasing again to 38.1% at end-2021. The share of MRC for securitisation exposures declined from 7.2% to 1.8% between June 2011 and December 2021.

<sup>4</sup> 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 LCRs decline, NSFR unchanged, and some banks in the Americas and the rest of the world continued to use LCR reserves during the Covid-19 pandemic<sup>1</sup>

Overall distribution

Graph 8



<sup>1</sup> 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. <sup>2</sup> 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 2021 is 141.3% for Group 1 banks and 231.1% for Group 2 banks. The increase for Group 2 banks compared to the previous report is driven by sample changes.
- In the current reporting period there are six 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 €21.0 billion.
- The weighted average NSFR was 125.1% for Group 1 banks and 134.0% for Group 2 banks at end-December 2021.
- All banks reported an NSFR that met or exceeded 100%.

For Group 1 banks, LCRs decline while NSFRs further increase on average; nevertheless the LCR shortfall slightly decreased during H2 2021

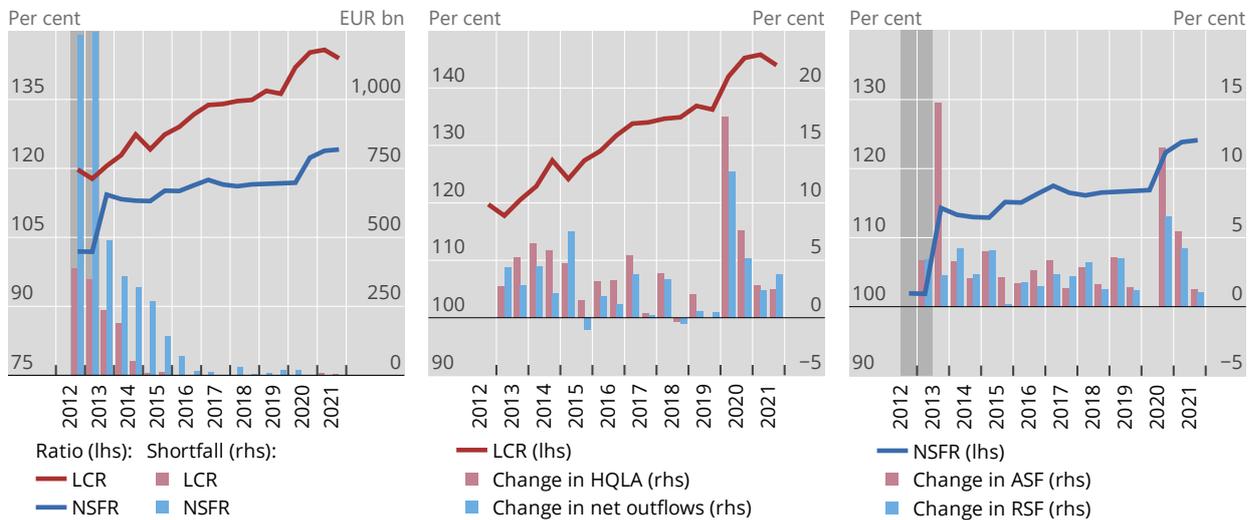
Group 1 banks, balanced data set<sup>1</sup>

Graph 9

LCR, NSFR and related shortfalls<sup>2</sup>

LCR and change in its determinants<sup>3</sup>

NSFR and change in its determinants<sup>3</sup>



<sup>1</sup> As described in Section 6.3, footnote 46, the NSFR time series depicts data reflecting NSFR standards released in December 2010, January 2014 and October 2014. <sup>2</sup> Exchange rates as at the reporting dates. <sup>3</sup> 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 83", "Graph 86" and "Graph 90" provide additional regional breakdowns for Group 1 banks. The liquidity dashboards on the Committee's website provide the same breakdowns also for G-SIBs.

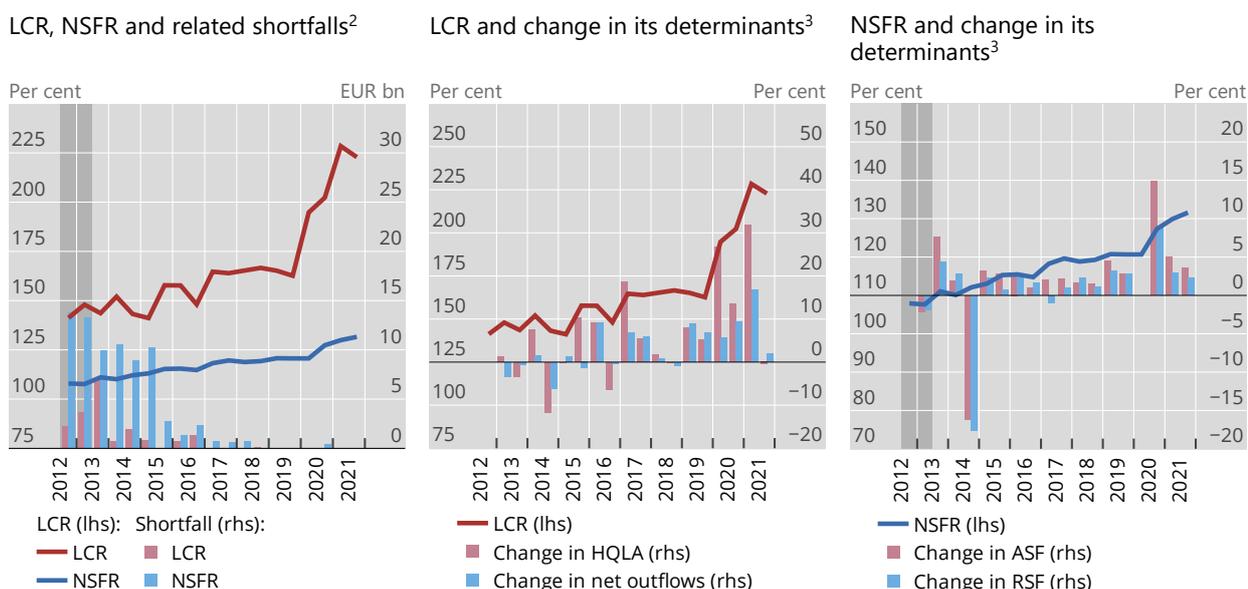
- For a balanced data set of Group 1 banks, not all banks meet a 100% LCR at end-December 2021, resulting in an aggregate shortfall of €5.6 billion.<sup>5</sup> While the shortfall has almost halved since end-June 2021, the average LCR for this sample decreased to 144.0% from 145.8% at end-June 2021.
- There was again no aggregate NSFR shortfall for the balanced data set of Group 1 banks. The average NSFR for the same sample of banks has increased to 124.1% from 123.8% at end-June 2021.

<sup>5</sup> Note that the LCR shortfall in the entire sample at end-December 2021 is €21.0 billion.

## Group 2 banks show continued increase in the NSFR with no shortfalls

Group 2 banks, balanced data set<sup>1</sup>

Graph 10



<sup>1</sup> As described in Section 6.3, footnote 46, the NSFR time series depicts data reflecting NSFR standards released in December 2010, January 2014 and October 2014. <sup>2</sup> Exchange rates as at the reporting dates. <sup>3</sup> Exchange rates as of the current reporting date.

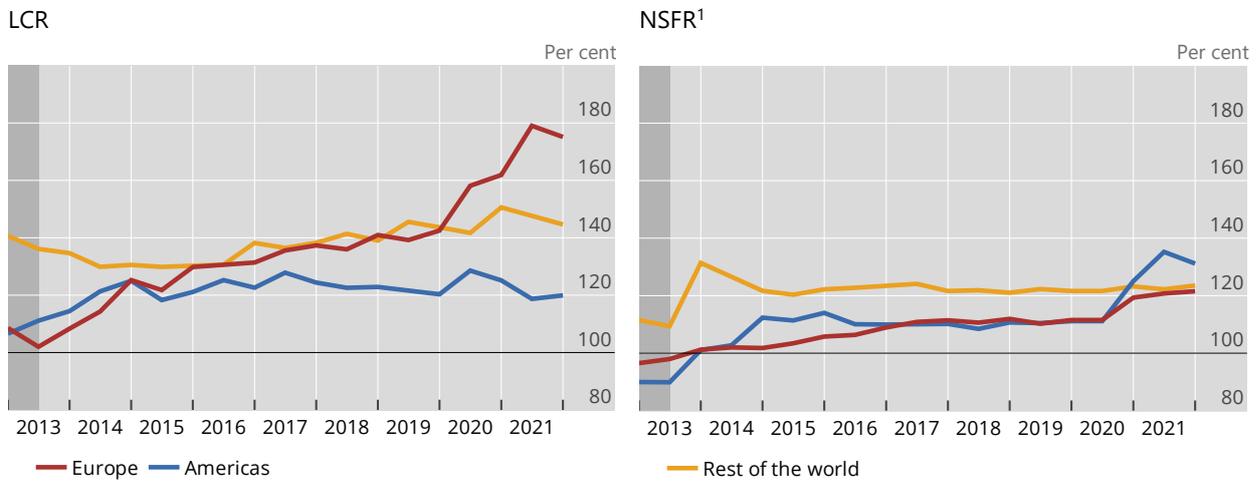
Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

- For a balanced data set of Group 2 banks, the LCR shortfall remains at zero since June 2019. The average LCR for the same sample of banks decreased by 5.6 percentage points to 222.8%.
- 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 0.7 percentage points to 131.6%.

For Group 1 banks, LCRs decrease in Europe and the rest of the world during H2 2021; NSFRs decrease in the Americas

Group 1 banks, balanced data set

Graph 11



<sup>1</sup> As described in the Section 6.2, 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 was above 140%, while the average LCR of the Americas is around 120%. 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 important increases in particular between end-2012 and June 2014, and Europe again since the start of the pandemic.
- 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 119.7% and 125.0% at end-December 2019, respectively, to 121.5% and 131.2% at end-December 2021. While Europe is at a level in line with the rest of the world which on average reports an NSFR of 123.5%, the Americas are now the region with the highest NSFR, in spite of the notable drop in H2 2021.



# Detailed results of the Basel III monitoring exercise as of 31 December 2021

## 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.<sup>1</sup> 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<sup>2</sup> 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.<sup>3</sup> This report summarises the results of the latest Basel III monitoring exercise using data as of 31 December 2021.<sup>4</sup> It includes special features on *Banks’ exposures to cryptoassets – a novel dataset* and *Capital buffers and total CET1 requirements including Pillar 2*. 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, some analyses that were previously presented in the leverage ratio, liquidity and credit risk sections of the report have been published as Tableau dashboards instead. 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](mailto:qis@bis.org).

<sup>1</sup> 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](http://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](http://www.bis.org/press/p100912.htm).

<sup>2</sup> Basel Committee on Banking Supervision, *High-level summary of Basel III reforms*, December 2017, [www.bis.org/bcbs/publ/d424\\_hlsummary.pdf](http://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](http://www.bis.org/bcbs/publ/d424.htm).

<sup>3</sup> A list of previous publications is included in the Annex.

<sup>4</sup> The data for Japan are as of the end of September 2021, 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 2021, which corresponds to Canadian banks’ second quarter-end.

## 1.1 Scope of the monitoring exercise

Almost all Committee member countries participated in the Basel III monitoring exercise as of 31 December 2021. The estimates presented are based on data submitted by the participating banks and their national supervisors in reporting questionnaires and in accordance with the instructions prepared by the Committee.<sup>5</sup> 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.<sup>6</sup>

The final data were submitted to the Secretariat of the Committee by 27 July 2022. 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 182 banks, including 117 Group 1 banks and 65 Group 2 banks.<sup>7</sup> 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 to end-June 2021 with 110 Group 1, 62 Group 2 banks and 172 banks overall, the sample increased by seven banks for Group 1 and three banks for Group 2. The impact of the final Basel III framework could be assessed for a sample of 151 banks, among which 94 Group 1 banks and 57 Group 2 banks, which is an increase by seven Group 1 banks and nine Group 2 banks compared to the previous report.<sup>8</sup> Six additional banks each in Group 1 and Group 2 are from Germany.

Banks were asked to provide data at the consolidated level as of 31 December 2021. 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 2021 ("H2 2021") reporting dates, in order 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 28 are G-SIBs, and around 21 Group 2 banks. The G-SIBs in the time series analyses are among those banks

<sup>5</sup> See Basel Committee on Banking Supervision, *Instructions for Basel III monitoring*, January 2021, [www.bis.org/bcbs/qis/](http://www.bis.org/bcbs/qis/).

<sup>6</sup> Basel Committee on Banking Supervision, *Minimum capital requirements for market risk*, January 2019 (rev February 2019), [www.bis.org/bcbs/publ/d457.htm](http://www.bis.org/bcbs/publ/d457.htm).

<sup>7</sup> 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.

<sup>8</sup> 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 to the initial Basel III framework.

that have been classified as G-SIBs as of November 2021, irrespective of whether they have also been classified as G-SIBs previously.

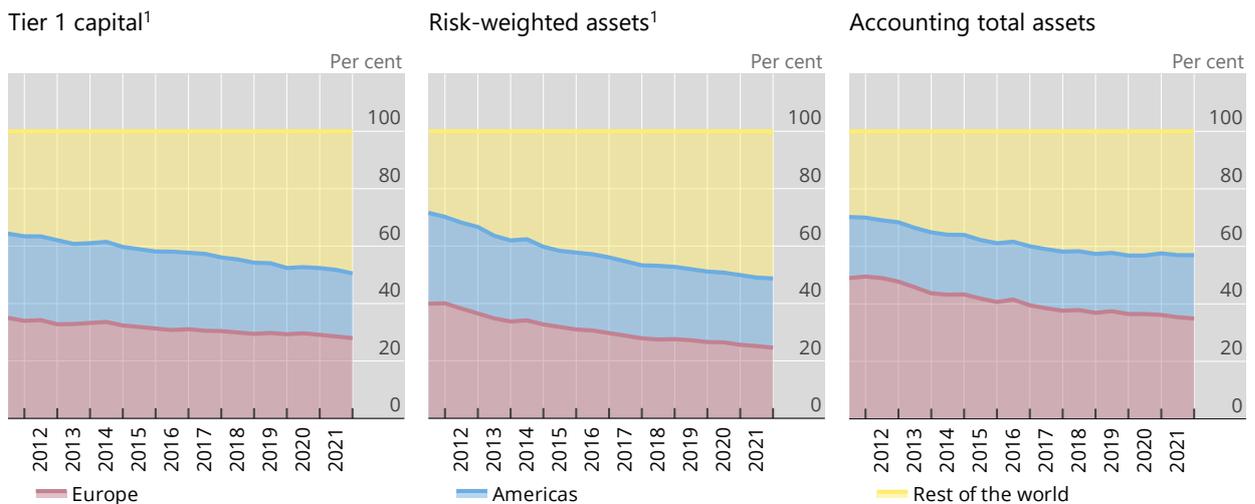
This report shows some of the results for three regional groupings – Europe, the Americas and the rest of the world. Table B.1 in the Statistical Annex provides detail on the composition of these country groupings. Table B.2 provides some additional sample statistics for the banks included in the exercise 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 6.8 percentage points to 22.5%, while the share in RWA decreased by 7.6 percentage points to 24.1%. The Americas’ share in accounting total assets increased slightly from 21.2% to 22.0%. The share of European banks decreased by 7.0 percentage points to 28.0% in terms of Tier 1 capital, by 15.3 percentage points to 24.6% in terms of RWA and by 14.1 percentage points to 34.9% in terms of accounting total assets. Conversely, the share of banks in the rest of the world increased by 13.9 percentage points to 49.5% in terms of Tier 1 capital, by 22.9 percentage points to 51.3% in terms of RWA and by 13.3 percentage points to 43.1% by accounting total assets.

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

Fully phased-in initial Basel III standards<sup>1</sup>, Group 1 banks, balanced data set, exchange rates as of the current reporting date

Graph 12



<sup>1</sup> 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

In order 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.

## 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 are 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 2021 reporting date may differ from the H1 2021 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 2021 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.

- Except for the results for the initial Basel III framework, the Basel III capital amounts shown in this report assume that all non-qualifying capital instruments are fully phased out (ie it is assumed that none of these capital instruments will be replaced by eligible instruments). As such, these amounts underestimate the amount of Tier 1 capital and Tier 2 capital held by a bank, as they do not give any recognition for non-qualifying instruments that will actually be phased out until 1 January 2022. The treatment of non-qualifying capital instruments also affects figures reported in the section on the Basel III leverage ratio.
- 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 the upcoming changes in accounting frameworks that may influence capital requirements and eligible capital.
- Three G-SIBs are outliers due to overly conservative assumptions under the revised market risk framework.<sup>9</sup> Therefore, the results for market risk since the end-2020 reporting date only reflect 20%<sup>10</sup> 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 a number of other banks, albeit to a significantly smaller extent. Please refer to the previous reports for the treatment at the end-June and end-December 2019 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 to 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.

<sup>9</sup> Specifically, the banks treated 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.

<sup>10</sup> 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<sup>1</sup>

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 <sup>2</sup>		
	Initial		Final	Initial		Final
	Current	Transitional	Fully phased-in	Current	Transitional	Fully phased-in
Group 1 banks						
CET1 capital	13.3	13.6	13.0	0.0	0.0	0.0
Tier 1 capital <sup>3</sup>	15.0	15.3	14.6	0.0	0.0	0.0
Total capital <sup>4</sup>	17.6	17.8	17.0	0.0	0.0	0.1
Sum				0.0	0.0	0.1
Of which: G-SIBs						
CET1 capital	13.1	13.4	12.9	0.0	0.0	0.0
Tier 1 capital <sup>3</sup>	14.9	15.2	14.6	0.0	0.0	0.0
Total capital <sup>4</sup>	17.5	17.7	17.1	0.0	0.0	0.1
Sum				0.0	0.0	0.1
Group 2 banks						
CET1 capital	17.2	15.0	14.5	0.0	0.4	0.4
Tier 1 capital <sup>3</sup>	18.5	16.1	15.5	0.0	0.4	0.4
Total capital <sup>4</sup>	20.8	18.0	17.4	0.0	0.5	0.5
Sum				0.0	1.2	1.2

<sup>1</sup> The target level includes the capital conservation buffer and the capital surcharges for 30 G-SIBs as applicable but does not include any countercyclical capital buffers. Samples for the initial and final Basel III frameworks are not consistent. <sup>2</sup> 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. <sup>3</sup> The shortfalls presented in the Tier 1 capital row are *additional* Tier 1 capital shortfalls. <sup>4</sup> 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	112	13.3	105	13.6	13.0
Of which: Europe	42	15.3	42	13.5	12.5
Of which: Americas	20	12.4	18	12.4	12.1
Of which: RW	50	12.9	45	14.2	13.7
Of which: G-SIBs	30	13.1	29	13.4	12.9
Group 2 banks	61	17.2	56	15.0	14.5

Source: Basel Committee on Banking Supervision.

## 2.1 Risk-based capital ratios

### 2.1.1 Initial Basel III standards

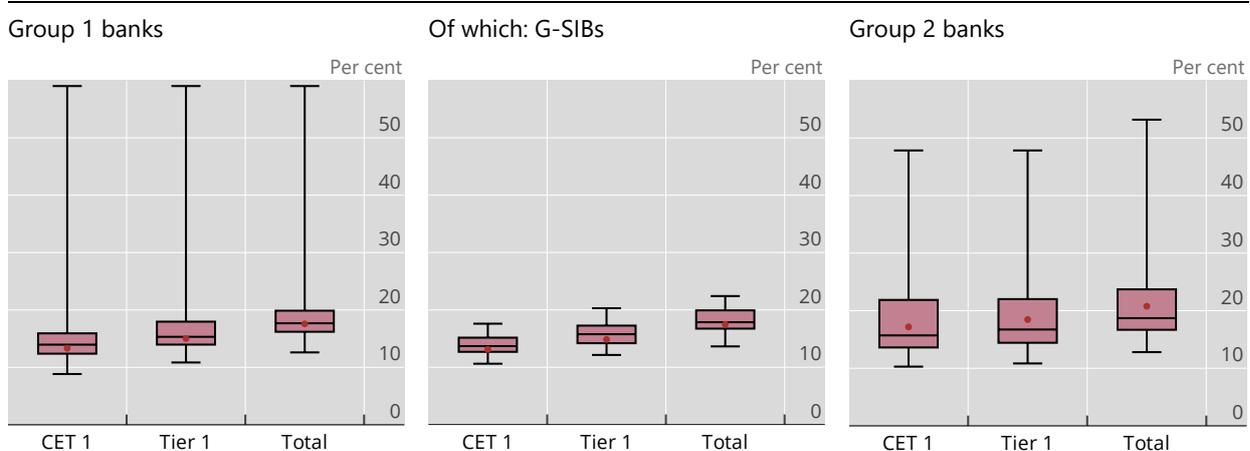
Regarding initial Basel III capital ratios, results continue to show quite significant dispersion across banks as shown in Graph 13, both for Group 1 and Group 2 banks.

For example, for Group 1 banks, the lowest initial Basel III CET1 capital ratio amounts to 8.8% whereas the highest ratio is reported at 59.0%. Group 2 banks continue to show high dispersion, as well, CET1 capital ratios range between 10.3% and 47.8%. Contrary, the dispersion for G-SIBs is remarkably lower: Initial Basel III CET1 capital ratios range between 10.6% and 17.6%.

Apart from that, more than 98% of the Group 1 banks show an initial Basel III CET1 capital ratio above 10%. For Group 2 banks, all participants presented an initial Basel III CET1 capital ratio above 10%.

Initial Basel III CET1, Tier 1 and total capital ratios<sup>1</sup>

Graph 13



<sup>1</sup> See Section 1.3.3 for details on box plots.

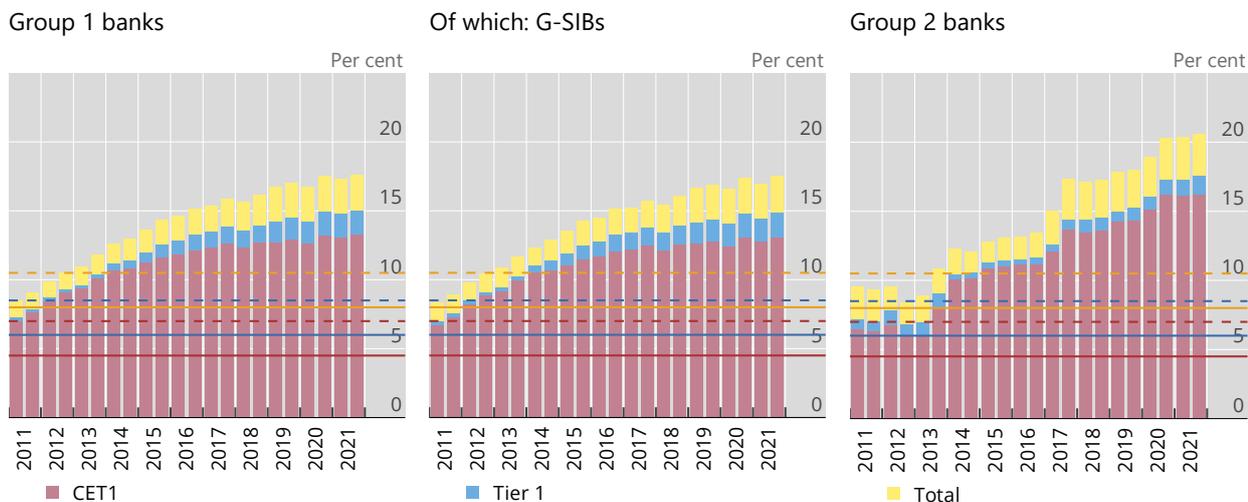
Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size. Worksheet "Graph 13a" provides related information for the fully phased-in initial Basel III capital ratios.

After Group 1 banks showed a slight decrease in total capital ratios in H1 2021 from 17.5% to 17.3% (13.3% to 13.1% for the CET1 ratio), H2 2021 marks a slight increase to 17.7% (13.3% for the CET1 ratio). The development for G-SIBs was similar. Meanwhile, Group 2 banks continuously showed a steady increase in the total capital ratio from 20.3% at end-December 2020 to 20.4% at end-June 2021 and 20.6% at end-December 2021; the CET1 ratio did not increase from end-December 2020 to end-December 2021.

## Initial Basel III CET1, Tier 1 and total capital ratios<sup>1</sup>

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.

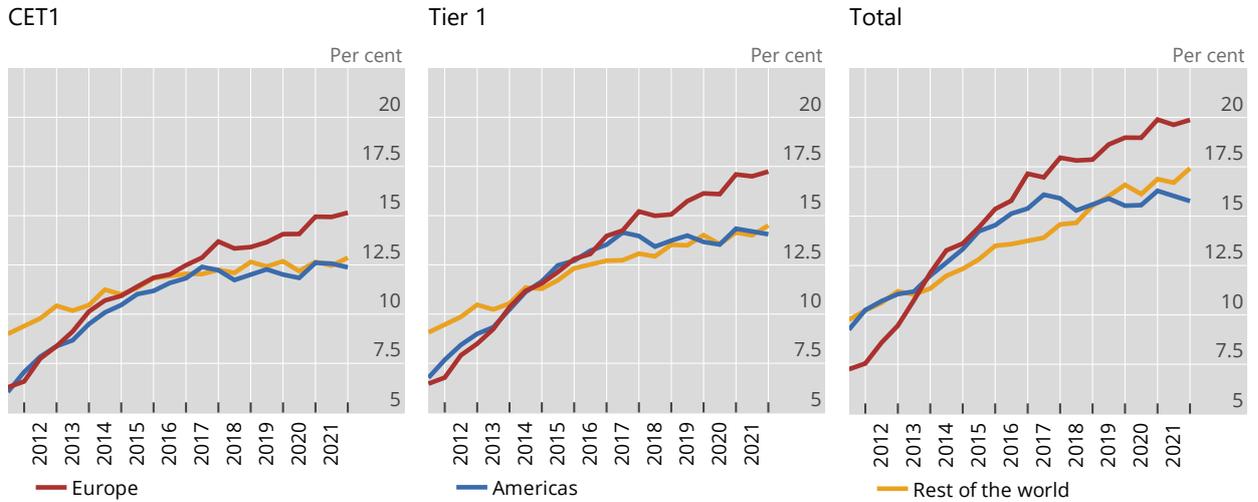
In 2011, initial Tier 1 capital ratios were more than two percentage points lower in the Americas and in Europe than in the rest of the world region (Graph 15). However, for European banks and banks in the Americas the capital ratios rose remarkably stronger than in the rest of the world. Consequently, 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 2021, capital ratios continued to rise in Europe and the rest of the world while the Americas observed another decrease of around 20 basis points.

## Initial Basel III CET1, Tier 1 and total capital ratios,<sup>1</sup> by region

Group 1 banks, balanced data set

Graph 15



<sup>1</sup> 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.

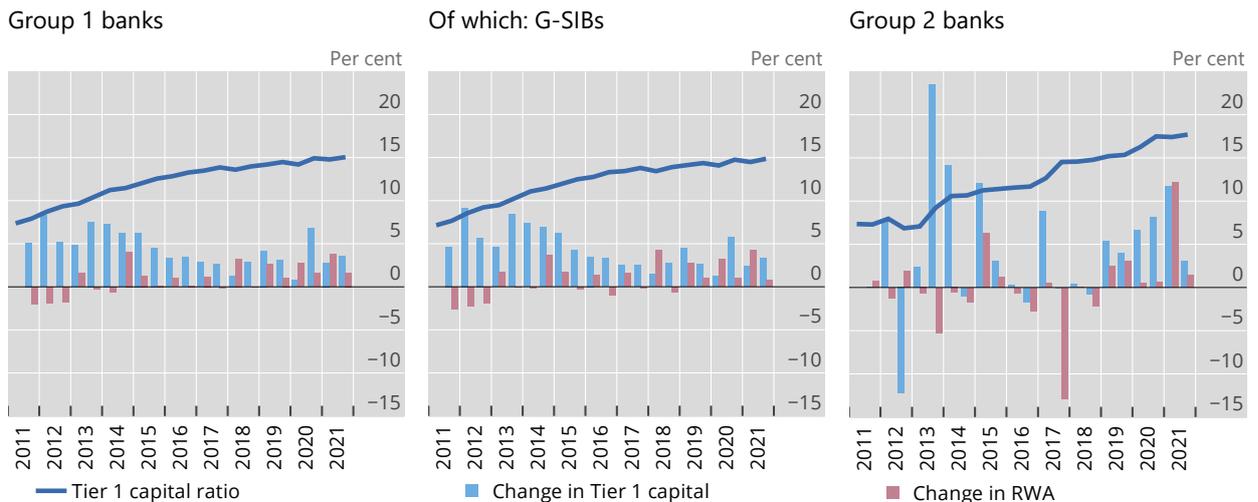
Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size. Worksheet "Graph 15a" provides the same breakdown for G-SIBs.

The slight increase in the average Tier 1 ratio in H2 2021 mainly comes from the lower growth rate in the RWA on the denominator (H1 2021): +1.7% (+3.8%) for Group 1 banks, +0.8% (+4.3%) for G-SIBs and +1.4% (+12.2%) for Group 2 banks. The growth rate of the Tier 1 amount in the numerator also increased for Group 1 bank and G-SIBs with 3.5% (2.8%) and 3.3% (2.4%) while the growth for Group 2 banks was significantly smaller than last period with 3.1% (11.8%).

## Initial Basel III Tier 1 capital ratios and changes in RWA and Tier 1 capital<sup>1</sup>

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

Graph 16



<sup>1</sup> 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.

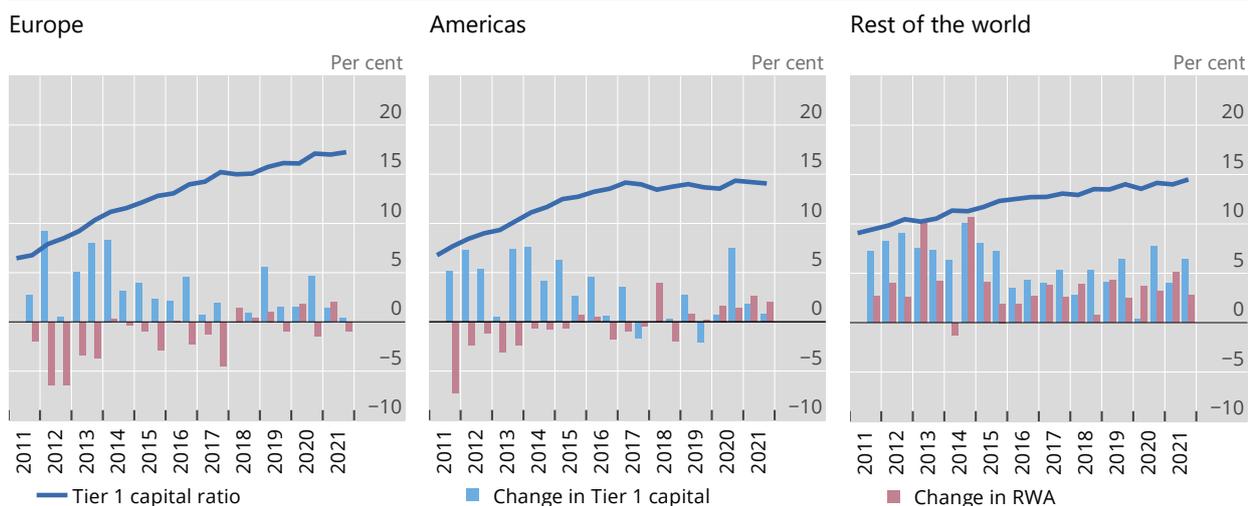
Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

After a decrease in all regions in H1 2021, the Tier 1 ratio increased again for Europe (+0.2 percentage points) and the rest of the world (+0.5 percentage points), whilst it decreased by 0.1 percentage points for the Americas. While the change in the Tier 1 ratio in Europe and the Americas is mainly explained by RWA developments, the rest of the world reported a significant increase in Tier 1 capital.

## Initial Basel III Tier 1 capital ratios and changes in RWA and Tier 1 capital,<sup>1</sup> by region

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

Graph 17



<sup>1</sup> 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.

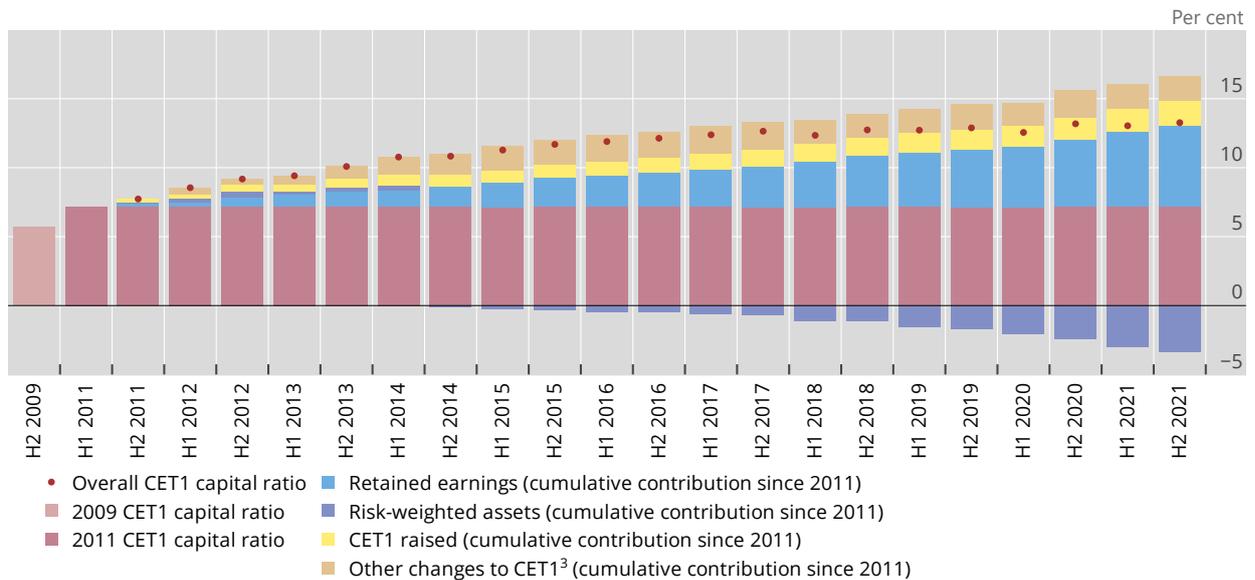
Graph 18 and Graph 19 below show the evolution of initial Basel III CET1 capital ratios and their drivers. Starting with the June 2011 CET1 capital ratio, the cumulative effect on the ratio of CET1 capital raised, retained earnings and other increases in CET1 capital (such as any reduction in regulatory 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. 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 rises as well.

## Evolution of initial Basel III CET1 capital ratios and their drivers<sup>1</sup>

Group 1 banks, balanced data set<sup>2</sup>

Graph 18



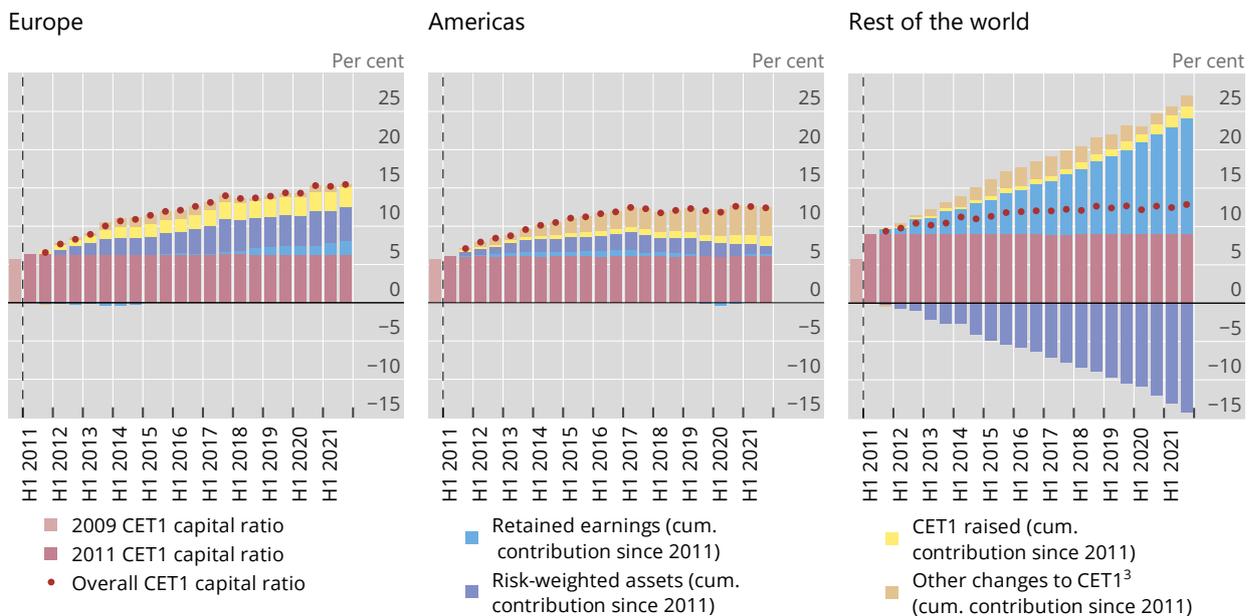
<sup>1</sup> The graph shows the fully phased-in initial Basel III framework for the data points up to and including the end of 2018 and the actual framework in place at the reporting date for all data points thereafter. <sup>2</sup> Except the ratio for H2 2009, which is based on the different sample of the Committee's comprehensive Quantitative Impact Study and therefore not fully comparable. <sup>3</sup> 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,<sup>1</sup> by region

Group 1 banks, balanced data set<sup>2</sup>

Graph 19



<sup>1</sup> 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. <sup>2</sup> 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. <sup>3</sup> 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

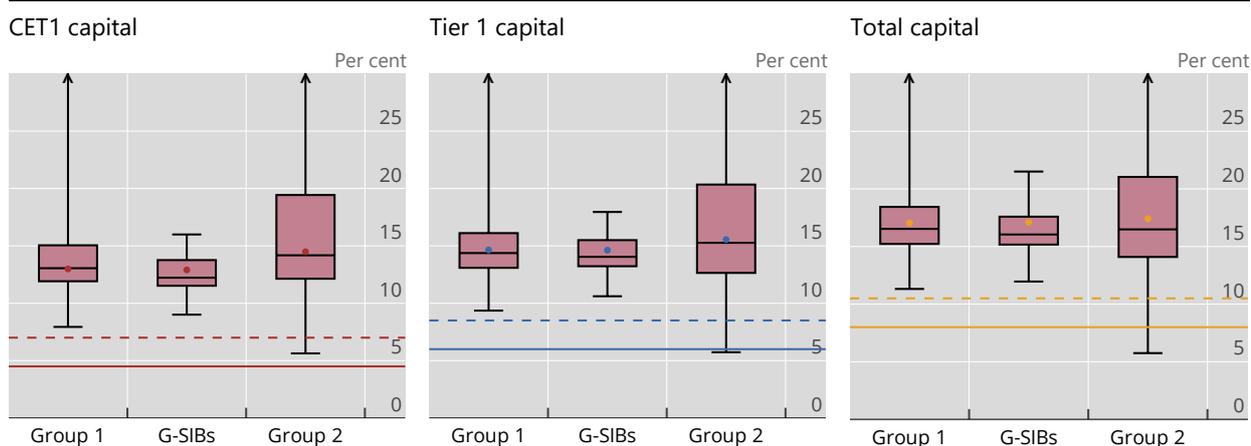
On average, the initial Basel III CET1 capital ratio of Group 1 banks (Graph 13) compared to the fully phased-in final Basel III CET1 capital ratio (Graph 20) would decline by about 30 basis points from 13.3% to 13.0%. The difference for G-SIBs is similar, with the CET1 ratio dropping by 20 basis points from 13.1% to 12.9%. Apart from that, Group 2 banks show a larger CET1 capital ratio decline by 270 basis points from 17.2% to 14.5%.

Similar to CET1 capital ratios, Tier 1 and total capital ratios would also decline for both groups. The Tier 1 capital ratios of Group 1 and Group 2 banks decrease, respectively, by 40 and 300 basis points. Total capital ratios show a 60 basis points decline for Group 1 banks and a more pronounced decline of 340 basis points for Group 2 banks.

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 half of Group 1 banks report a CET1 ratio higher than 13% and roughly 91% have a CET1 ratio amounting to more than 10%. For Group 2 banks, all banks meet the minimum fully phased-in capital requirement of 4.5% under the final Basel III framework. The vast majority (95%) of Group 2 banks has a CET1 capital ratio that is higher than 10%. Furthermore, more than half (61%) have a capital ratio over 13%. Nevertheless, one Group 2 bank does not meet the minimum Tier 1 and total capital ratio.<sup>11</sup>

Fully phased-in CET1, Tier 1 and total capital ratios under the final Basel III standards<sup>1</sup>

Graph 20



<sup>1</sup> 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 +2.4%. The average Tier 1 MRC change for G-SIBs is slightly lower (+2.2%). Compared to that, Group 2 banks show the biggest change in Tier 1 MRC with +5.7% (see Graph 21). In contrast to the results of the cumulative Quantitative Impact Study (CQIS),<sup>12</sup> these numbers include the impact of the

<sup>11</sup> Worksheet "Graph 20a" in the Excel data file provides additional information.

<sup>12</sup> 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.

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

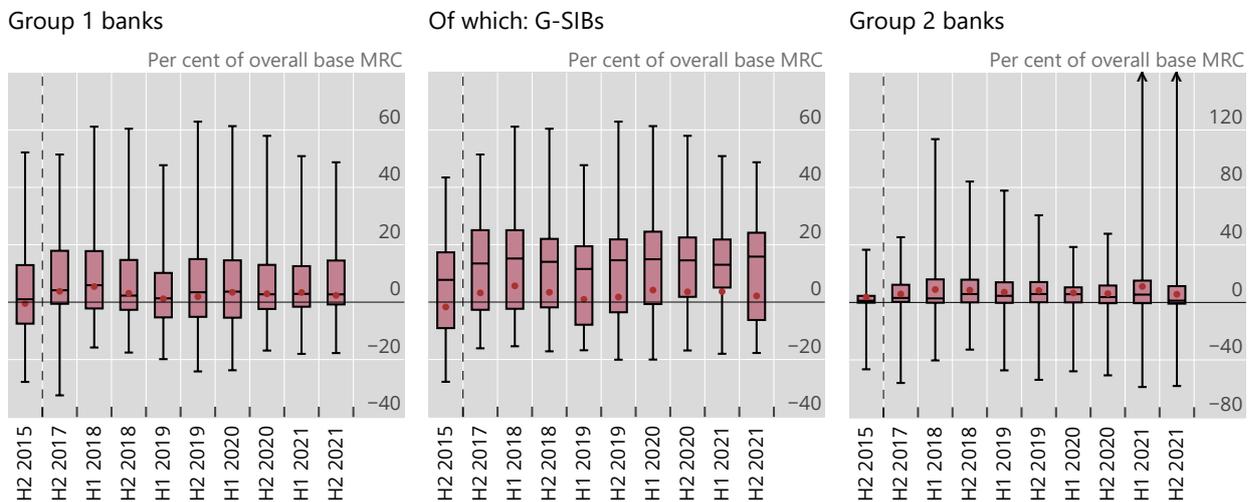
In more detail, Graph 21 depicts the dispersion of the MRC changes across Group 1 banks, G-SIBs and Group 2 banks in the sample. The change in MRC (including market risk and CVA) for the current period ranges between -0.9% and 14.6% for half of the Group 1 banks with a median of 2.7%. The distribution for G-SIBs is shifted towards a higher impact on MRC with a median of 15.8% and a wider interval from -6.3% and 24.2%. Meanwhile, the median Group 2 bank reports a 1.2% increase with 50% of the banks in an interval from -0.9% to 11.4%.

In comparison to the end-2020 reporting date, the average impact of the final Basel III framework on MRC decreased for Group 1 and Group 2 banks by about a half percentage point year on year. G-SIBs show a decrease of the impact since H1 2021 from 3.6% to 2.2% on average. For Group 2 banks, the noticeable spike in dispersion at end-2021 reflects a change in individual data reporting.<sup>13</sup>

### Total change in Tier 1 MRC at the target level<sup>1,2</sup>

Unbalanced data set

Graph 21



<sup>1</sup> See Section 1.3.3 for details on box plots. <sup>2</sup> 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. Since the Committee did not collect the relevant data through its Basel 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 to 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).

<sup>13</sup> The surge in the upper bound is mostly due to the capital requirements reporting of one Group 2 bank that, for the first occurrence, correctly reflects 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 delta MRC taking into account the interactions between leverage ratio and risk-based requirements, the changes in leverage ratio requirements are no longer compensating the increase in risk-based delta 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,<sup>14</sup> including the effect from migration of approaches<sup>15</sup> and changes to the securitisation framework.
- *CVA* shows the change in Tier 1 MRC due to the revisions to the CVA framework.<sup>16</sup>
- *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 94 Group 1 banks, the Tier 1 MRC would increase by 2.5%, applying a fully phased-in definition of the final Basel III standards. This increase is composed of a 2.2% rise in the risk-based components combined, driven by the positive contributions of the output floor (+2.0%), market risk (+2.1%), CVA (+0.6%), as well as a reduction in credit risk (-2.5%). The rise of the combined risk-based components is accompanied by a positive effect of the leverage ratio Tier 1 MRC (+0.3%).

The impact on MRC is very heterogeneous across regions for Group 1 banks. European banks show the biggest increase in MRC (+17.5%), mostly driven by the output floor (+8.2%). Nearly all other risk-based components also contribute to the increase: operational risk (+4.1), credit risk (+3.1%), market risk (+2.9%) and CVA (+2.2%). Other Pillar 1 requirements as well as the leverage ratio slightly offset this development (-0.3% and -2.8%, respectively). In comparison, banks in the Americas report a moderate increase of MRC amounting to 3.9%. Both, risk-based and leverage ratio requirements contribute to this development (+2.0% and +1.9%, respectively). The individual risk-based components counteract: The negative effects of the output floor (-3.1%) and operational risk (-1.4%) are more than compensated by the positive effects of market risk (+4.4%), credit risk (+2.0%), CVA (+0.2%) and other Pillar 1 requirements

<sup>14</sup> 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. As a consequence 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.

<sup>15</sup> Migration of approaches refers to the application of a different approach for determining risk weights than the one currently used, as a consequence of the revisions which remove certain modelling approaches for selected (sub-)asset classes.

<sup>16</sup> Targeted revisions to the revised CVA framework were published in July 2020 and, therefore, are not yet considered in the Basel III monitoring exercise as of end-December 2019. They will be reflected in the exercise on the end-2020 reporting date. See Basel Committee on Banking Supervision, *Targeted revisions to the credit valuation adjustment risk framework, July 2020*, [www.bis.org/bcbs/publ/d507.htm](http://www.bis.org/bcbs/publ/d507.htm).

(+0.1%). Contrary to the observations in the Americas and Europe, banks in the rest of the world report a decrease of MRC (-6.9%), the main driver of this decrease being credit risk (-8.2%). Negative effects are also observed for operational risk (-1.5%) and CVA (-0.1%), whereas the output floor and market risk contribute positively (+1.5% and +0.3%, respectively). Consequently for this region, risk-based requirements overall decrease MRC, which is being partly compensated by a positive contribution of leverage ratio requirements (+1.1%). G-SIBs (29 banks) show an overall increase of 2.2% decomposed between 0.4% and 1.7% increases on risk-based and LR measures, respectively. Risk-based increase is mostly driven by market risk<sup>17</sup> (2.3%) and output floor (1.0%) compensated by credit risk (-3.1%) and operational risk (-0.5%).

For Group 2 banks, the overall 5.7% increase in Tier 1 MRC is driven by an increase in the risk-based measure of 14.6%, mainly stemming from credit risk (+6.8%). The output floor (+4.5%), operational risk (+2.1%), CVA (+1.0%) and market risk (+0.2%) further contribute to the increase, while other Pillar 1 requirements show a slightly negative impact (-0.1%). This large risk-based increase is widely offset by leverage ratio requirements (-9.0%).

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 <sup>1</sup>	CVA	Market risk	Op risk <sup>2</sup>	Output floor <sup>3</sup>	Other Pillar 1	
Group 1 banks	94	2.4	2.1	-2.6	0.6	2.0	0.0	2.0	0.0	0.3
Of which: Europe	41	17.5	20.3	3.1	2.2	2.9	4.1	8.2	-0.3	-2.8
Of which: AM	18	3.9	2.0	2.0	0.2	4.4	-1.4	-3.1	0.1	1.9
Of which: RW	35	-6.9	-8.0	-8.2	-0.1	0.3	-1.5	1.5	0.0	1.1
Of which: G-SIBs	29	2.2	0.4	-3.1	0.6	2.3	-0.5	1.0	0.0	1.7
Group 2 banks	57	5.7	14.6	6.8	1.0	0.2	2.1	4.5	-0.1	-9.0

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

Source: Basel Committee on Banking Supervision.

<sup>17</sup> Taking into account the retreatment of overly conservative treatment of investment in funds for equity risk for three GSIBs.

Box B

### Aggregation of changes in risk-based and leverage ratio MRC

Example 1 shows an illustrative bank that is currently constrained<sup>①</sup> 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  $\Delta RB$ . 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 ( $\Delta LR$ ) 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 ( $\Delta LR'$ ); and (ii) the replacement effect captured by the risk-based Tier 1 MRC ( $\Delta LR$ ), which may be positive or negative.

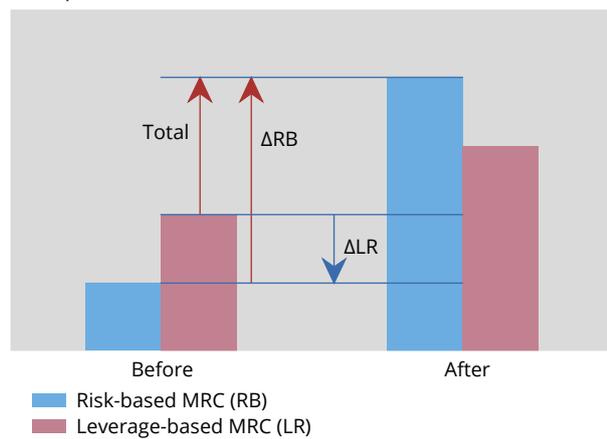
Note that even for banks that already adopted the final leverage ratio standards (ie  $\Delta LR'=0$ ) there may be a non-zero contribution of the leverage ratio Tier 1 MRC, which is in this case equal to the replacement effect ( $\Delta LR$ ).

<sup>①</sup> 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.

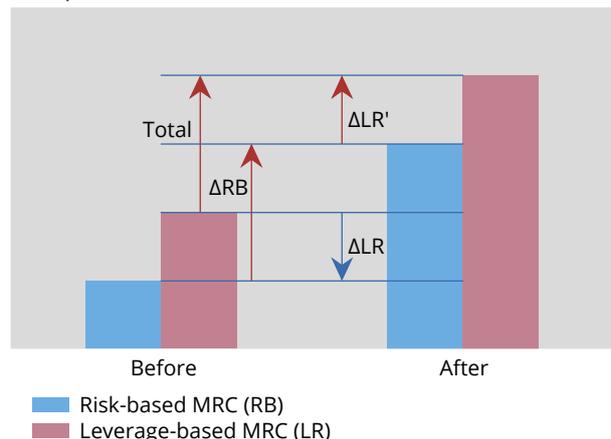
### Aggregation of changes in risk-based and leverage ratio MRC

Graph A

Example 1



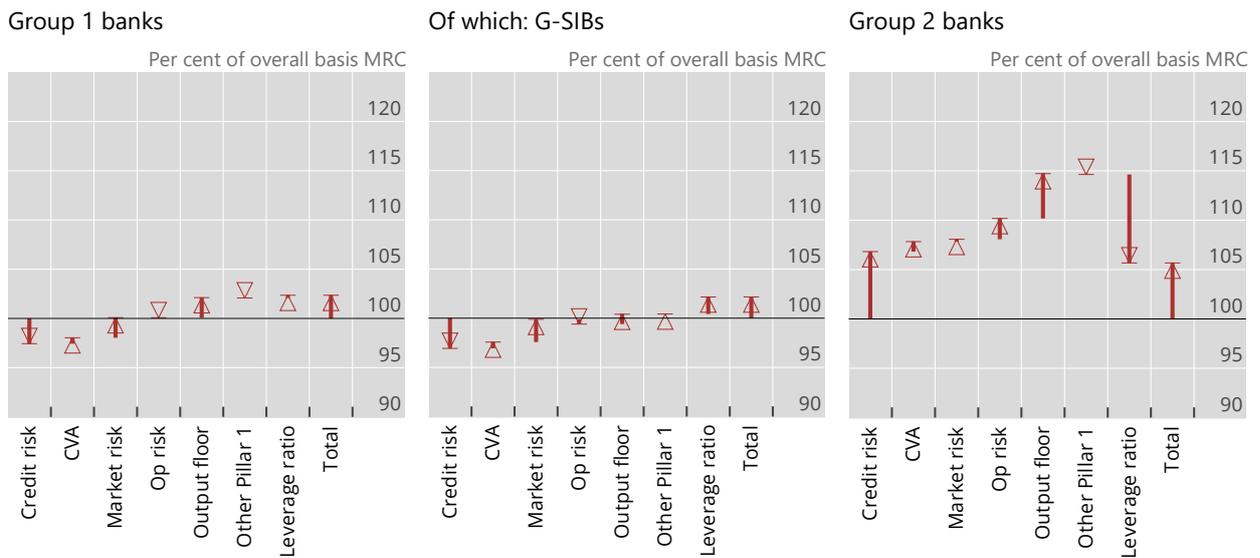
Example 2



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 arrows pointing upwards (downwards) highlight the positive (negative) contributions induced by the different parts of the final Basel III framework, except for the rightmost arrow 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



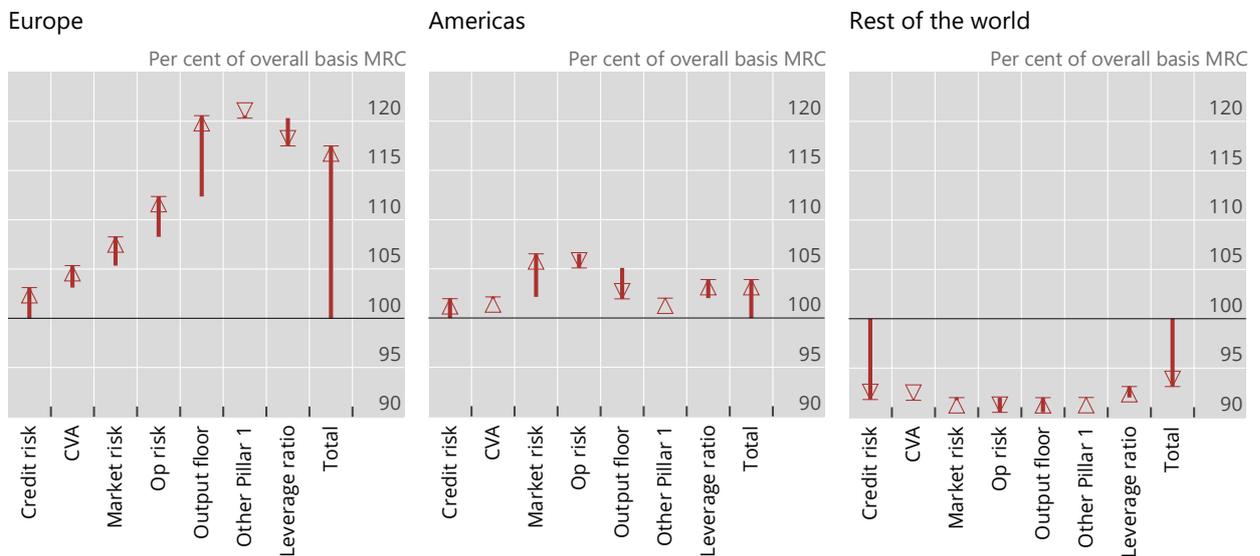
Credit risk includes securitisation. Operational risk figures may not show supervisor-imposed capital add-ons under Pillar 2. Therefore, increases in MRC may be overstated and reductions may be understated. Output floor results are net of the existing Basel I-based floor according to national implementation 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,<sup>①</sup> 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.

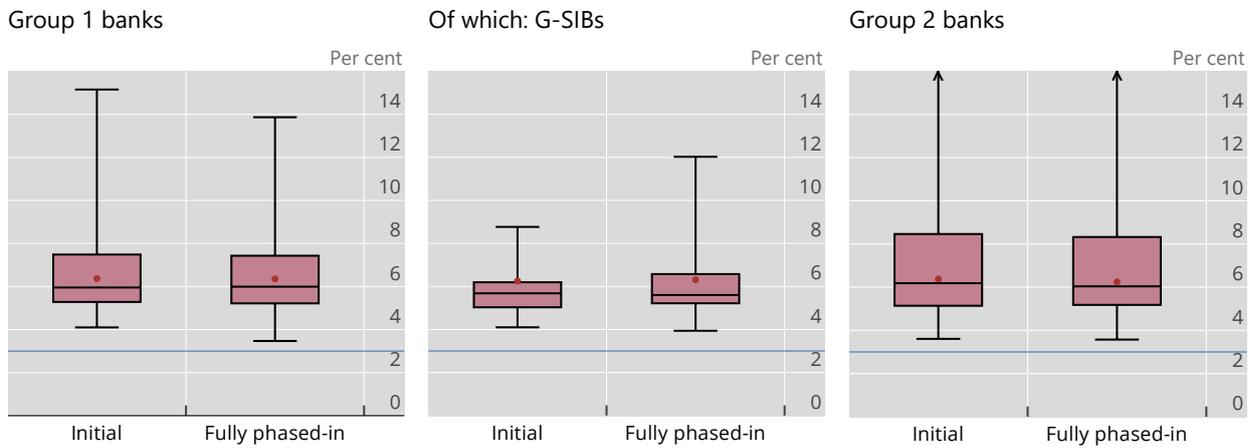
<sup>①</sup> Basel Committee on Banking Supervision, *Basel III leverage ratio framework and disclosure requirements*, January 2014, [www.bis.org/publ/bcbs270.htm](http://www.bis.org/publ/bcbs270.htm). The Committee agreed revisions to the leverage ratio framework in December 2017, see Basel Committee on Banking Supervision, *Basel III: Finalising post-crisis reforms*, December 2017, [www.bis.org/bcbs/publ/d424.htm](http://www.bis.org/bcbs/publ/d424.htm). Please note that this report does not take into account 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 6.4% for Group 1 banks and 6.3% for G-SIBs, while it equals 6.4% for Group 2 banks. The weighted average of the fully phased-in final Basel III leverage ratios is 6.4% for Group 1 banks, 6.3% for G-SIBs and 6.2% for Group 2 banks. When comparing across groups, Group 2 banks show a slightly larger interquartile dispersion compared to Group 1 banks, whereas G-SIBs' leverage ratios are more concentrated.

The median fully phased-in final Basel III leverage ratio is 6.0% for Group 1 banks, 5.6% for G-SIBs and 6.2% 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.

Initial and fully phased-in final Basel III Tier 1 leverage ratios<sup>1</sup>

Graph 24



<sup>1</sup> 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 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 2021. For Group 1 banks, the leverage ratio increased compared to end-June 2021. This is driven by a comparatively larger growth in Tier 1 capital relative to the leverage ratio exposure measure for Group 1 banks. The leverage ratio for Group 2 banks shows a marked increase, mostly driven by the large decrease in the leverage ratio exposure measure for these banks.

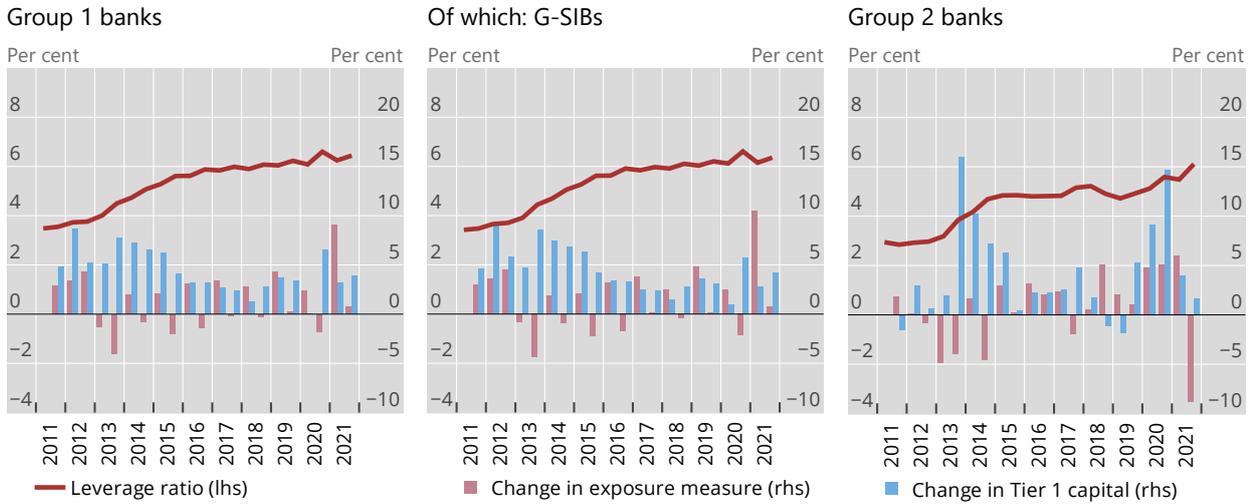
Graph 26 shows the same information as Graph 25, but for a balanced data set of Group 1 banks, grouped by region. Overall, the leverage ratio has been growing over the past nine years for all regions, with a visible uptick in Europe and the rest of the world over 2020. In the last period, the average leverage ratio in the Americas has decreased further and is at its lowest level since end-June 2015, after the large decrease in the previous period, due to the expiration of Covid-19-related temporary exclusions<sup>18</sup> from the leverage ratio exposure measure in the United States. Notwithstanding this reduction, leverage ratios continue to be lower in Europe (5.4%) compared to the Americas (5.9%) and the rest of the world (7.6%).

<sup>18</sup> A special feature in the September 2021 report focused on the impact of these exclusions. See Basel Committee on Banking Supervision, *Basel III monitoring report*, September 2021, [www.bis.org/bcbs/publ/d524.htm](http://www.bis.org/bcbs/publ/d524.htm).

## Fully phased-in final Basel III Tier 1 leverage ratios and component changes<sup>1</sup>

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

Graph 25



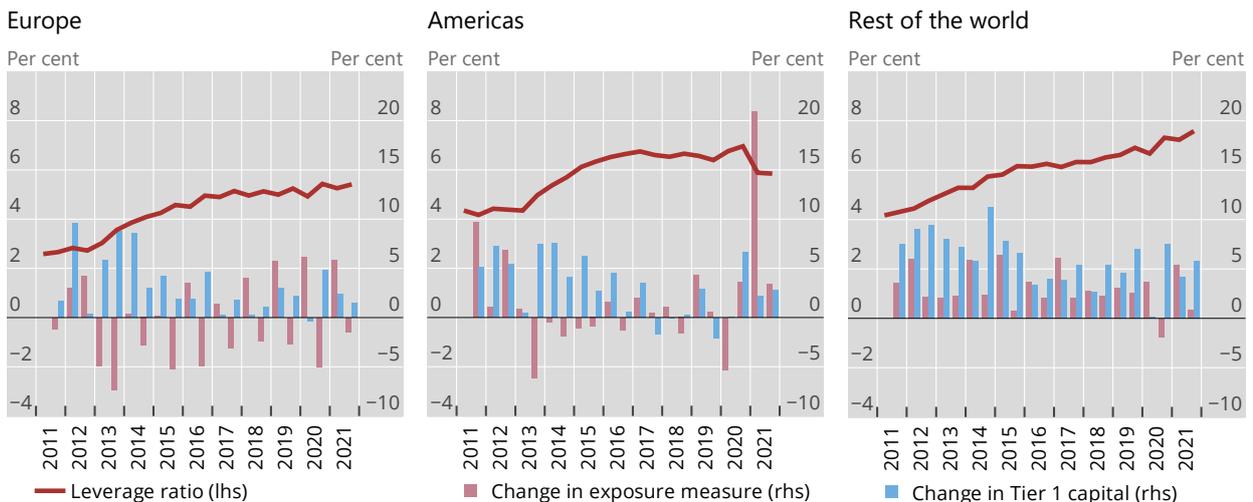
<sup>1</sup> Data points from H1 2011 to H2 2012 use the original definition of the leverage ratio. Data points from H1 2013 to H1 2017 use the definition of the leverage ratio set out in the 2014 version of the framework. Note that the data points for H1 2013 use an approximation for the initial definition 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,<sup>1</sup> by region

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

Graph 26



<sup>1</sup> 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.

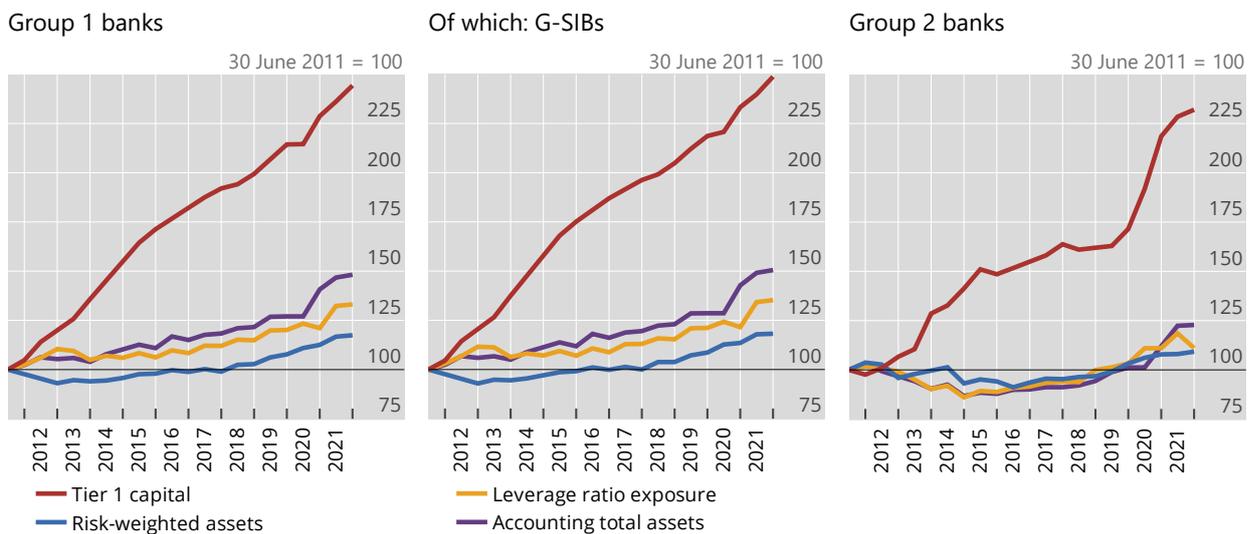
Graph 27 shows the evolution of the components of the risk-based capital and leverage ratios over time for a balanced data set, ie banks that have consistently provided the data since June 2011. The four components are Basel III Tier 1 capital, RWA and the leverage ratio exposure measure, all assuming 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 half of the entire observed period, but have steadily increased in the second half, with leverage exposure showing a decrease over the last period and the rest of the components slightly increasing. 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<sup>1</sup>

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

Graph 27



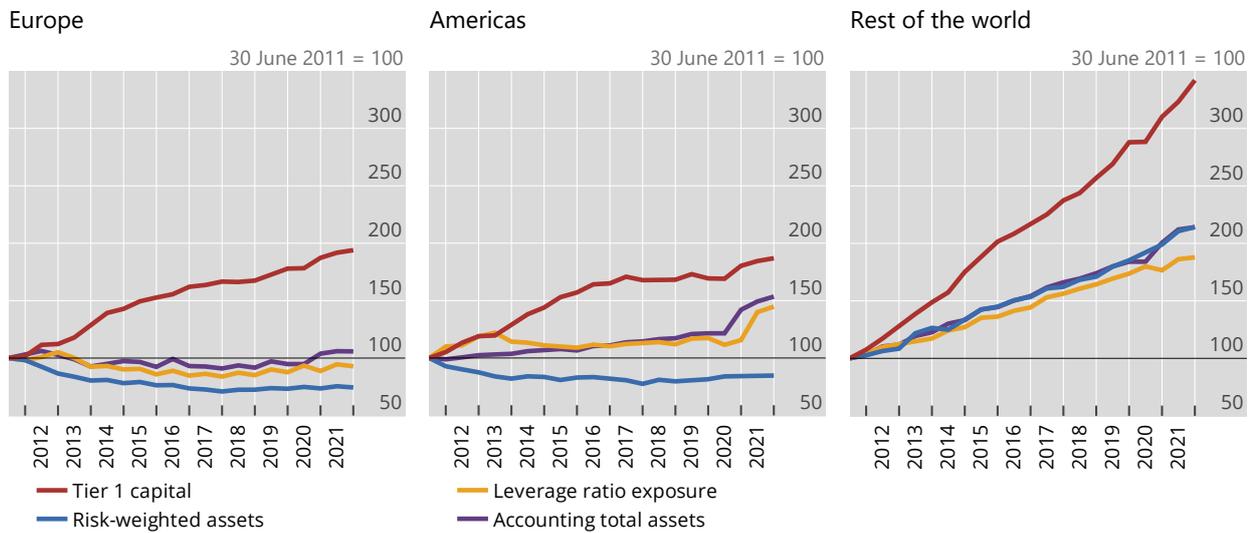
<sup>1</sup> Tier 1 capital, RWA and leverage ratio exposure assume full implementation of Basel III. Data points from H1 2010 to H2 2012 use the original definition of the leverage ratio. Data points from H1 2013 to H1 2017 use the definition of the leverage ratio set out in the 2014 version of the 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,<sup>1</sup> by region

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

Graph 28



<sup>1</sup> See footnote 1 to Graph 27.

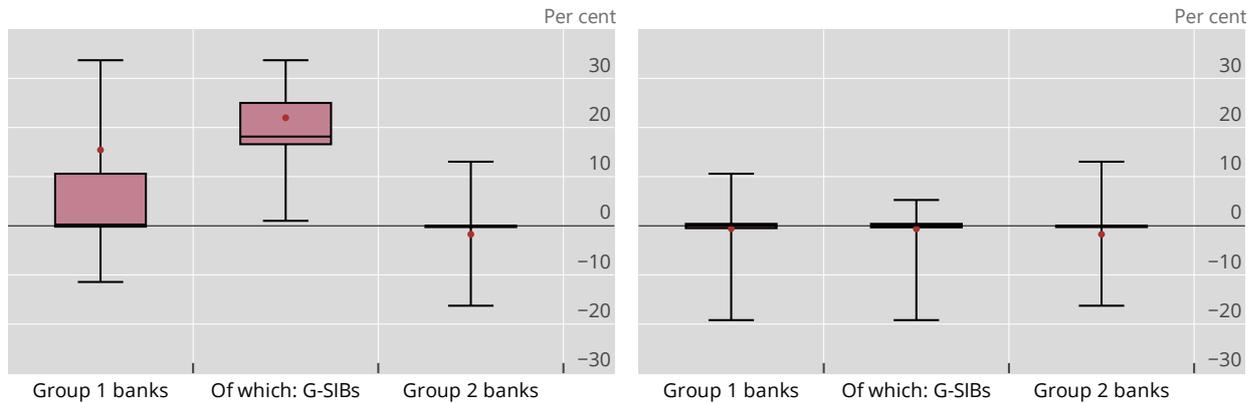
Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

### 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, in particular Group 2 banks, have already adopted the final standards. For these banks, the change in MRC shown below is zero.

Overall change in MRC at the target level<sup>2</sup>

Resulting from changes to the exposure measure only



<sup>1</sup> 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. <sup>2</sup> 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.<sup>19</sup> 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 amounting to €0.1 billion. Thus observing a significant decrease compared to the previous reporting date. Since CET1 as well as Tier 1 capital shortfalls remained zero, this development can solely be explained by the decrease in Tier 2 capital shortfall from €2.3 billion to €0.1 billion. Even though the sample size of Group 1 banks has changed, these developments do not result from sample changes. Instead, distribution constraints during the Covid-19 period in several jurisdictions may have contributed to the decrease of the shortfall.

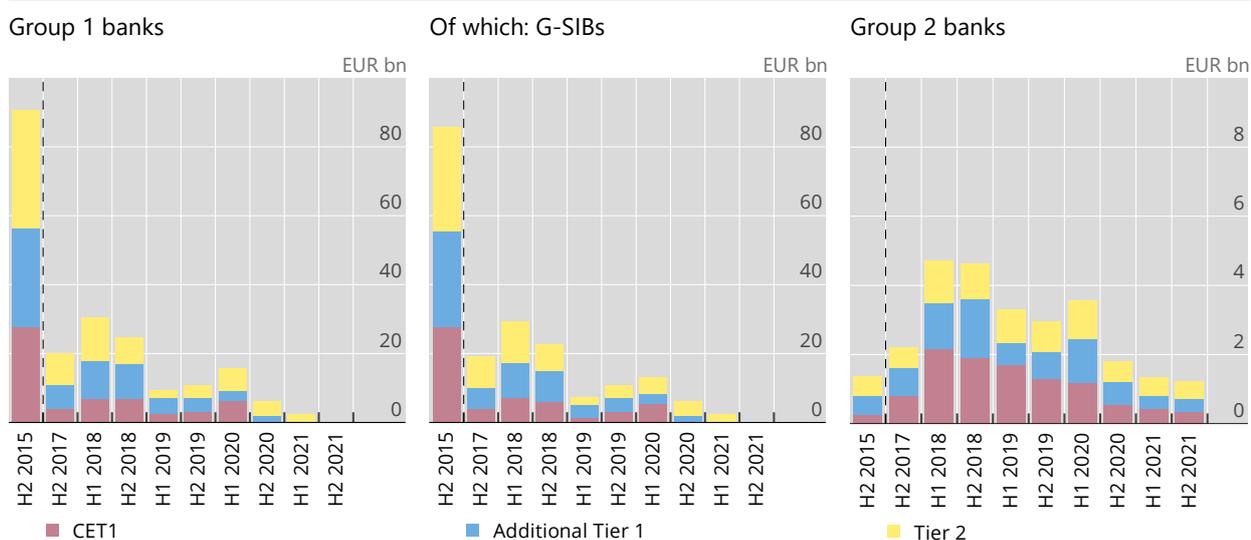
For Group 2 banks, the aggregate total capital shortfall is steadily decreasing since 2018 except for the H1 2020 period and records its lowest point since 2015 at €1.2 billion at end-2021. This was not driven by changes in the sample.

<sup>19</sup> 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](http://www.bis.org/bcbs/publ/d426.htm).

## Combined capital shortfalls at the target level

Fully phased-in final Basel III standards<sup>1</sup>, unbalanced data set, exchange rates as at the reporting dates

Graph 30



<sup>1</sup> 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 to 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

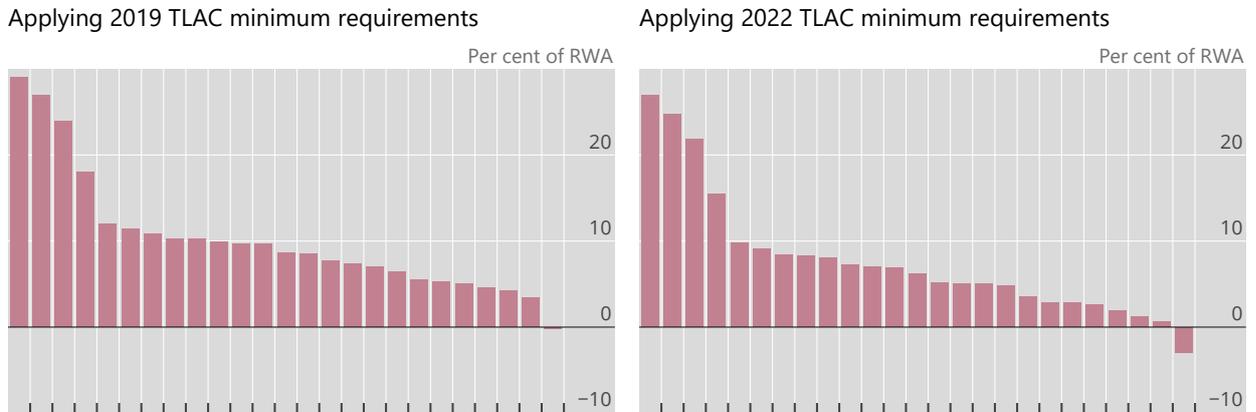
The Committee also collected data on additional total loss-absorbing capacity (TLAC) for G-SIBs, 25 of which participated in the exercise. Applying the 2019 minimum requirements, one G-SIB in the sample shows an incremental<sup>20</sup> TLAC shortfall which amounted to €0.4 billion and corresponds to 0.2% of its RWA. In the previous period, there was no shortfall. The shortfall of this bank increases to €7.5 billion against 2022 minimum requirements, less than a third of the €24.2 billion reported by three banks in the previous period.

<sup>20</sup> 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<sup>1</sup>

Fully phased-in initial Basel III standards, pure TLAC implementation<sup>2</sup>

Graph 31



<sup>1</sup> Surplus is indicated as positive and shortfall as negative. <sup>2</sup> i.e. following the FSB TLAC Term Sheet rather than national implementation.

Source: Basel Committee on Banking Supervision.

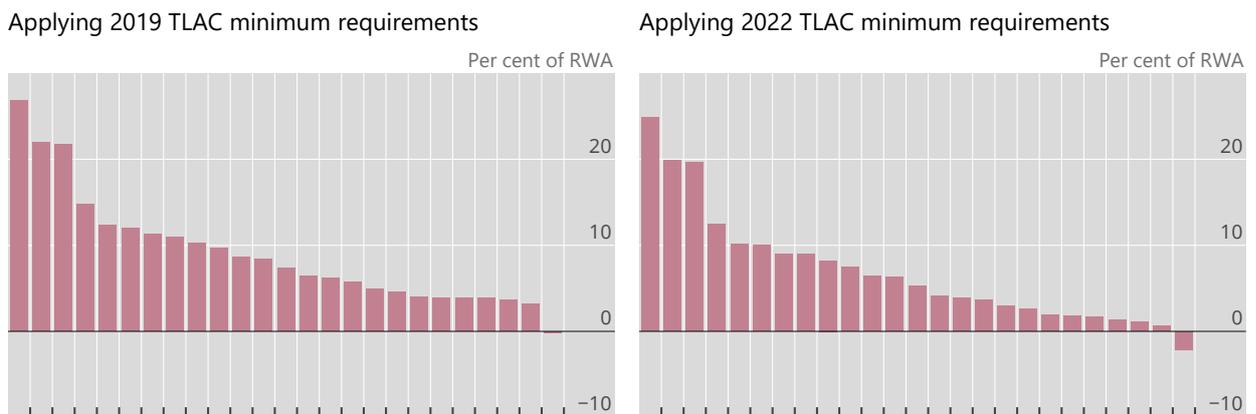
### 2.5.2 Final Basel III framework

The final Basel III reforms, based on end-December 2021 data, resulted in no significant increase in aggregate capital requirements for the respondent banks. With regard to TLAC, the reforms had a limited effect on the number of banks or size of shortfalls. One G-SIB shows a shortfall of 0.1% and 2.2% of RWA relative to the 2019 and 2022 TLAC requirements, respectively, combined with the final Basel III standards. The aggregate shortfalls are €0.4 billion and €7.5 billion, respectively.

## Distribution of individual G-SIBs' incremental TLAC surplus and shortfall across banks<sup>1</sup>

Fully phased-in final Basel III standards

Graph 32



<sup>1</sup> 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 2021 to end-December 2021, the level of CET1 capital for Group 1 banks increased by €147 billion (or 3.4%) to €4,427 billion. G-SIBs, which collectively held €3,053 billion as of end-June 2021, account for 63% of this increase. For Group 1 banks, the increase in Tier 2 capital amounts to €52 billion since June 2021, while an increase in additional Tier 1 capital of €31 billion is observed.

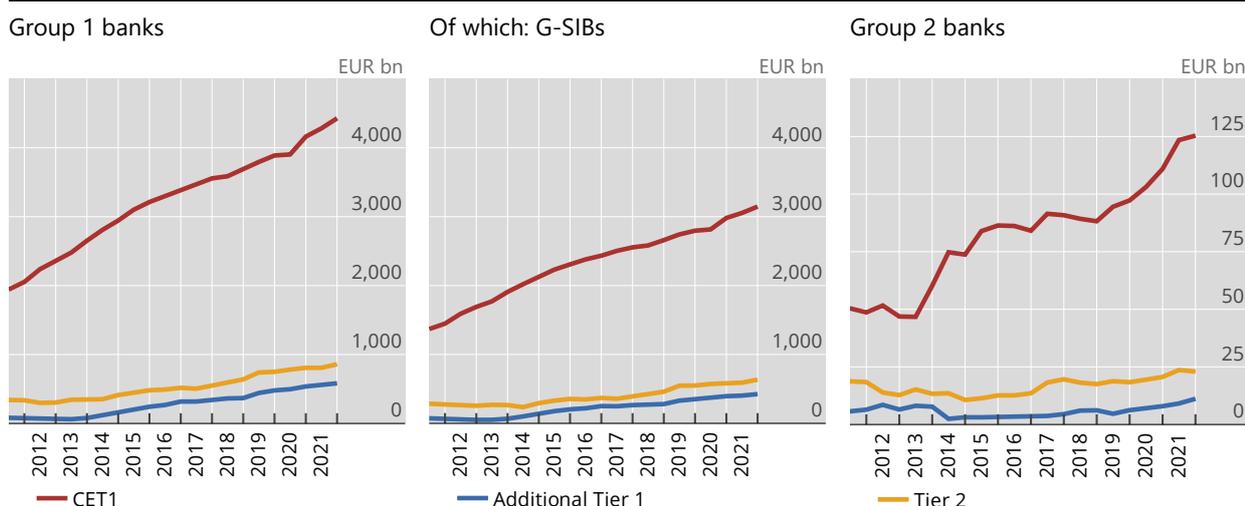
From end-June 2021 to end-December 2021, the level of Group 2 banks' CET1 capital increased by €2 billion (or 1.6%) to €125 billion. Additional Tier 1 capital increased by €2 billion while Tier 2 capital slightly decreased by €1 billion.

From end-June 2011 to end-December 2021, the level of Group 1 banks' CET1 capital has increased by 136% from €1,874 billion to €4,427 billion.

#### Level of capital<sup>1</sup>

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

Graph 33



<sup>1</sup> 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 2021, CET1 capital remained largely unchanged in Europe and the Americas while the rest of the world region reported increases by €139 billion. While CET1 capital in the rest of the world is now almost three times of its value in 2011, the increase in Europe and in the Americas was more limited at 78% and 86%, respectively.

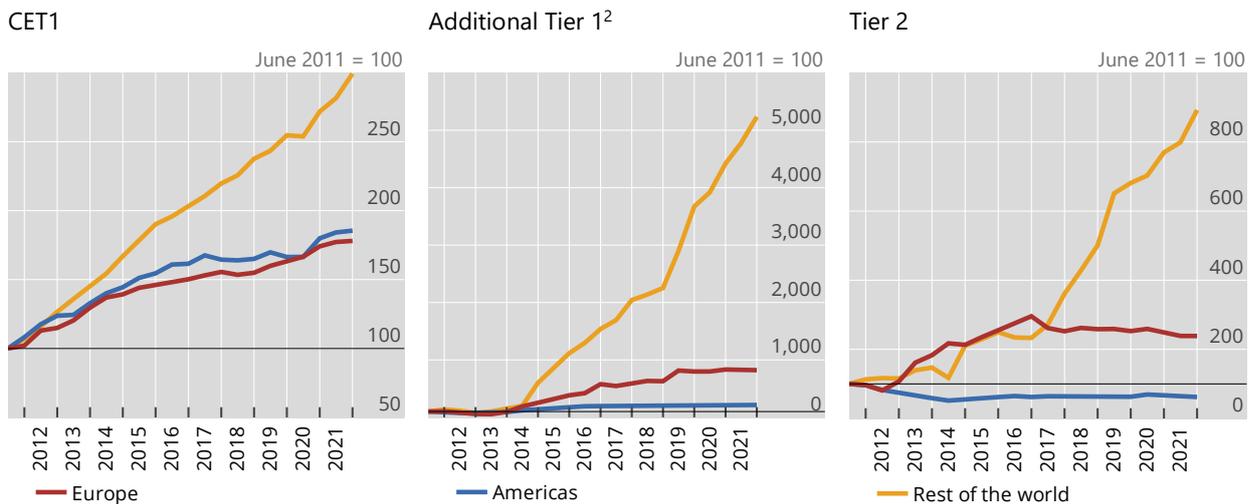
After some initial declines from 2011 through 2013 in Europe and the Americas and some mild increases in the rest of the world region, additional Tier 1 capital has grown significantly across all regions thereafter. Over H2 2021, additional Tier 1 capital increased by €5 billion in the Americas, while the rest of the world reported an increase of €26 billion, continuing the trend already observed in previous reporting periods. Even with this increase, the share of additional Tier 1 capital in the rest of the world is still lower at 5.5% of the total capital compared to Europe (9.9%) and the Americas (10.0%).

The stock of Tier 2 capital has grown compared to 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 2021, only the rest of the world region experienced an increase in the level of Tier 2 holdings (by €55 billion), while banks' Tier 2 capital slightly decreased in Europe and the Americas.

## Evolution of Basel III capital,<sup>1</sup> by region

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

Graph 34



<sup>1</sup> 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. <sup>2</sup> 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

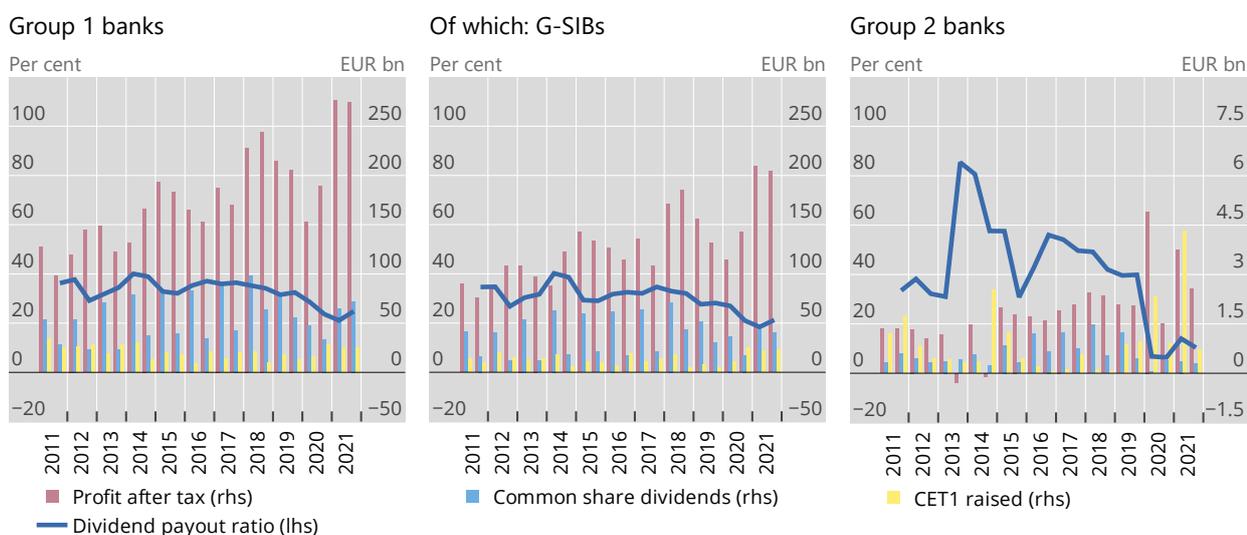
Graph 35 depicts the evolution of profits, dividends, CET1 capital raised and the dividend payout ratio over time. Overall, Group 1 banks' profits after tax remained on the same level as in end-June 2021 (€274 billion vs €276 billion) after a previous significant drop with the offset of the pandemic from €204 billion in end-December 2020 to €152 billion in end-June 2021. G-SIBs report profits after tax of €204 billion in H2 2021, after €209 billion, €142 billion and €114 billion respectively for the preceding three semesters. The annual dividend payout ratios for Group 1 banks and G-SIBs (calculated over the last two semesters to avoid seasonality issues) increased to 25% and 21%, respectively after reaching their lowest values since the beginning of the exercise in the end-June 2021 report with values of 21% and 19% respectively.

Group 2 banks posted €3 billion of profits after tax in H2 2021, after €4 billion, in H1 2021 and a decreasing annual dividend payout ratio of 10%, after 14% for H1 2021.

## 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. Half-yearly after tax profits for the Group 1 banks in the sample increased slightly in Europe (from €59 billion in H1 2021 to €64 billion in H2 2021), and in the rest of the world (from €127 billion to €134 billion), while the Americas show a significant decrease (from 91 billion to 76 billion). The annual dividend payout ratios for Europe increased from 20% in H1 2021 to 27% in H2 2021 and from 22% to 27% in the rest of the world whilst for the Americas it decreased from 21% to 19%.

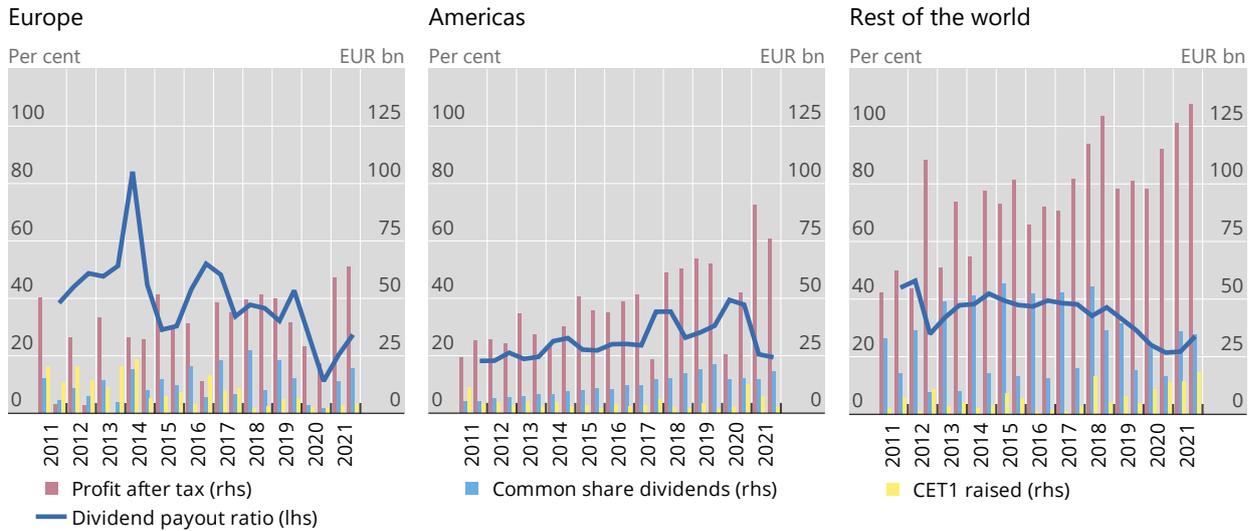
Over the last twelve months, 88 out of the 115 Group 1 banks in the sample raised capital. Regarding CET1 capital, the total amount raised equals €60.0 billion (see Table 5), including €36.7 billion raised by G-SIBs.

Group 1 banks raised more additional Tier 1 capital (€98.5 billion) and Tier 2 capital (€102.2 billion) than 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. Around 61% of the overall capital raised globally was raised by banks in the rest of the world region. Over the last twelve months, Group 2 banks focused on Tier 2 capital (40% of the total capital raised).

## 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.

## Capital raised during 2021

Full sample of banks, 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	114	89	60.0	99.4	102.2
Of which: Americas	21	19	6.9	27.6	11.7
Of which: Europe	41	31	9.5	20.2	27.3
Of which: Rest of the world	52	39	43.7	51.7	63.2
Of which: G-SIBs	30	28	36.7	63.5	64.0
Group 2 banks	58	19	1.2	2.9	3.7

Source: Basel Committee on Banking Supervision.

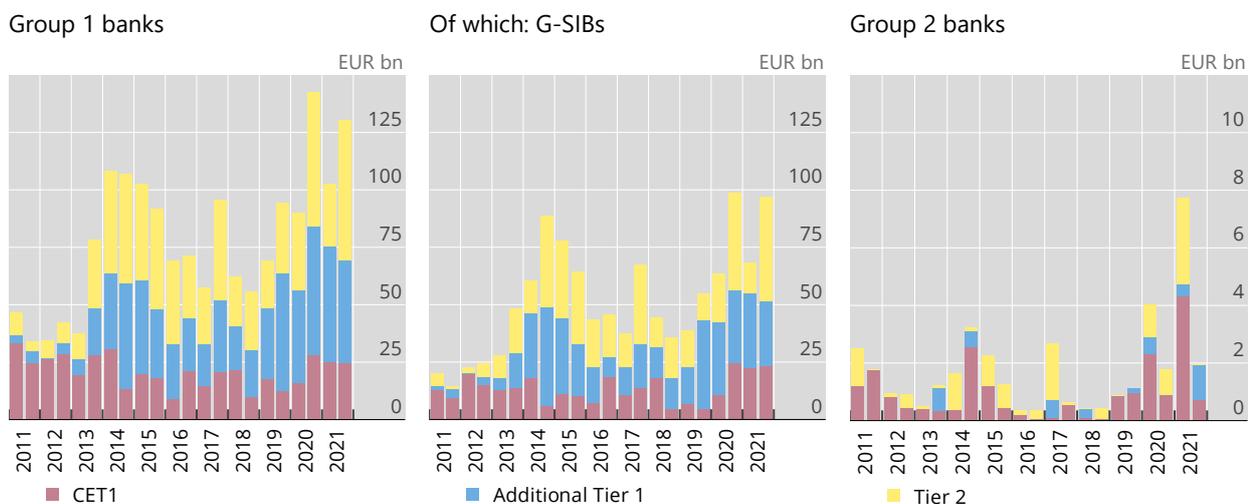
Graph 37 depicts the evolution of capital raised over time for a balanced data set. The capital raised in H2 2021 by Group 1 banks and G-SIBs increased to respectively €128 billion and €97 billion, after a significant decrease in H1 2021 and are near the highest levels of respectively €142 billion and €99 billion reached in H2 2020. Overall, since 2011, the capital raised by G-SIBs accounts for 66% of the capital raised by Group 1 banks. Moreover, G-SIBs account for 94%, 68% and 74% respectively of CET1 capital, additional Tier 1 capital and Tier 2 capital raised by Group 1 banks.

In H2 2021, European and American Group 1 banks raised similar amounts of capital compared to the previous semester. The decrease in the total raised capital in H1 2021 that resulted from the rest of the world (€62 billion in H1 2021 against €98 billion in H2 2020) was reversed by the significant increase to €88 billion in H2 2021.

## 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 2021, the average share of initial Basel III CET1 capital for a balanced data set of Group 1 banks is 75.4%. For Group 2 banks, the initial Basel III CET1 capital represents 81.0% of regulatory capital at the reporting date. Noticeably, the second largest share of total capital continues to be Tier 2 capital (14.7% for Group 1 banks and 13.4% 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, we observe a decline in the share of CET1 capital offset by an increase in additional Tier 1 holdings. The structure of regulatory capital had somewhat stabilised in 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 starting at 77.8% in June 2011, reaching a peak of 89.8% in December 2014 and ending at 80.9% for the current reporting period.

With regard 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 94.2% of outstanding CET1 on average. Accumulated Other Comprehensive Income (AOCI)<sup>21</sup> contributes 5.1% 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

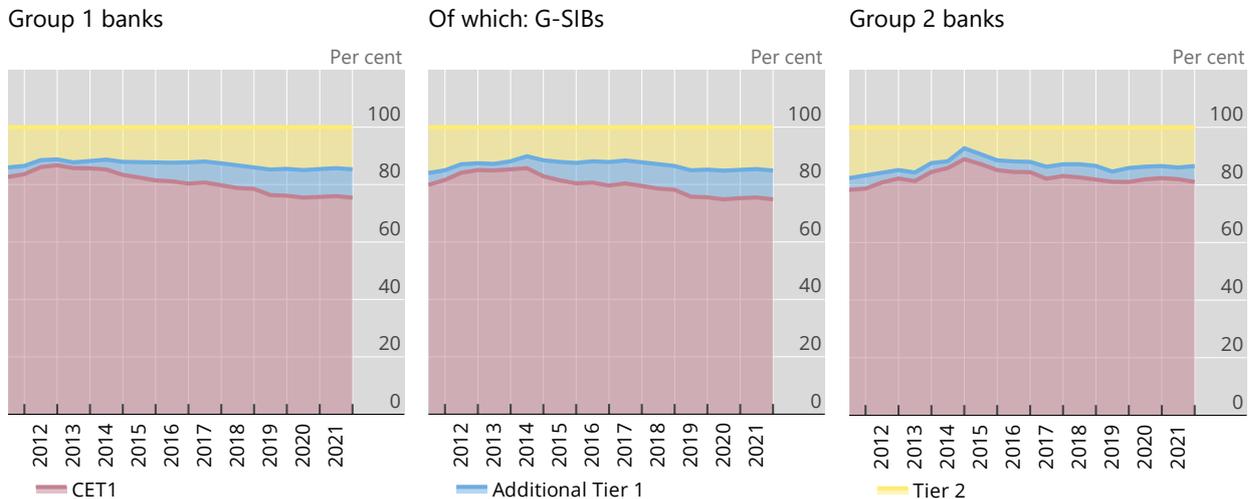
<sup>21</sup> AOCI typically includes the following: unrealised gains and losses in available for sale securities; actuarial gains and losses in defined benefit plans; gains and losses on derivatives held as cash flow hedges; and gains and losses resulting from translating the financial statements of foreign subsidiaries.

earnings in total CET1 capital is somewhat lower at 81.0%, while the 19.1% share of AOCI is higher compared to Group 1 banks, again with significant dispersion across banks and countries.

## Structure of regulatory capital under initial Basel III<sup>1</sup>

Balanced data set

Graph 38



<sup>1</sup> 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.

## 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	112	22.8	71.4	5.2	0.6
Of which: Americas	20	9.3	93.7	-3.1	0.1
Of which: Europe	42	35.0	53.0	10.4	1.5
Of which: Rest of the world	50	23.0	69.9	6.7	0.4
Of which: G-SIBs	30	19.1	76.2	3.9	0.8
Group 2 banks	61	42.6	38.2	18.8	0.3

Source: Basel Committee on Banking Supervision.

## 3.4 Regulatory adjustments

Using balanced data set, regulatory adjustments reduce overall gross CET1 capital for the current period (ie CET1 capital before adjustments) for Group 1 banks by 10.9% (see Graph 39). The largest driver of Group 1 bank CET1 capital adjustments continues to be goodwill (6.4%) followed by deductions for intangibles, other deductions and deferred tax assets (DTA) (1.7%, 1.4% and 0.9%, respectively). Currently

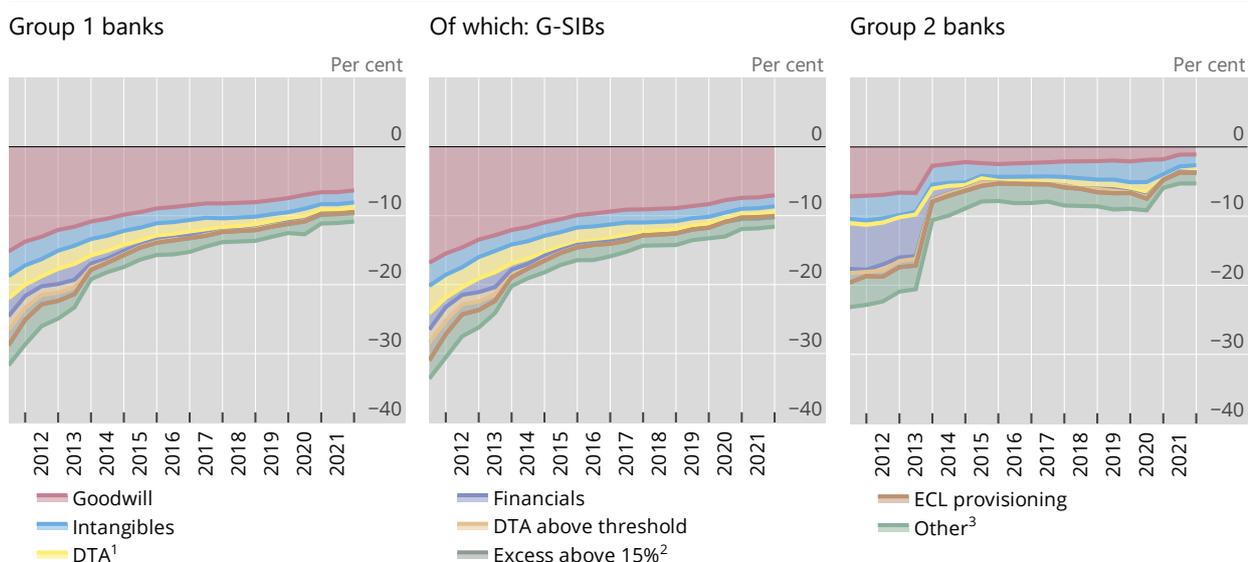
there is only a small aggregate impact from the transitional add-backs from the introduction of ECL provisioning.

The impact of regulatory adjustments on Group 2 banks is lower than on Group 1 banks, on average being at around 5.3%. Especially the impact of goodwill (-1.1%) is more limited than for Group 1 banks.

## 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



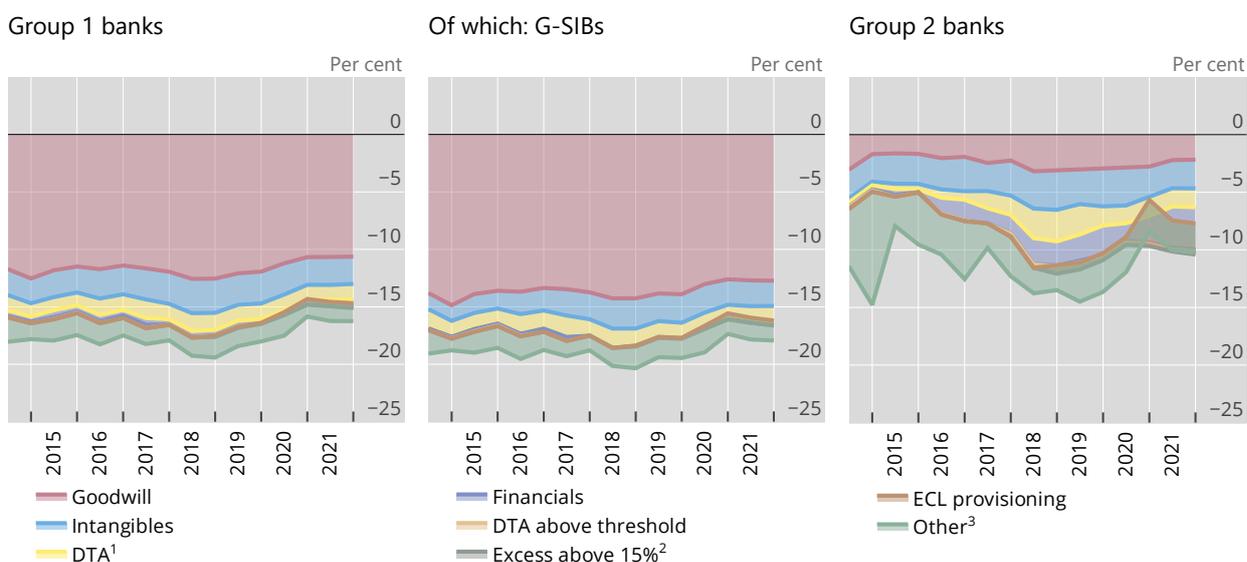
<sup>1</sup> DTAs are the deferred tax assets that are deducted in full under Basel III (ie they exclude DTAs that are related to temporary differences, which are only deducted when they exceed a threshold). <sup>2</sup> Excess above 15% pertains to significant investments in the common shares of unconsolidated 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. <sup>3</sup> 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



<sup>1</sup> 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). <sup>2</sup> 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. <sup>3</sup> 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 of Group 1 banks and G-SIBs.<sup>22</sup> As of end-December 2021 and for a balanced data set of Group 1 banks, credit risk<sup>23</sup> continues to compose the dominant portion of overall MRC, on average comprising 64.9% of total MRC. However, the share of credit risk has declined significantly from 74.3% at end-June 2011 to its lowest share of 63.3% at end-December 2014 and since then slightly increased to the level at the current reporting date. This looping trend was mainly driven by a decrease in the MRC for related entities (10.5% to 1.7%) and securitisations (7.2% to 1.8%) while the MRC for corporate exposures increased over the observed period from 30.6% at end-June 2011 to 38.1% at the current reporting date.

Conversely, the share of operational risk MRC increased sharply from 7.9% at the end of June 2011 to 16.9% at the end of 2018 and decreased slightly since. 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

<sup>22</sup> 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.

<sup>23</sup> 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.

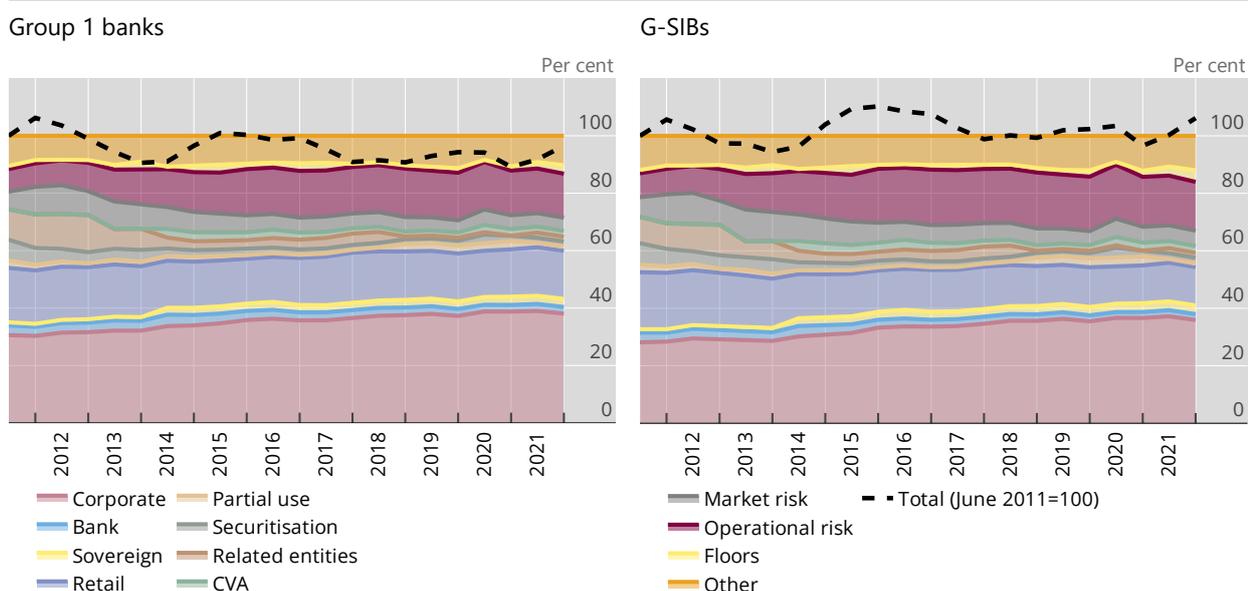
the financial crisis, which are factored into the calculation of MRC for operational risk under the advanced measurement approach. More recently, we observe some “fading out” of the financial crisis losses so that in 2020, the lowest loss level of the past 10 years is observed. This explains the latest 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 do not yet have a significant impact on the loss severity level, but this may change given that the pandemic is still ongoing.

The share of market risk declined slightly from 6.2% to 4.6% in the observed period while the shares of “other” risk and of the floor requirement have been somewhat stable at around 8% to 11% and zero to 3%, respectively.

## Share of MRC by asset class<sup>1</sup> according to current rules

Balanced data set

Graph 41



<sup>1</sup> 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 of the end-December 2021 reporting date. Additionally, 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.<sup>24</sup> Since a common exposure measure for credit, market and

<sup>24</sup> 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.

operational risk does not exist, the size in terms of exposure and the average risk weight are only defined for asset classes subject to a credit risk treatment.

### Average asset class/risk type size and average risk weight<sup>1</sup>

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:	98.6	80.3	32.7	99.5	82.9	25.5
Corporate	31.0	43.9	56.9	17.8	35.5	61.2
Sovereign	25.9	3.3	5.2	36.4	3.4	2.8
Bank	6.1	3.5	23.0	8.9	5.3	18.2
Retail	24.7	16.3	26.6	26.1	19.0	22.3
Equity	0.8	4.6	238.6	0.9	6.0	196.2
Purchased receivables	0.2	0.1	19.9	0.0	0.0	63.9
Securitisation	1.9	1.4	29.6	0.6	0.6	29.4
Related entities	0.1	0.7	288.0	0.0	0.0	265.0
Past-due items	0.1	0.2	103.8	0.2	0.9	114.4
Other assets	4.6	7.2	62.9	0.9	2.9	97.8
Failed trades and non-DVP transactions	0.0	0.0	99.4	0.0	0.0	
Not assigned <sup>2</sup>	3.3	7.8	96.3	7.7	11.4	45.4
Regulatory difference <sup>3</sup>		-8.9			-2.0	
CVA	1.0	1.3	51.5	0.4	1.0	84.6
Trading book CCR <sup>4</sup>		0.2			0.0	
Market risk		3.6			1.9	
Other trading book		0.1			0.0	
Operational risk		12.0			10.3	
Floor adjustment		1.7			0.0	
Other <sup>5</sup>		0.7			3.8	
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>40.2</b>	<b>100.0</b>	<b>100.0</b>	<b>30.6</b>

<sup>1</sup> MRC figures in this table are based on the minimum total capital ratio (ie based on 8% of RWAs). <sup>2</sup> 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. <sup>3</sup> 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. <sup>4</sup> Counterparty credit risk in the trading book. <sup>5</sup> Includes the reconciliation asset class and other Pillar 1 capital requirements.

Source: Basel Committee on Banking Supervision.

Looking at Group 1 banks, it is observed that while the retail and sovereign asset classes comprise roughly half of the exposures, their relative riskiness as measured by the average risk weight is rather low in comparison to other asset classes at 26.6% and 5.2%, respectively. With 31.0% of total exposures, the corporate asset class is the largest asset class, and it attracts a 56.9% risk weight. For Group 2 banks, corporate, retail and sovereign asset classes comprise the overwhelming majority of exposures. Group 2 banks' average risk weight for overall credit risk is lower at 25.5%, versus 32.7% for Group 1 banks. This is largely driven by Group 2 banks' lower average risk weights for sovereign, bank, and retail exposures.

## 4.2 Credit risk

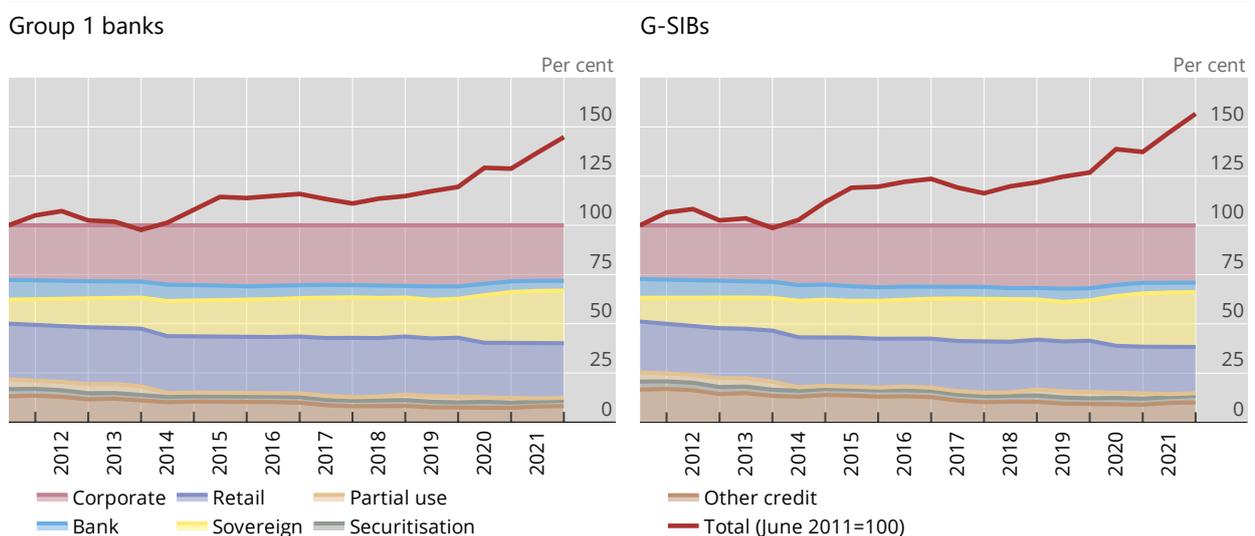
### 4.2.1 Share of credit risk exposure by asset classes under the current rules

The left panel of Graph 42 shows the evolution of credit exposure for the seven major asset classes for a balanced data set of 34 Group 1 banks. The composition of credit risk exposures has remained relatively stable as overall exposure levels have grown by 44.8% over the entire period, with an increase 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 26.8% at the end of December 2021. The share of exposures to banks, retail and exposures subject to the partial use of the standardised approach has declined over the last semester, while the share of corporate, sovereign and other credit exposure has increased slightly. The right panel of Graph 42 shows the same analysis for the subset of 15 G-SIBs.

#### Share of credit exposure

Balanced data set

Graph 42



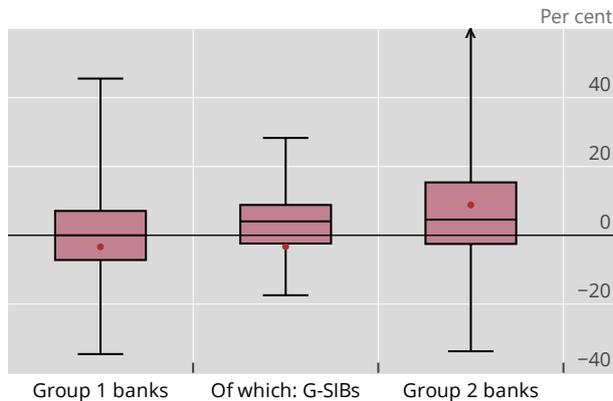
Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

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

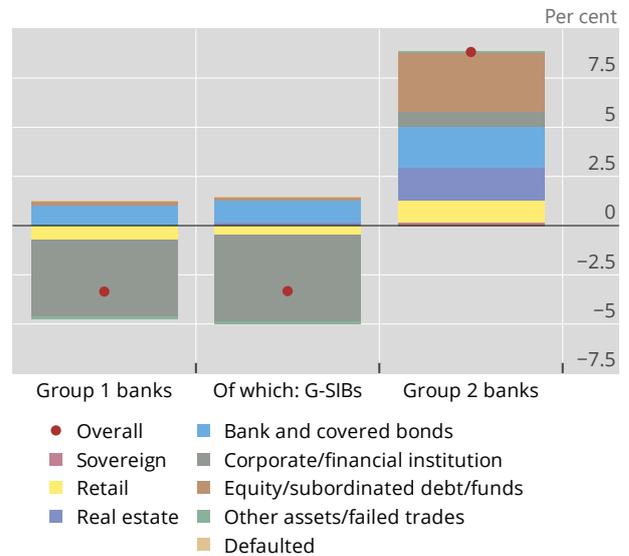
Graph 43 shows the changes in terms of current Tier 1 MRC associated with exposures under the standardised and IRB approaches for credit risk due to the final Basel III framework. The left-hand panel shows the overall distribution of the impact, while the right-hand panel provides a breakdown by asset class. On average, the impact is higher for Group 2 banks (+8.8%) than for Group 1 banks, for which the impacts on standardised approach and IRB exposures partially offset each other, resulting in a decrease in capital requirements of -3.4% (and a decrease of -3.3% for G-SIBs).

The right panel of Graph 43 breaks down the impact by asset class. For Group 1 banks, exposures to corporate and non-bank financial institutions contribute to a significant decrease in MRC, while the contributions of bank and covered bonds, and equity/subordinated debt exposures to the overall MRC change are smaller but positive. For Group 2 banks, the increase in MRC is primarily due to exposures to bank and covered bonds, and to equity/subordinated debt. These results are mainly driven by the removal of the advanced IRB approach for exposures to banks and the removal of all IRB approaches for equity exposures, as well as by the reduction of the supervisory loss-given-default (LGD) parameter for unsecured corporate exposures from 45% to 40% under the foundation IRB approach.

Overall distribution<sup>1</sup>



Breakdown by asset class



<sup>1</sup> 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 for the rest of the world region relative to Europe and the Americas, which however should be carefully considered given the variable and limited number of banks per region included in the sample. The impact on the change of MRC is positive for Europe (+4.4%) and the Americas (+1.9%) but negative for the rest of the world (-8.5%). In Europe, the impact is positive for almost all asset subclasses, with corporate and non-bank financial institutions, retail, banks and covered bonds having the largest impact. In the Americas, equity/subordinated debt is the largest driver, while corporates and non-bank financial institutions drive the large decrease in MRC in the rest of the world.

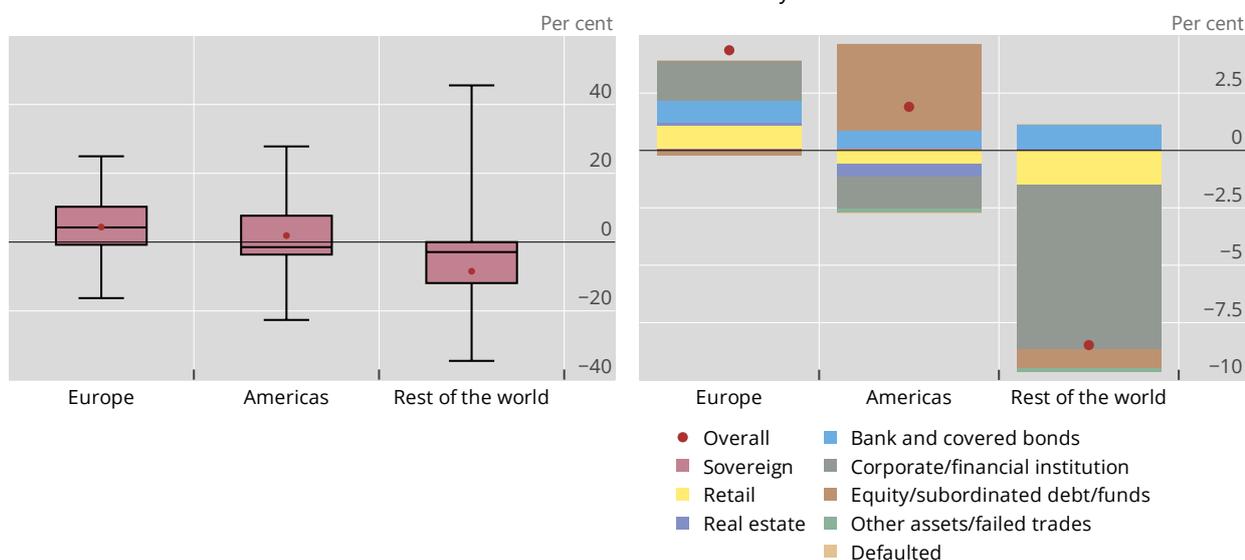
## Changes in Tier 1 MRC for credit risk due to the final Basel III standards, by region

Group 1 banks

Graph 44

Overall distribution<sup>1</sup>

Breakdown by asset class



<sup>1</sup> 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*

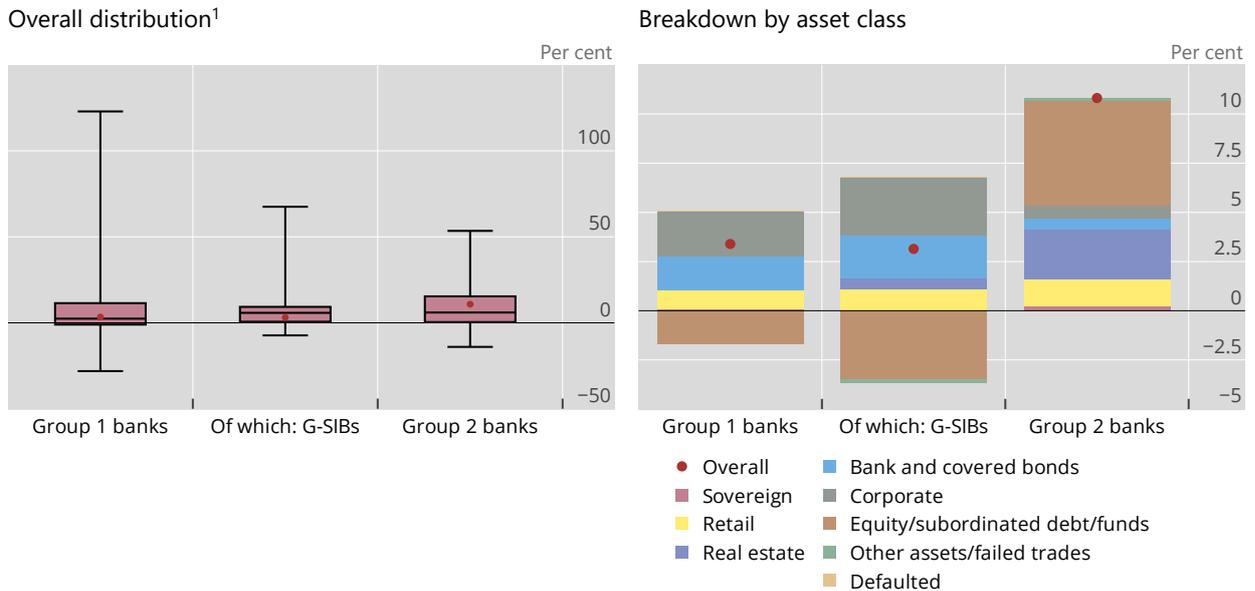
Graph 45 shows the changes in Tier 1 MRC due to the finalisation of the Basel III standards for credit risk exposures that are currently under the standardised approach. These data include exposures of banks subject to the standardised approach for credit risk as well as exposures of banks using the 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 3.4% for Group 1 banks, 3.1% for G-SIBs and 10.8% 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 corporates, followed by bank and covered bonds, and retail. MRC for sovereign, real estate and defaulted exposures are largely unchanged while equity and subordinated debt exposures on average show a decrease in MRC. For Group 2 banks, the increase in MRC is primarily driven by equity and subordinated debt exposures, and to a lesser extent, retail and real estate exposures. The changes in MRC for 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. <sup>1</sup> 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.

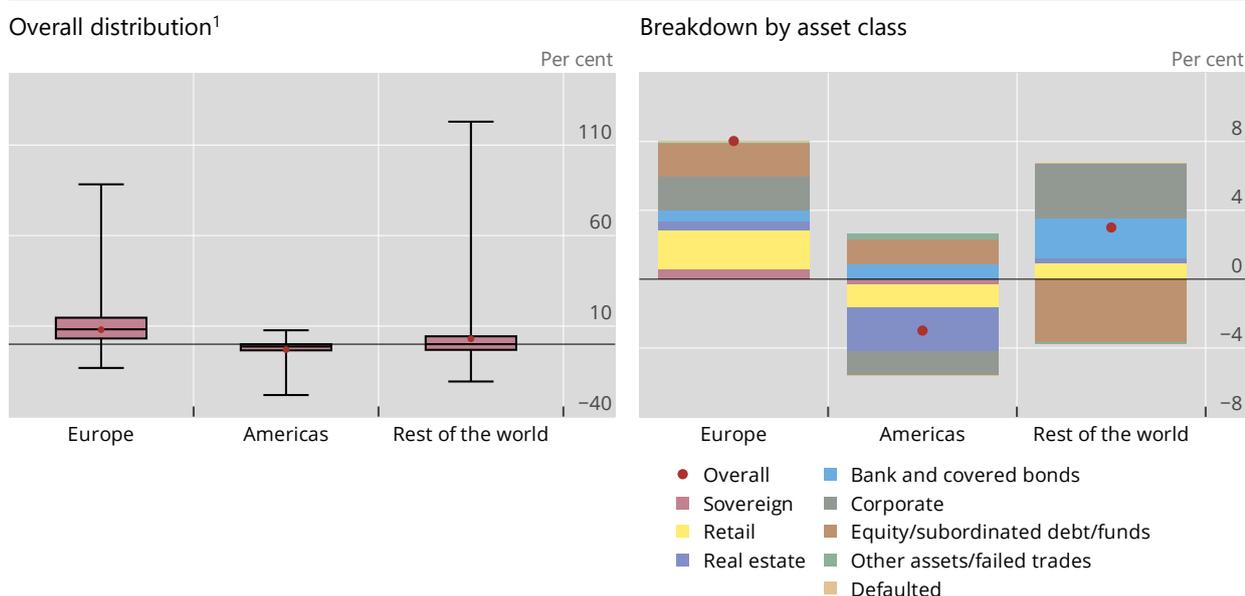
Graph 46 replicates the analysis of Graph 45 but breaks down the results for Group 1 banks by geographical region. On average, the revised standardised approach shows a positive impact on the MRC of Europe and the rest of the world and a small negative impact on the MRC of Americas: European banks show the largest impact (+8.0%), followed by banks in the rest of the world (+3.0%) and banks in the Americas (-3.0%).

Looking at individual asset classes, the results are somewhat heterogeneous except for exposures to corporate, which show a large positive impact on all three regions. Exposures to retail are the largest contributor to the increase in MRC for banks in Europe but show a smaller positive impact in the rest of the world and a negative impact in the Americas. Equity/subordinated debt exposures have a large 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 second largest positive contributor for banks in the rest of the world, while their effect is positive but more muted in Europe and in the Americas. Real estate exposures show a positive impact in Europe and in the rest of the world and a large and negative impact 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. <sup>1</sup> 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 (-6.2%) and G-SIBs (-5.5%), and an increase for Group 2 banks (+5.5%). Median values, which are less sensitive to extreme values and are not weighted, show a different sign for the impact compared to the weighted average values for G-SIBs (+1.6%) and for Group 2 banks (-2.7%), and a more moderate impact for Group 1 banks (-1.3%).

The right-hand panel of Graph 47 breaks down the impact by asset class. Exposures to corporates and to corporate SMEs are the main contributors to the overall decrease in MRC for Group 1 banks and G-SIBs. The MRC for exposures to retail residential mortgages also shows a decrease. At the aggregate level, the results may appear counterintuitive, given that the revised IRB framework applies more stringent standards to these asset classes. However, these are likely to be driven by 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.

Exposures to banks contribute the most to the overall increase in MRC for Group 2 banks (while they represent a modest increase for Group 1 banks and G-SIBs), followed by corporate SME exposures. Finally, "other" exposures, which include equity exposures and equity investments in funds, make up roughly half of the positive change in MRC for Group 1 banks and the majority of the positive change for G-SIBs. The increase is mainly driven by equity exposures, whose RWA under the revised framework are calculated using the standardised approach instead of the IRB approaches.

Changes in Tier 1 MRC for exposures subject to the IRB approach for credit risk due to the final Basel III standards<sup>1</sup>

Graph 47



<sup>1</sup> The change is calculated as a percentage of current Tier 1 MRC across all IRB exposures. <sup>2</sup> See Section 1.3.3 for details on box plots. <sup>3</sup> "Others" include equity exposures, equity investments in funds and other assets.

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 average increase in Tier 1 MRC for Group 1 banks in Europe (+2.9%) and the Americas (+3.1%) and a significant decrease for banks in the rest of the world (-14.1%). The impact is heterogeneous across banks.

For banks in Europe, exposures to banks, specialised lending, retail and corporate SME are the main contributors to the overall increase in MRC. For banks in the Americas, the increase in MRC is almost entirely driven by the increase for "others", which include equity exposures and equity investments in funds, while the remaining exposures show a negative or negligible change. For banks in the rest of the world, the decrease in MRC is mainly driven by exposures to corporates and corporate SMEs.

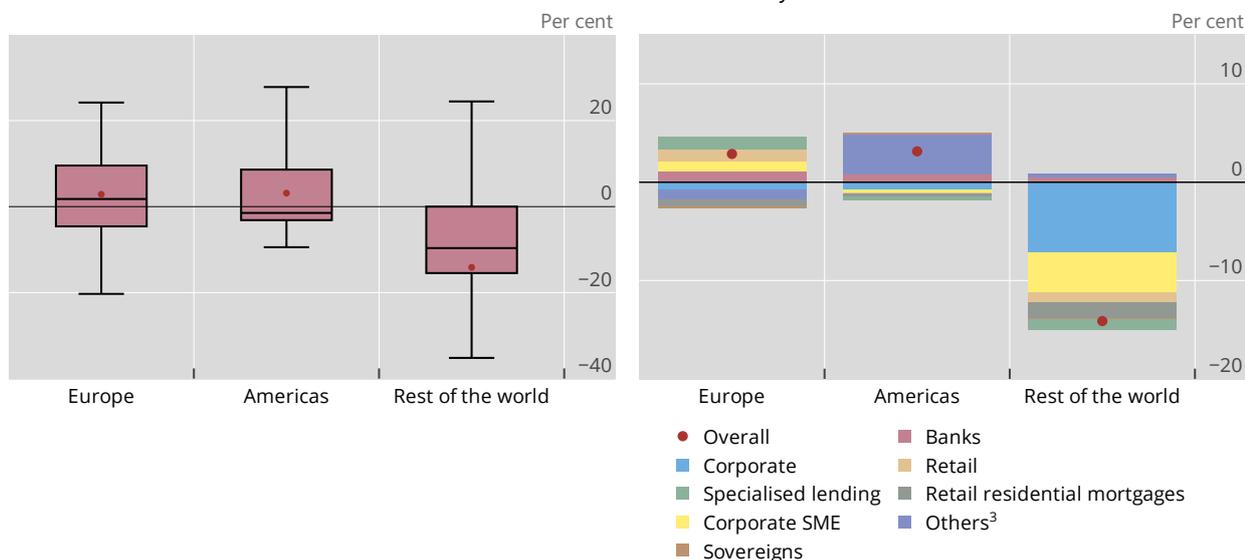
## Changes in Tier 1 MRC for exposures subject to the IRB approach for credit risk due to the final Basel III standards,<sup>1</sup> by region

Group 1 banks

Graph 48

Overall distribution<sup>2</sup>

Breakdown by asset class



<sup>1</sup> The change is calculated as a percentage of current Tier 1 MRC across all IRB exposures. <sup>2</sup> See Section 1.3.3 for details on box plots. <sup>3</sup> "Others" include equity exposures, equity investments in funds and other assets.

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.<sup>25</sup> 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.<sup>26</sup> Looking at PDs for non-defaulted exposures (right-hand panel), we also note a general downward trend, most pronounced for retail exposures, with a slight increase in PDs for bank exposures and for corporate exposures in the last semester. The PD for sovereign exposures is at its lowest value after a spike at the end of 2019.

<sup>25</sup> For point in time distribution plots of the various risk parameters by asset class, as well as the share of defaulted exposures, we refer to worksheets "Graph 48a" to "Graph 48d" in the Excel data file.

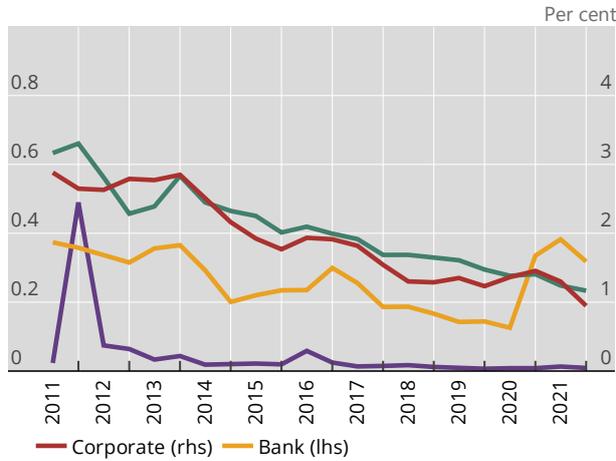
<sup>26</sup> The marked increase for bank exposures since December 2020 is due to a significant increase for one large bank.

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

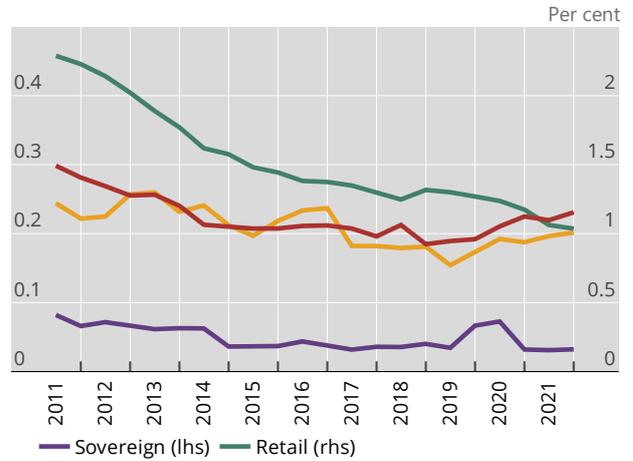
Group 1 banks, balanced data set

Graph 49

Share of defaulted exposures



PDs for non-defaulted exposures



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

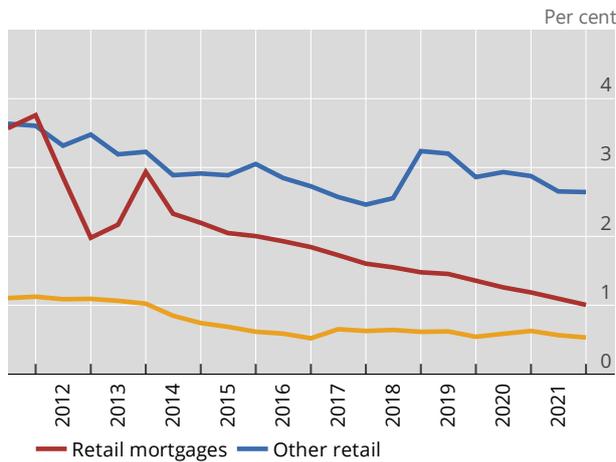
With respect to the retail asset classes (Graph 50), the negative trend in PDs described above seems to be driven by other retail exposures, even though retail mortgage PDs for non-defaulted exposures also show a slight downward trend from end-June 2020 to end-June 2021.

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

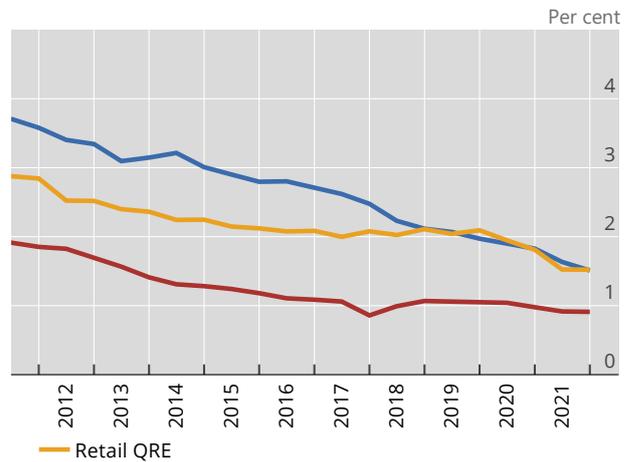
Group 1 banks, balanced data set

Graph 50

Share of defaulted exposures



PDs for non-defaulted exposures



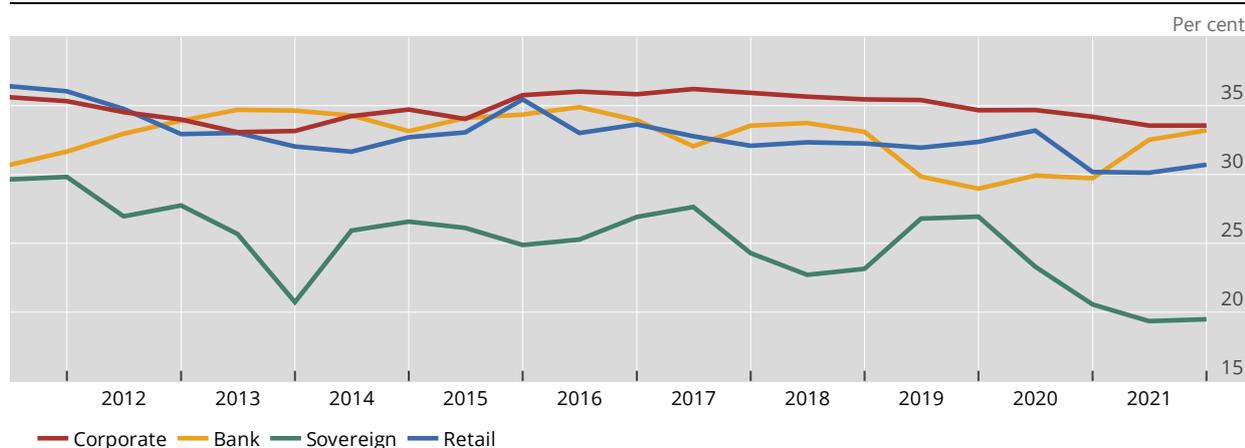
Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

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 all asset classes.

## LGDs for non-defaulted exposures by asset class

Group 1 banks, balanced data set

Graph 51

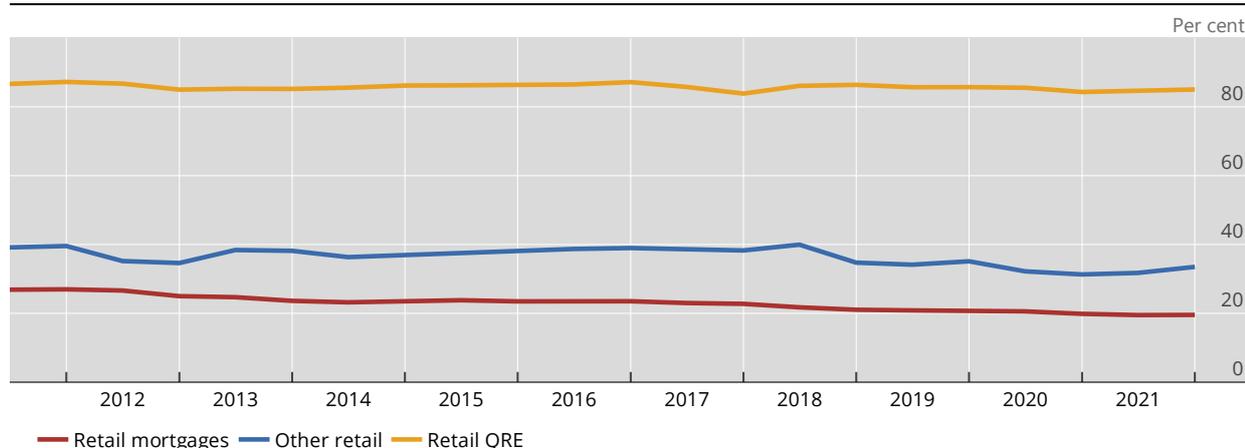


Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

## 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.

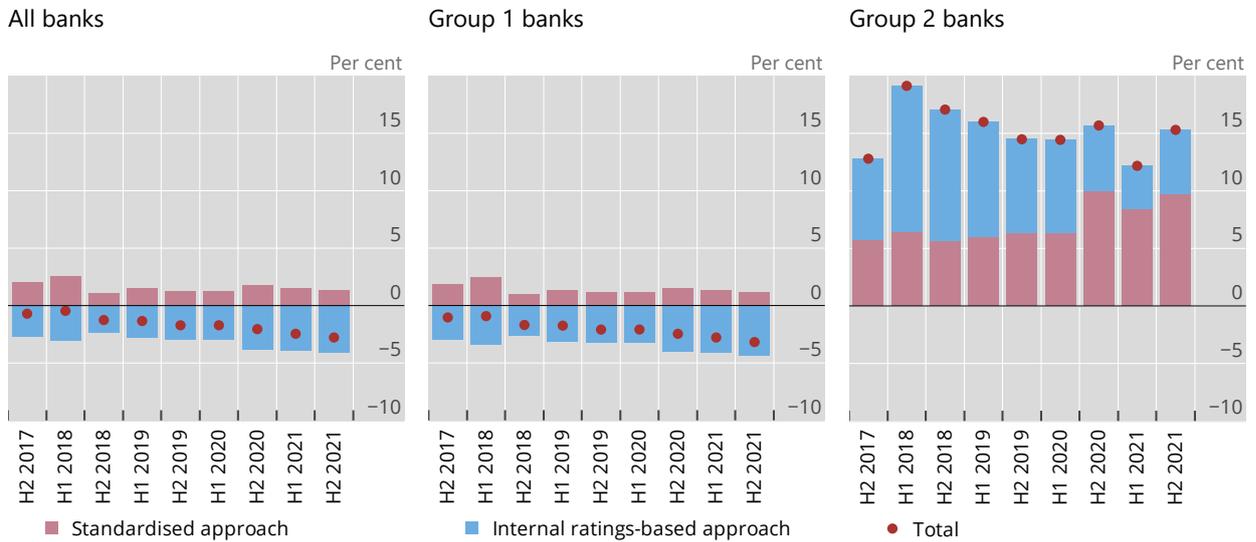
The estimated impact of the credit risk reforms as a whole on aggregate MRC shows a negative trend over time, driven mainly by exposures under the IRB approach. Looking at the regional breakdown, we observe a consistent negative trend for banks in the rest of the world which, when considering the increase over time of their share in global credit risk RWA, drives the overall results at the global level. The evolution is less straightforward for banks in Europe, whose values fell back closer to end-June 2019 values

after an increase in end-2020, and for the Americas, which exhibited the highest change in MRC over the last two periods.

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

Balanced data set

Graph 53



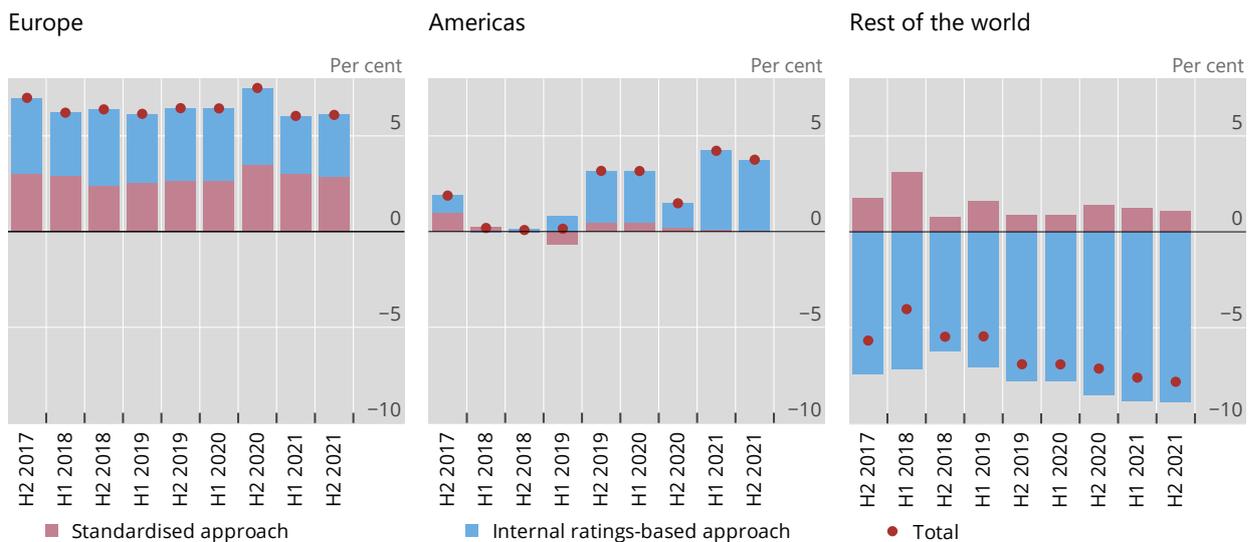
Since the Committee did not collect these data through its Basel III monitoring exercise for the end-June 2020 reporting date, results for H1 2020 show the same values as for H2 2019.

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.

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 more accurately reflect the revised framework 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).

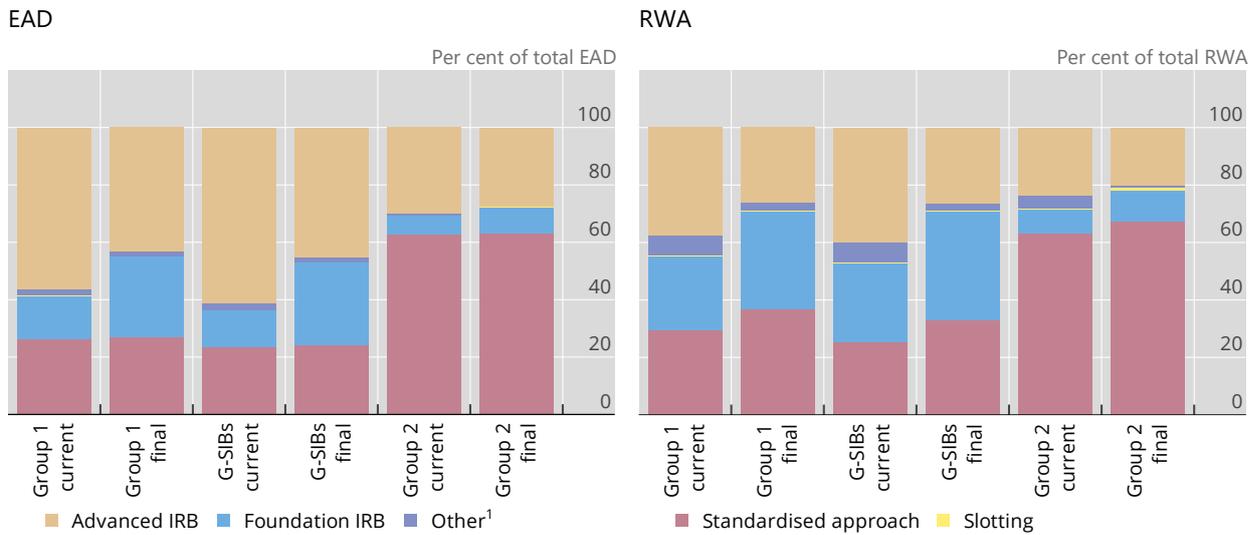
#### 4.2.6 Distribution of exposure at default and risk-weighted assets across approaches

The left panel of Graph 55 shows the composition of exposure at default (EAD) between The left panel of Graph 55 shows the composition of exposure at default (EAD) under different modelling and non-modelling approaches. For the purpose of 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 56.2% to 43.1% under the revised framework, while exposures under the foundation IRB approach increase from 15.2% to 28.0% of total exposure value. Exposures under the standardised approach increase from 26.1% to 27.1%. 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 panel of Graph 55 replicates the exercise for the distribution of RWA. For Group 1 banks, RWA under the advanced IRB approach decrease from 37.5% to 26.1%, RWA under the foundation IRB approach increase from 25.6% to 34.0% and RWA under the standardised approach increase from 29.6% to 36.1% of total RWA. For Group 2 banks RWA under the advanced IRB approach decrease from 23.4% to 20.1%, RWA under the foundation IRB approach increase from 8.0% to 10.9% and RWA under the standardised approach increase from 63.3% to 67.5%. 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



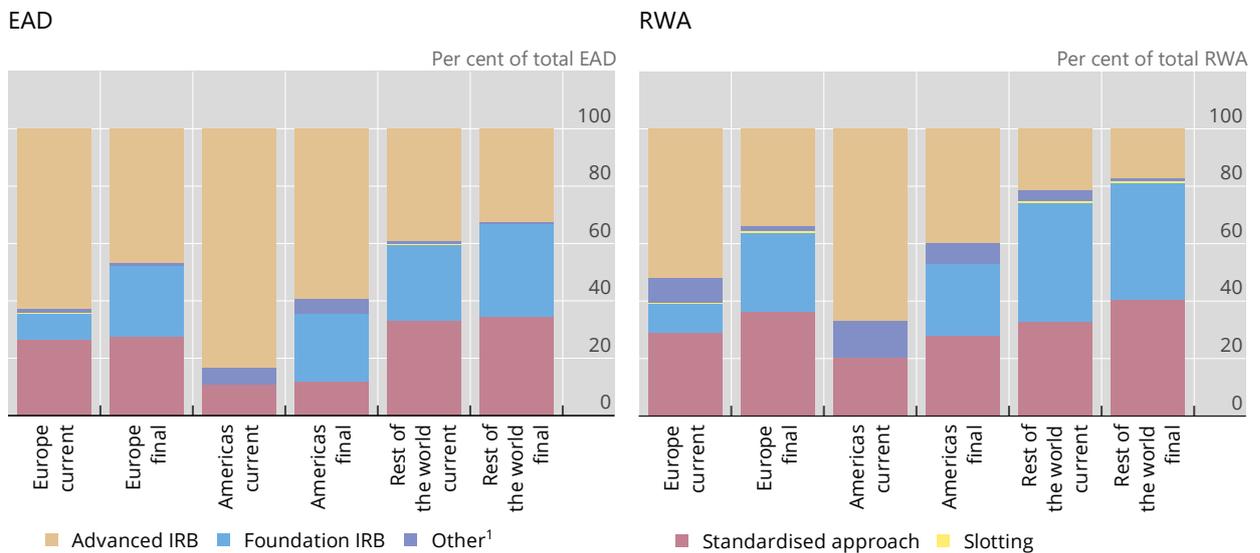
<sup>1</sup> "Other" includes equity exposures, equity investments in funds, failed trades and non-DVP transactions and other assets under the IRB approach for credit risk.

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



<sup>1</sup> "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,<sup>27</sup> 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.<sup>28</sup> 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 to 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);<sup>29</sup>
- 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.<sup>30</sup>

<sup>27</sup> The PD floor will be 10 basis points for certain qualifying revolving retail (QRRE) exposures.

<sup>28</sup> 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](http://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](http://www.bis.org/bcbs/publ/d442.htm).

<sup>29</sup> National supervisors are provided with a national discretion to not implement the SEC-ERBA.

<sup>30</sup> Basel Committee on Banking Supervision, *Capital treatment of securitisations of non-performing loans*, November 2020, [www.bis.org/bcbs/publ/d511.htm](http://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*,<sup>31</sup> in September 2021, 22 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. There are five member jurisdictions where the Basel III securitisation framework was not in force in July 2021 (China, Mexico, South Africa, Turkey and the United States). 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 96 banks submitted data of sufficient quality for securitisation, including 67 Group 1 banks and 29 Group 2 banks. The Group 1 sample represents 98.2% of total securitisation exposures of all banks. Total securitisation exposures and RWA across Group 1 banks are €1.64 trillion and €383.1 billion respectively, compared with €30.6 billion and €8.4 billion for Group 2 banks.

Data description		Table 8		
	Group 1 banks	Group 2 banks	All banks	
Number of banks	67	29	96	
Exposure (EUR bn)	1,643.6	30.6	1,674.1	
Exposure (% of total)	98.2	1.8	100.0	
RWA (EUR bn)	383.1	8.4	391.5	
RWA (% of total)	97.9	2.1	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.

<sup>31</sup> Basel Committee on Banking Supervision, *Progress report on adoption of the Basel regulatory framework*, October 2021, [www.bis.org/bcbps/publ/d525.htm](http://www.bis.org/bcbps/publ/d525.htm).

## Bank role exposure amounts and RWAs<sup>1</sup>

In billions of euros

Table 9

	Originator	Investor	Sponsor	Total
Exposure amounts	390.2	920.9	280.4	1,591.5
RWA	89.7	225.5	53.5	368.8

<sup>1</sup> The sample consists of 95 banks.

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.<sup>32</sup> 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	46	19	6	7	11	7

Source: Basel Committee on Banking Supervision.

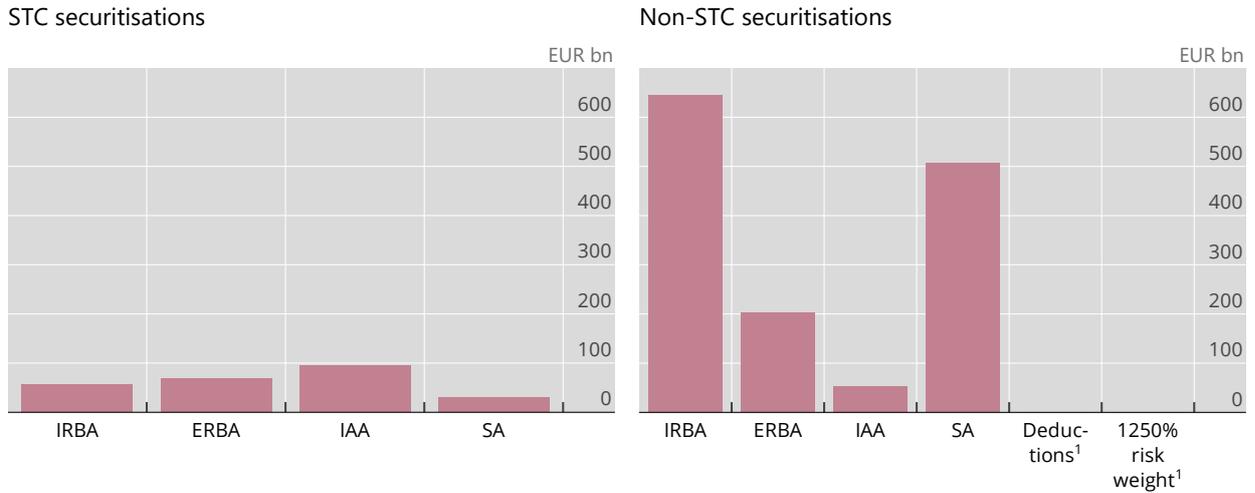
The Basel III securitisation framework also introduced a new hierarchy of three approaches (SEC-IRBA, SEC-ERBA and SEC-SA) for calculating risk weights. Because of this hierarchy, it is expected that banks have, in aggregate, a larger share of their securitisation exposures risk weighted by SEC-IRBA, 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.

<sup>32</sup> 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



<sup>1</sup> 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 actually decrease, in particular for STC exposures. For the same sample, Graph 58 compares the average risk weightings applicable to exposures under the previous and the Basel III securitisation frameworks, again only for non-STC data.

## Total amounts and change of securitisations 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	262.5	262.5	0.0	59.9	68.8	14.8
Non-STC securitisations: SEC-ERBA	0.1	0.1	0.0	0.1	0.1	16.7
Non-STC securitisations: SEC-IAA	0.0	0.0		0.0	0.0	
Non-STC securitisations: SEC-SA	333.9	334.1	0.0	97.0	126.4	30.4
Of which: resecuritisation	1.6	1.7	2.7	0.5	1.8	274.4
<b>Non-STC securitisations: total</b>	596.6	596.7	0.0	156.9	195.3	24.4
Others (1250% RW)	0.4	0.4	0.0	5.1	5.1	-1.4
<b>Total<sup>1</sup></b>	597.0	597.1	0.0	162.3	200.4	23.5
Sample size	14					

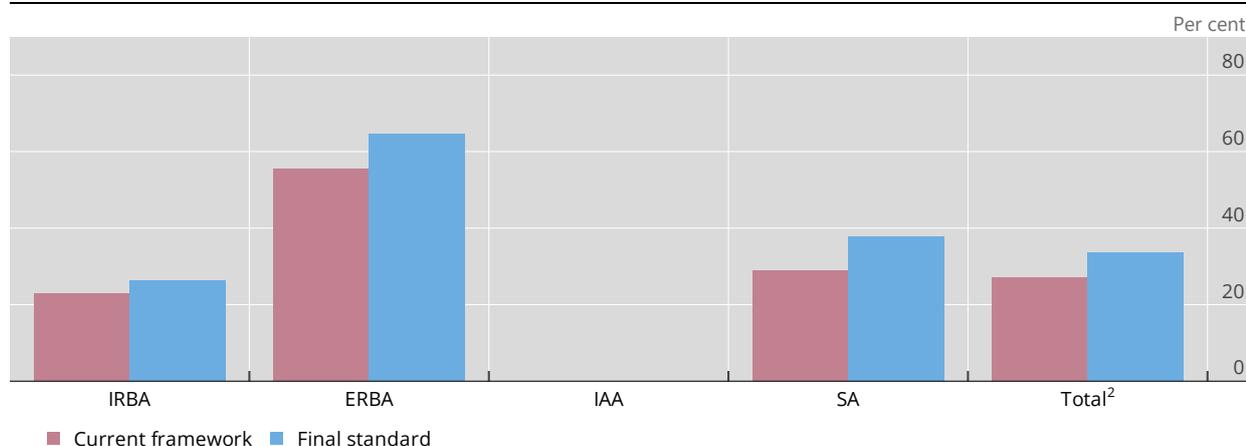
<sup>1</sup> Also reflecting STC securitisations.

Source: Basel Committee on Banking Supervision.

## Average risk weight by approach

Non-STC securitisations, all banks<sup>1</sup>

Graph 58



<sup>1</sup> The sample consists of banks from jurisdictions that have not yet implemented the Basel III securitisation framework. <sup>2</sup> Total includes securitisations subject to a 1250% risk weight.

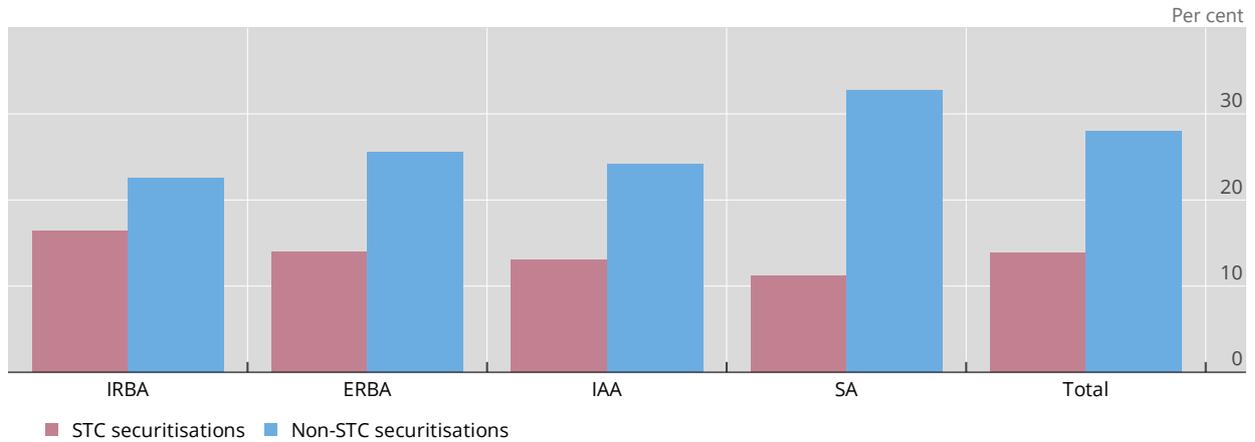
Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

Graph 59 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 data consists of all banks with sufficiently good data, regardless of actual implementation status of the Basel III securitisation rules.

## Average risk weight by approach, final standards<sup>1</sup>

All banks

Graph 59



<sup>1</sup> 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.

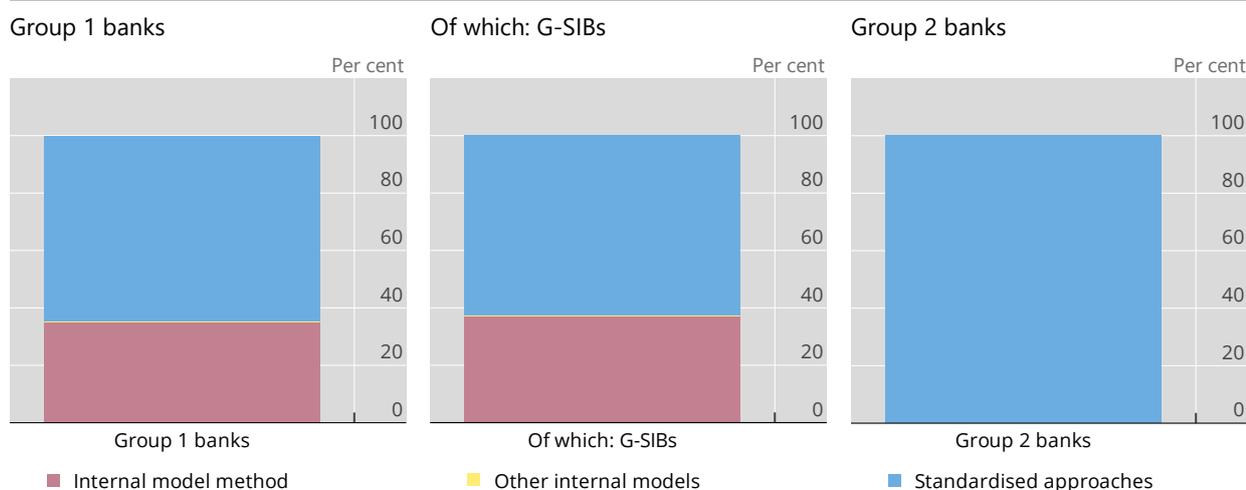
### 4.3 Counterparty credit risk and credit valuation adjustment risk

#### 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 60 shows the relative composition of counterparty credit risk capital requirements by exposure calculation approach per bank group at end-December 2021. A significant number of banks in the sample uses standardised approaches (SA) to calculate CCR exposures. Amongst those, the current exposure method (CEM) is the most widely used, although an increase in the number of banks that already apply the SA-CCR as current approach is observed. This holds in particular since the adoption of the SA-CCR for calculating SA exposures for derivatives in the European Union by end-June 2021. A large number of Group 1 banks also use internal model approaches, mainly the internal model method (IMM), to calculate CCR exposures for derivatives and securities financing transactions (SFTs). Group 2 banks in the sample do not apply the IMM. In fact, all Group 2 banks use SA to calculate CCR exposures. As of end-December 2021, for the 74 Group 1 banks in the sample (of which 25 are using the IMM), CCR IMM capital requirements contribute 34.9% to total CCR capital requirements. CCR capital requirements calculated using SA contribute 64.6% for these banks. For G-SIBs, 37% 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).



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. First, 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 112 banks, including 74 Group 1 banks, of which 25 G-SIBs, and 38 Group 2 banks, are included in the analyses regarding the revised minimum capital requirements for counterparty credit risk for the end-December 2021 reporting date.

The centre panel of Graph 61 shows the impact on CCR capital requirements from the introduction of the revised CCR framework compared to the current CCR MRC. Capital requirements for Group 1 banks and G-SIBs exhibit an average increase of 7.7% and 8.6%, respectively. The average impact for Group 2 banks is a decrease of 12.9% and, when compared to the end-June 2021, has decreased by 17.4 percentage points. This effect can be largely attributed to the adoption of the SA-CCR methodology in the European Union mentioned above. In addition, there is a higher variability across Group 1 and Group 2 banks than there is for G-SIBs.

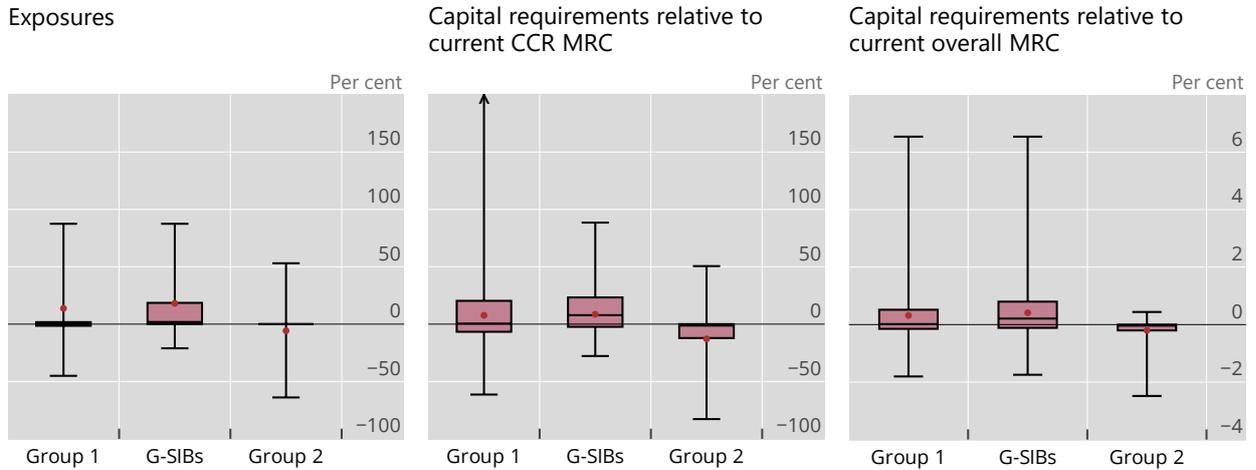
The right-hand panel of Graph 61 displays the impact of the CCR revisions on current overall MRC. Group 1 banks and G-SIBs show a similar impact with an increase of 0.3% for Group 1 banks and 0.4% on average for the G-SIBs, while there is an insignificant drop of 0.2% for the Group 2 banks.

The left-hand panel of Graph 61 shows the impact on CCR exposures of the revised CCR framework relative to the current framework. CCR exposures increase on average by 13.7% for Group 1 banks in the sample. The average impact is higher for the subsample of G-SIBs (18.1%), however for Group 2 banks the CCR exposures decreased by 5.8% 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 are European banks.

## Impact of revised CCR standards relative to current rules<sup>1</sup>

All banks

Graph 61



<sup>1</sup> 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.

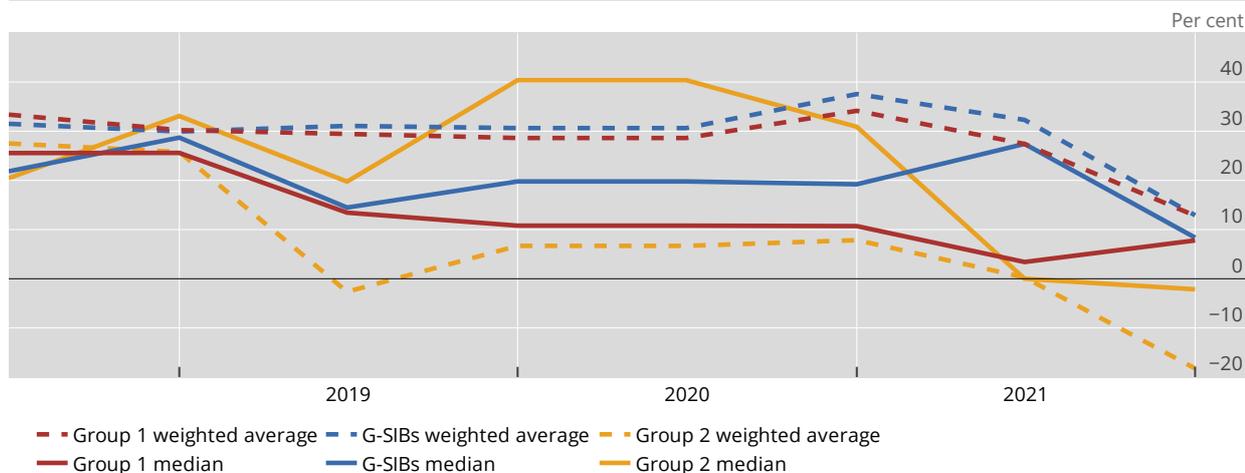
One of the factors that drives the changes between the current standardised approaches and SA-CCR is the treatment of margin collateral under the current rules (ie CEM or SM). In case banks currently do not recognise the margin collateral, while they do take it into account under the SA-CCR, SA-CCR exposures 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. Haircuts will change for SFTs currently capitalised under CA(SH), and CA(OE) will be removed from the framework. Some banks are not affected by the more conservative supervisory haircuts in the revised CA(SH), but others see their SFT exposures (and hence capital requirements) increase significantly.

Graph 62 shows the average and median impacts of the revised CCR capital requirements relative to the current ones for a balanced data set of 25 Group 1 banks (of which 10 G-SIBs) and six Group 2 banks. The average impact for Group 1 banks and G-SIBs ranges between 12.8% (end-December 2021) and 34.2% (end-December 2020) and is less volatile across time than for Group 2 banks. Nevertheless, the impact of the changes to the framework is on average higher for Group 1 banks and G-SIBs compared to Group 2 banks.

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

Balanced data set

Graph 62



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 CVA risk component consists of 114 banks, including 79 Group 1 banks, of which 25 G-SIBs, and 35 Group 2 banks.

The left-hand side of Graph 63 shows, that under the current rules, the average share of CVA capital requirements in total MRC is a similar 2.2% for Group 1 and Group 2 banks, For G-SIBs the current share of CVA capital requirements is less than 4.0% for 75% of these banks.

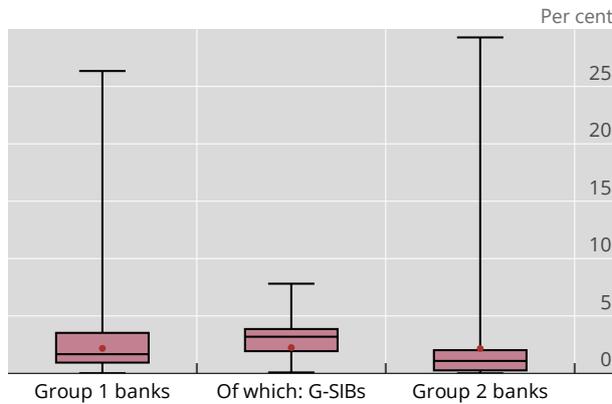
The right-hand side of Graph 63 displays for a balanced data set of 26 Group 1 banks (thereof 13 G-SIBs) and seven Group 2 banks the average share of current CVA capital requirements relative to the total MRC. The average share for Group 1 banks is consistently slightly lower compared to the share for G-SIBs. Variations across the different Basel monitoring exercises are slightly less significant for Group 1 banks than for G-SIBs and Group 2 banks show lesser variation over time. For Group 1 banks and G-SIBs a general trend to a lower share of CVA capital requirements relative to total MRC is observed for the period from end-December 2018 to end-December 2019. While a reduction in absolute CVA capital requirements was observed for the end-June 2019 data, an increase in the absolute CVA capital requirements for the end-December 2019 exercise was compensated by a simultaneous increase in total MRC leading to a reduction in the relative share of CVA capital requirements in total MRC. The increase in absolute CVA capital requirements drives the increase in the relative share of CVA capital requirements in the total MRC for the end-December 2020 data, bringing it to levels observed for end-December 2018. For end-June 2021 the shares have decreased to the level similar to end-December 2019 again and decreased even further for the end-December 2021 exercise.

## Share of CVA capital requirements in total MRC under the current rules

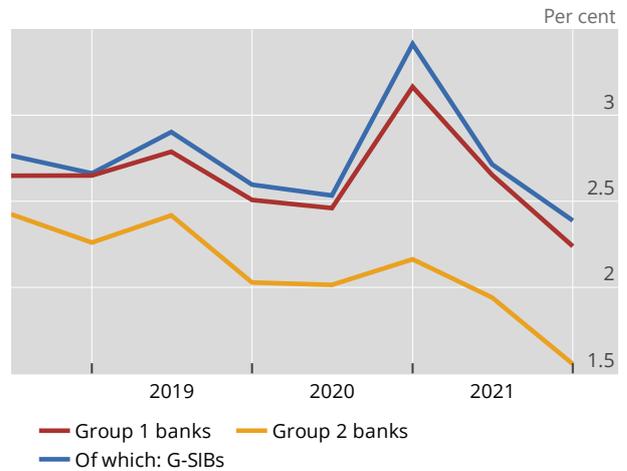
All banks

Graph 63

Distribution by bank group<sup>1</sup>



Development over time, balanced data set



<sup>1</sup> 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 credit valuation adjustment (CVA) risk including the targeted revisions to the framework published in July 2020.<sup>33</sup>

The sample includes 18 banks that currently apply the advanced method for CVA (A-CVA), all of which indicate to use the standardised approach for CVA (SA-CVA) under the revised framework. The other 96 banks that currently apply only the standard method for CVA (S-CVA) include 14 banks that indicate to apply the SA-CVA and 72 banks that indicate to move to the reduced basic approach for CVA (reduced BA-CVA) under the revised framework. Overall, only 10 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 64 shows that the average impact when moving to the revised CVA framework in relation to current CVA MRC is 2.7% for Group 1 banks. Group 2 banks report a higher average impact of 7.8%. The average impact for G-SIBs is 3.8% and just slightly higher than the one for Group 1 banks. The variability in results is significant, though. Some banks report decreasing capital requirements when moving to the revised CVA framework (with CVA capital requirements decreasing by as much as 72.4%) whereas other banks report significant increases in the CVA capital requirements relative to the current standards (up to about ten times the current capital requirements). Very high increases appear more frequently for banks using S-CVA and plan 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 to the current standardised approach. Capital requirements under the reduced BA-CVA are 4.7% higher than capital requirements under the current S-CVA for the median bank.

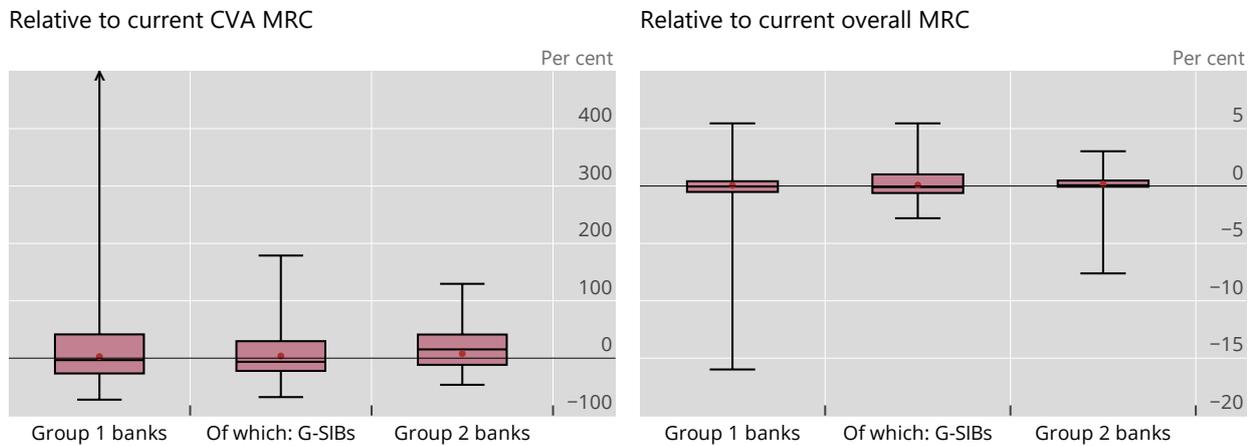
The right-hand side panel of Graph 64 provides the impact of the revised CVA capital requirements relative to current overall MRC. Given the small share of CVA capital requirements in overall

<sup>33</sup> See Basel Committee on Banking Supervision, *Targeted revisions to the credit valuation adjustment risk framework*, July 2020, [www.bis.org/bcbps/publ/d507.htm](http://www.bis.org/bcbps/publ/d507.htm).

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 -16.0 % and +5.7% for all banks in the sample.

Impact of revised CVA capital requirements compared to current rules<sup>1</sup>

Graph 64



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. <sup>1</sup> See Section 1.3.3 for details on box plots.

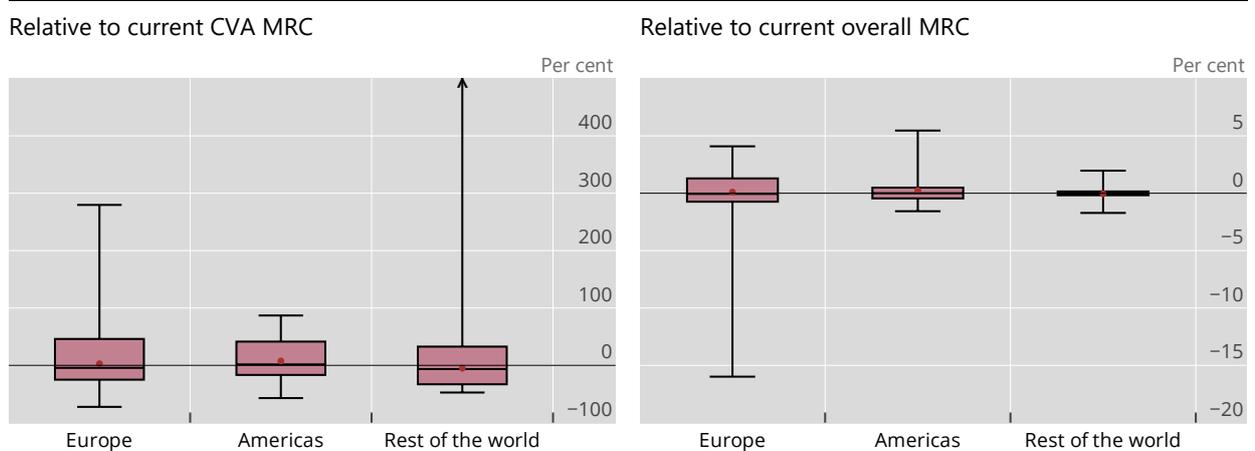
Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

Graph 65 shows that results differ across regions. The average impacts to current CVA MRC are comparable across regions, with 2.9% for Europe, 7.7% for the Americas and -5.1% for the rest of the world. However, the variability of results differs significantly across regions and individual countries. In some countries, all banks show comparable impacts, and in others, the impact ranges from remarkable reductions of more than 50% to very large increases in CVA capital requirements from the introduction of the revised minimum capital requirements for CVA risk. The average impact of the revised CVA capital requirements relative to current overall MRC is approximately 0.1% to 0.2% for Group 1 and Group 2 banks due to the small share of CVA capital requirements in overall MRC for most banks.

Impact of revised CVA capital requirements compared to current rules, by region<sup>1</sup>

Group 1 banks

Graph 65



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. <sup>1</sup> See Section 1.3.3 for details on box plots.

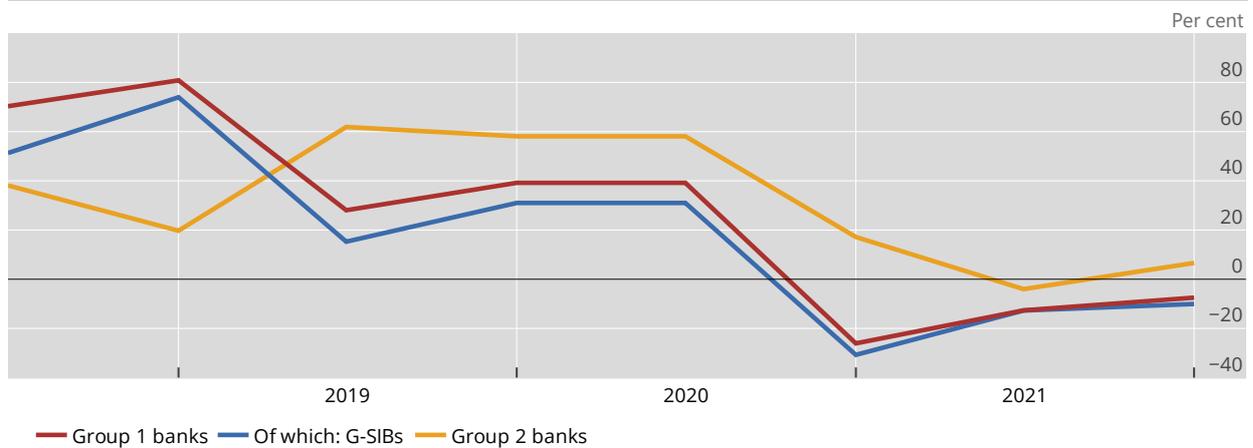
Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

Graph 66 compares the average impact on CVA capital requirements under the revised framework to the current rules across time for a balanced data set of 25 Group 1 banks (thereof 13 G-SIBs) and seven Group 2 banks. The observed impacts for Group 1 banks reduce from 70.3% in end-June 2018 to 28.1% in end-June 2019. For the end-June 2020 data, the impact shows an average increase of 39.2% for Group 1 banks with a huge drop to an impact of -26.1% at the end of December 2020 due to the effects of the recalibration to the revised CVA framework. The end-June 2021 data show a decrease in CVA capital requirements of 12.7% when moving to the revised framework. The impacts for Group 2 banks show an increase in capital requirements under the revised rules, but at much lower levels after the recalibration.

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

Balanced data set

Graph 66



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

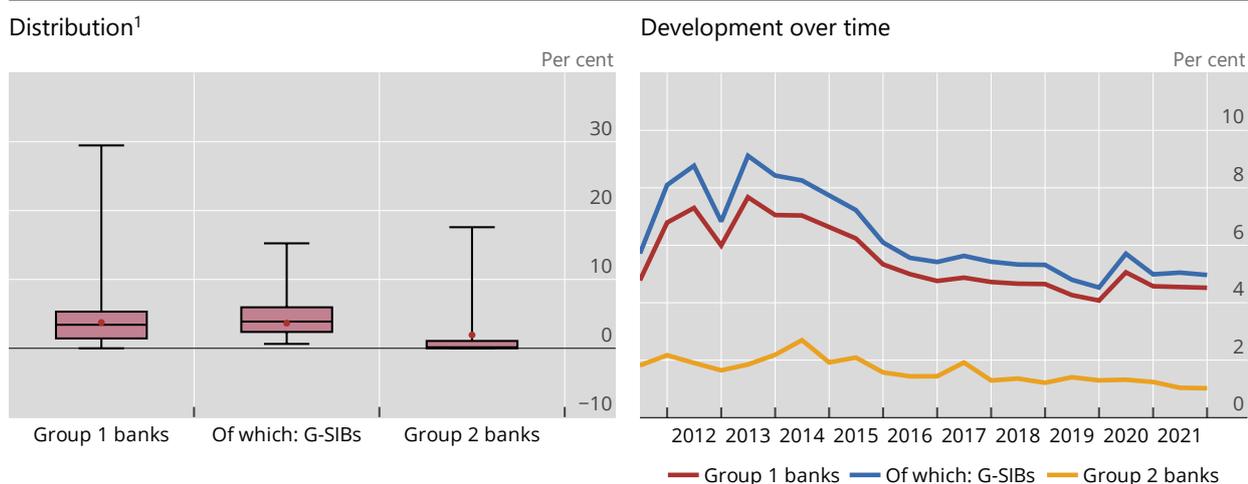
The left panel of Graph 67 shows the distribution of the share of minimum market risk capital requirements in total MRC under the current rules, ie jurisdiction-specific Basel 2.5 implementations. The weighted average bank's share of market risk MRC is 3.7% of total MRC for Group 1 banks and 1.9% of total MRC for Group 2 banks. However, there is significant dispersion in shares of MRC from 0% to over 29.5% across participating banks.

As seen in the trends starting in 2011, shown in the right panel of Graph 67, market risk's contribution to the sample banks' consolidated capital requirements had declined significantly for all bank groups since peaking between 2012 and 2014 and before increasing in 2020 during the onset of the Covid-19 pandemic. That latest spike in the share of market risk was likely due to increased value-at-risk (VaR) estimates driven by higher market volatility. After the initial spike in the first half of 2020 from the historic low levels at year-end 2019, market risk's contribution gave back over half of the Covid-19-related increase by the end of 2020. In 2021, the contribution for Group 1 banks and G-SIBs stabilise near the year-end 2020 levels around 4.5% and 5% respectively. Group 2 banks saw the share from market risk drop by around one fifth to 1%. These reductions in the share of market risk were likely driven by VaR estimates falling due to the higher volatility period falling out of the models' lookback windows.

Over the time series, the drop is most pronounced for G-SIBs, which had seen their relative capital requirements attributed to market risk decline by more than half since the peak. As of December 2021, the average share for Group 1 banks and G-SIBs was around one third lower compared with that seen at end-June 2011 even after the Covid-19-related spike. 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 less conservative capital requirements. Group 2 banks' average share of market risk MRC as of year-end 2021, is about 50% lower than at the beginning of the time series after experiencing a peak of 2.7% in 2014.

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

Graph 67



<sup>1</sup> 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 68 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 71.6% and 81.5% of overall market risk MRC respectively as of the second quarter of 2021. This contribution from IMA was somewhat lower than as of year-end 2020, likely due to banks' VaR estimates falling as Covid-19-related volatility falls out of their VaR lookback windows.

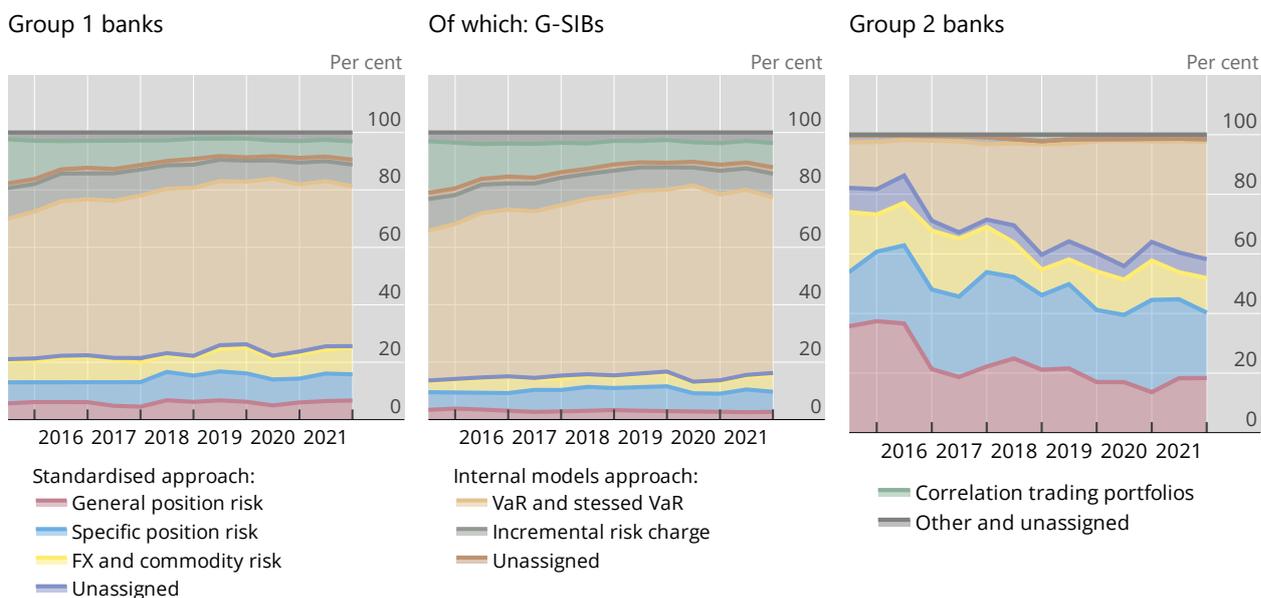
Since 2015, the share of overall market risk MRC composed of VaR and stressed VaR (SVaR) has generally increased over time while the MRC shares of both the incremental risk capital charge and correlation trading portfolios (CTPs) has generally decreased. However, in the second half of 2021, the contribution from CTPs for G-SIBs and Group 1 banks was virtually unchanged from the prior two collection.

For Group 2 banks, the IMA is much less relevant, composing around 36.5% of market risk MRC. The contribution from CTPs of 1.5% is relatively negligible for Group 2 banks although their share has increased by nearly fivefold since 2015.

## Components of MRC for market risk under the current rules

Unbalanced data set, in per cent

Graph 68



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

Graph 69 below shows the relation of the 10-day 99th percentile stressed VaR to the current VaR under current market risk rules using two sets of balanced data from Group 1 banks. The left 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 a time-series high of 382% as of year-end 2021.

The right panel of Graph 69 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 46 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 new high above 349% as of year-end 2021.

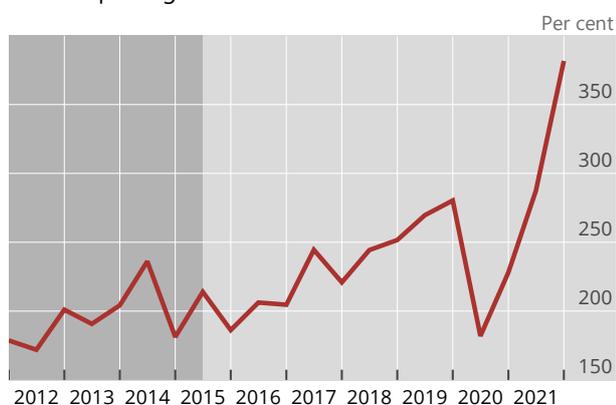
VaR models are based on a fixed backwards-looking period, such as one year, that rolls forward over time. In contrast, SVaRs are based on historical high volatility stress periods, such as the 2008 global financial crisis, that typically change infrequently. In both time series, the increasing trend prior to the outbreak of Covid-19 can be attributed at least partially to the lower volatility environment that has been observed in the markets over the several years preceding the Covid-19 pandemic, which reduces 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 time series lookback periods no longer included the volatility seen in March 2020, led to the ratio reaching new highs across both samples.

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

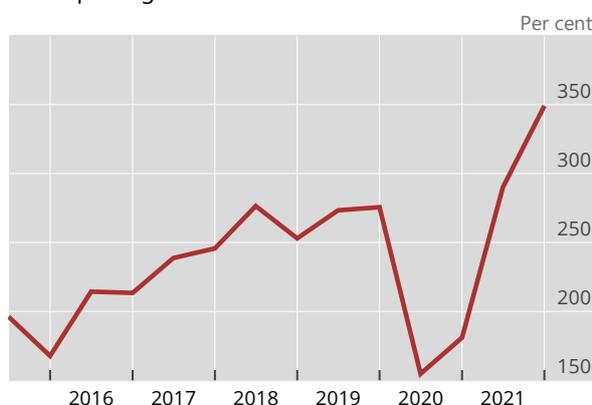
Group 1 banks, balanced data set

Graph 69

Banks reporting since end-2011



Banks reporting since June 2015



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 to banking book portfolios, which are mostly held-to-maturity or revolving. In addition, the Basel III monitoring data for market risk under the revised market risk standard is less robust as the impact estimates will continue to require significant manual intervention for many trading positions at each bank until banks develop systems reflecting their local implementations. Although prior collections included banks' estimates of the capital impact of the final standard, the fact that the banks had additional time to refine their calculations might have generally improved the accuracy of their estimates.

The impact estimates below only show impacts given banks' portfolios being fixed with their current sets of modelled desks. They do not reflect potential changes in the scope of model-approved trading desks upon implementation of the final standard. For the purpose of the analysis, participating banks were instructed to calculate the internal models approach capital requirements for trading desks or portfolios currently subject to the internal models approach. Thus, the impact numbers do not reflect banks potentially changing their portfolios in response to the new rules, which likely overstates the impact since banks may reduce their exposures to positions with high capital requirements. Finally, these impacts do not reflect the consequences of trading desks potentially failing backtesting or P&L attribution tests based on the banks submitted desk-level VaR and P&L data.

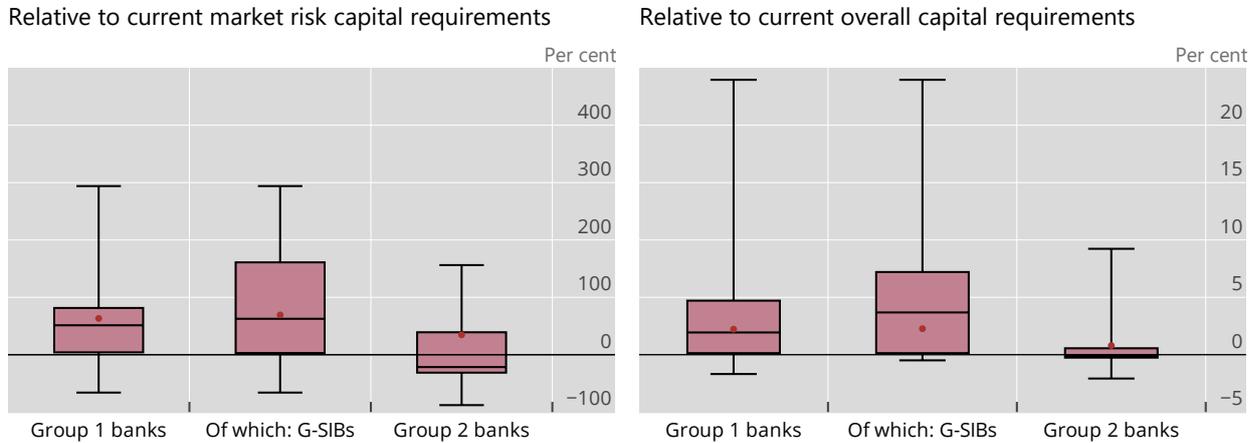
A total of 104 banks from 24 jurisdictions provided at least some market risk data as of the end-June 2021 reporting date. Of these banks, 45 Group 1 banks, including 21 G-SIBs and 11 Group 2 banks provided data sufficiently complete to estimate overall impact from the revised market risk framework.

Graph 70 below shows the revised market risk standards' impact versus current requirements (left panel) and versus current overall capital requirements (right panel). The weighted average prospective Basel III market risk capital requirements increase by 63.2% relative to current requirements for Group 1 banks and by 69.2% for the G-SIB cohort and a drop of 34.7% for Group 2 banks. At the individual bank level, the impact exhibits wide variability, ranging from a drop of 87.9% for a Group 2 bank to a near tripling (293.9%) for a G-SIB. However, as a portion of the banks' overall MRC rather than only market risk MRC, the revised standards result in a much more modest average increase of 2.2% for Group 1 banks and a drop of 0.8% for Group 2 banks. At the individual bank level, the impact ranges from a drop of 1.7% to

an increase of 24% for Group 1 banks. For Group 2 banks, the impact varies from a drop of 2.1% to an increase of 9.2%.

Impact on MRC of the revised standards for minimum capital requirements for market risk<sup>1</sup>

Graph 70



<sup>1</sup> 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 71 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 both the current and revised standards.

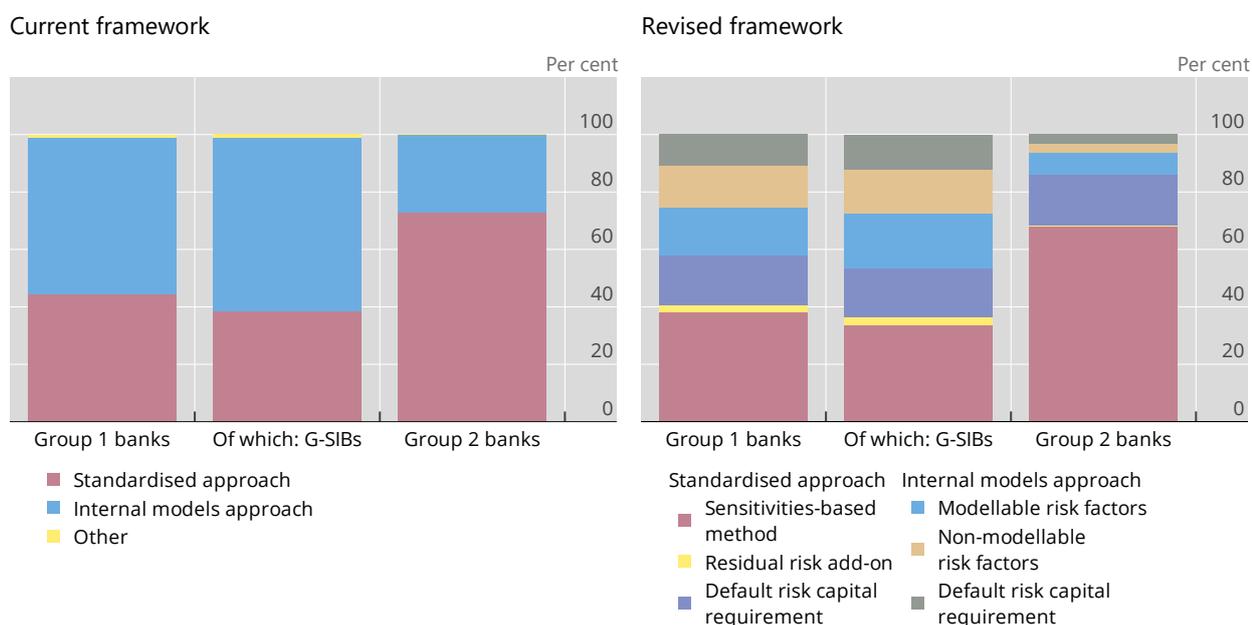
Group 1 banks expect their share of standardised approach capital requirements to increase from 44.4% to 57.7%. For Group 2 banks, the share of their standardised approach capital requirements is expected to increase from 73.1% to 86.1%.

For positions subject to the revised standardised approach, for Group 1 banks, 66.1% of the standardised approach capital requirement is expected to be attributed to the sensitivities-based method (SbM). For Group 2 banks, the share of the SbM is 79%. The default risk capital (DRC) requirement contributes 29.7% and 20.5% 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 (eg gap risk, correlation risk and behavioural risks including prepayment risk), contributes 4.2% to the standardised approach capital requirement for Group 1 banks and almost 0 percent for Group 2 banks' SA capital requirement.

With respect to the revised IMA, the capital requirement for modellable risk factors would contribute 40% to the total internally-modelled capital requirements (modellable, non-modellable risk factors and DRC) for Group 1 banks and 55.8% for Group 2 banks. The corresponding share of capital requirements from non-modellable risk factors is 34.1% and 20.7%, respectively. Finally, the DRC for internal models is expected to contribute 25.7% for Group 1 banks and 23.4% for Group 2 banks IMA capital charge.

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

Graph 71



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 either is 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, 14 banks in eight jurisdictions were able to provide sufficient data to perform VaR backtesting (versus 15 in the end-2020 data collection). Banks provided enough data for 391 desks for all tests to be performed. Of these desks, 45 were able to pass all tests in the green zone and a further 19 desks passed in the amber zone for a total pass rate of 16.4%, which indicates a slightly worse performance than the 17.1% achieved as of June 2021. However, this is a significantly weaker performance than the 21.2% pass rate as of the end of 2019, but an improvement over the 14.2% pass rate seen at year-end 2020, which was heavily influenced by the Covid-19-driven volatility seen in the first half of the year.

## 4.5 Operational risk

### 4.5.1 Current operational risk rules

As depicted in Graph 72 below, MRC for operational risk of Group 1 banks increased until end-2016, levelled-off since then. The share of operational risk MRC as a percentage of total MRC is also declining; it is currently 12.0% for Group 1 banks and 13.8% for G-SIBs.

The evolution of losses over the past 10 years is depicted in Graph 73. MRC for operational risk first increased with increasing losses, yet as losses have started to decline it has stabilised in recent years. In total, €513.9 billion of gross and €461.9 billion of net operational risk losses have been reported over the past 10 years. Operational risk gross losses were €68.1 billion in 2012 and peaked in 2014 at €78.8 billion. Since then, gross losses have decreased significantly to approximately €29.7 billion in 2021, the lowest value of the past 10 years. Despite the Covid-19 pandemic, this trend continued in 2021.

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.

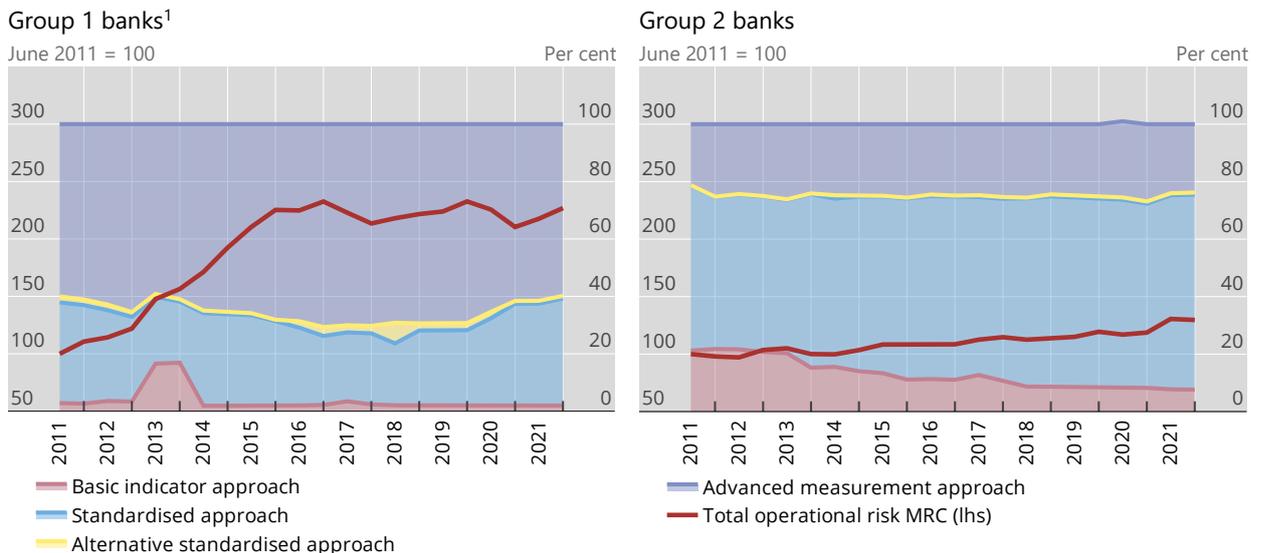
For Group 1 banks and G-SIBs, most of which use the Advanced Measurement Approach (AMA) as the primary method for calculating operational risk capital, the increase in the first half of the 2010s is largely explained by the surge in the number and severity of operational risk events during and after the financial crisis. For Group 1 banks as a whole, 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% in 2011 to about 70% at end-2016. On the other hand, AMA banks benefit from recent 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 61.1% 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,<sup>34</sup> is largely due to an increase in business volume, a factor captured by the financial statement-based components of the standardised approaches. For Group 2 banks, the share of operational risk MRC as a percentage of total MRC is 10.3%.

## Total MRC for operational risk and share of approaches

Balanced data set

Graph 72



<sup>1</sup> Some banks started reporting operational risk RWAs under the Basic Indicator Approach in 2013 and eventually migrated to the Standardised Approach in 2014.

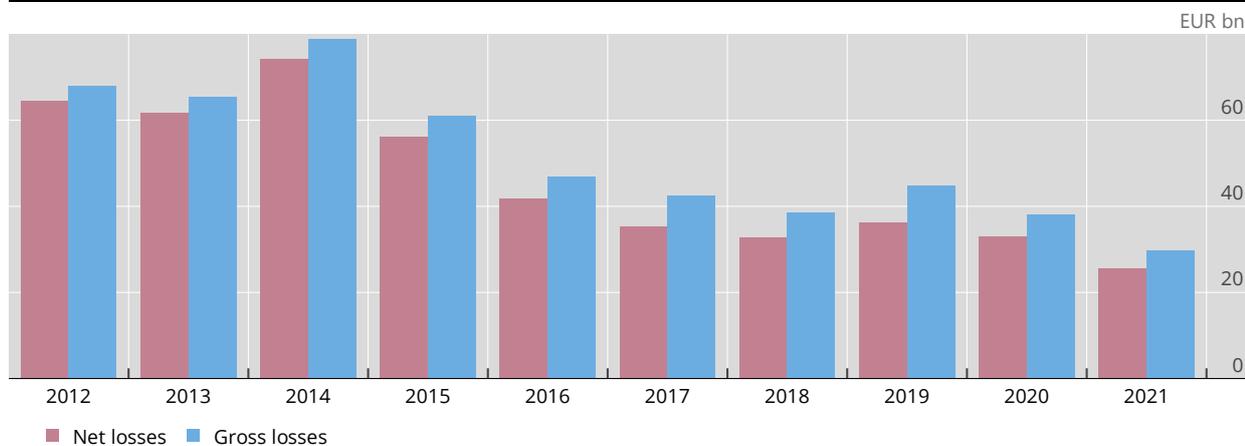
Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

<sup>34</sup> These comprise the Basic Indicator Approach (BIA), the Standardised Approach (TSA) and its variant, the Alternative Standardised Approach (ASA).

## Loss evolution over the past 10 years

All banks, exchange rates as of the current reporting date

Graph 73

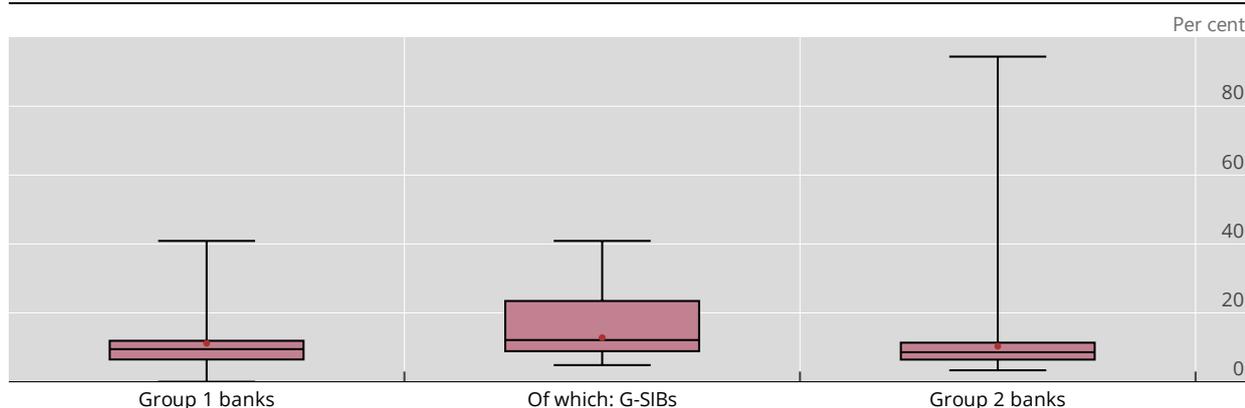


Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

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 74). For Group 2 banks, the difference between the 25th and 75th quantile of the share of MRC for operational risk in total MRC is 4.4 percentage points. Although the difference of 6.1 percentage points for Group 1 banks is similar, the difference for G-SIBs (14 percentage points) is significantly higher. This observation in combination the weighted average (12% for Group 1 banks and 13.8% for G-SIBs) being significantly higher than the median (9.9% for Group 1 banks and 12.2% for G-SIBs) indicates a 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<sup>1</sup>

Graph 74



<sup>1</sup> 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<sup>35</sup> 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 takes into account 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.<sup>36</sup>

According to Table 12, the final operational risk framework generates an aggregate small increase in operational risk MRC of approximately 0.9% for all Group 1 banks. Nevertheless, G-SIBs will benefit from a decrease of -3.7% while an increase of 24.7% for the Group 2 banks in the sample is observed. While Europe faces a significant increase of around 39.1%, the Americas (-5.1%) and the rest of the world (-18.8%) experience significant decreases. This impact is observed with most banks indicating the application of the risk-sensitive ILM feature. However, if all banks used the less risk-sensitive BI component only (ILM=1), the impact for Group 1 banks would decrease to -2.8% and -10.6% for G-SIBs. This indicates that the past losses due to the financial crisis would still have a measurable impact on possible MRC. If all Group 1 banks applied the ILM based on the average losses above 20k of the past 10 years, the impact would be 6.3% and -0.1% for G-SIBs, indicating that losses from the financial crisis still push the MRC. The comparison between ILM=1 and ILM 20k on a regional level shows that the MRC in Europe (delta of 44.8 percentage points) and the Americas (delta of 22.5 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 -33.9 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 73), 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 -3.9% (-13.3% for G-SIBs), even a bit lower as the result of ILM=1. In the case that even the average losses of the past three years remain, the MRC would decrease by -5.4% (-15% 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.

As the impact described above is based on data without possible loss exclusion for losses not relevant anymore for a bank’s risk exposure, and without any possible correction of the business indicator (eg due to divested activities, mergers or acquisitions), the real impact might further be over- or underestimated. A deeper look into possible loss exclusions and BI adjustments<sup>37</sup> reported by banks shows that the capital impact might be significantly lower as the impact on ILM=1 decreases to -8.1% (-15.6%

<sup>35</sup> 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).

<sup>36</sup> 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.

<sup>37</sup> 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 have to apply the rules. Nevertheless, the already reported adjustment possibilities indicate that the real impact is over- rather than underestimated.

for G-SIBs), which is about five percentage points less than without any BI adjustment. Also, with consideration of loss exclusions, the impact is 2.6% for Group 1 banks – almost four percentage points lower than without loss exclusions. Nevertheless, as the decreasing effect is a bit lower compared with the ILM=1, it seems that BI adjustments could become slightly more important than loss exclusions.

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 to 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.

Changes in MRC for operational risk								
In per cent								
	With chosen approach	ILM=1	20k 10Y	100k 10Y	20k 5Y	20k 3Y	ILM=1, corrected	20k 10Y net, corr BIC
Group 1 banks	0.9	-2.8	6.3	4.5	-3.9	-5.4	-8.1	2.6
Of which: Europe	39.1	15.2	60.2	56.6	39.5	32.2	14.9	58.1
Of which: Americas	-5.1	-27.6	-5.1	-6.6	-19.8	-19.8	-28.4	-5.9
Of which: RW	-18.8	16.2	-17.7	-18.5	-14.4	-13.7	1.6	-26.5
Of which: G-SIBs	-3.7	-10.6	-0.1	-1.7	-13.3	-15.0	-15.6	-3.6
Group 2 banks	24.7	7.7	25.5	20.1	28.0	28.3	10.4	23.9

Source: Basel Committee on Banking Supervision.

With Graph 75 it is possible to explain the effect in case 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 73 might change the interaction between BIC and LC. To make numbers comparable without showing confidential data, the values are converted as a fraction of the *reported 2021 operational risk MRC*. The analysis comprises a balanced set of 67 banks, 28 of them are AMA banks.

For AMA banks, the left panel of Graph 75 shows that the business-driven BIC is constantly growing from 67.6% in 2017 to 72.9% in 2021 (a change of +8%), only interrupted in the 2020 pandemic year. On the other hand, the loss component was more or less stable till 2019 and decreases since then. Despite the decreasing losses since 2015, the loss component could not directly decrease as till 2019, pre-financial crisis low-loss years were just replaced by similar low-loss years after 2014. This changes 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 266.5% in 2018 by about 16% to 224.2% in 2021. 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.

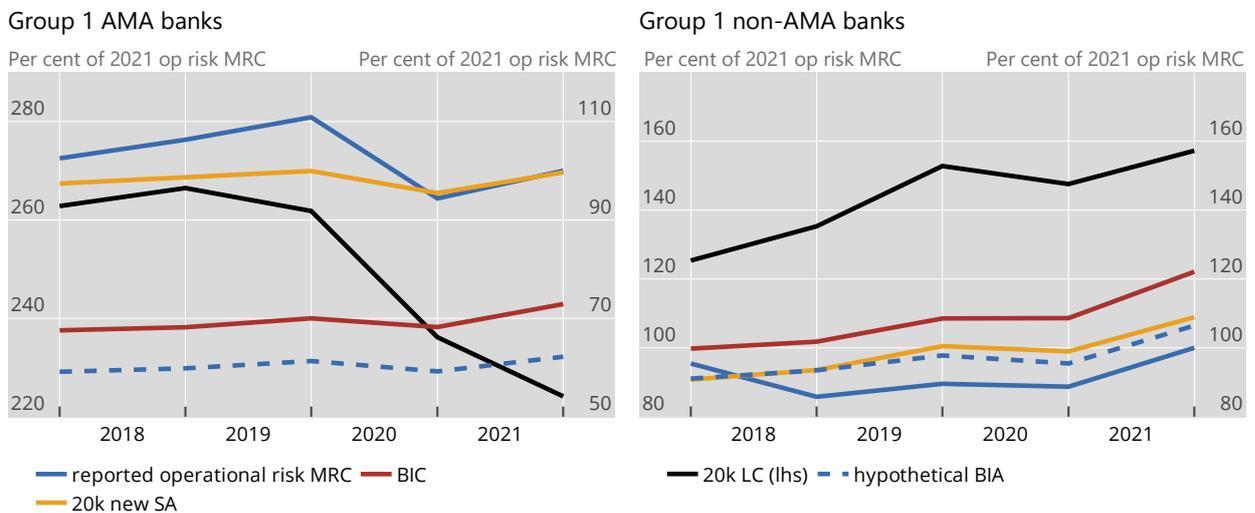
Although the loss component decreases faster than the BIC increases, the final MRC of the new SA is still increasing by about 3% over the past five years as due to the logarithm feature of the ILM, the loss component has only a diminished impact. This diminishing effect is even stronger for banks whose loss component is significantly higher than the BIC. This is currently true for Group 1 banks, whose loss component is about three times higher than the BIC in 2021. The average ILM in such a case is about 1.4 and is reflected in the difference between 72.9% BIC and 99.7% 20k new SA. This ratio is already significantly lower as in 2017 when the loss component to BIC ratio was about 3.9. Nevertheless, despite the fade out of losses in the 10-year window, they still drive the 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 2021 would be 62.2%, ie about 38% lower than with the current AMA which is by definition 100%.

A different picture can be observed for the non-AMA Group 1 banks presented in the right panel of Graph 75. The hypothetical BIA is about 6% 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 BIA, ASA and SA. Furthermore, the BIC and the loss component change almost with the same rate. While the BIC increased from 99.8% to 122.1%, which is about 22%, the loss component increased by 25% from 125.3% in 2017 to 157.2% in 2021.<sup>38</sup> 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 losses after the financial crisis and thus have a loss component similar to the BIC. The ratio between loss component and BIC for these banks is only 1.3 in 2021, leading to an ILM of about 1.08 on average.

Evolution of new SA components

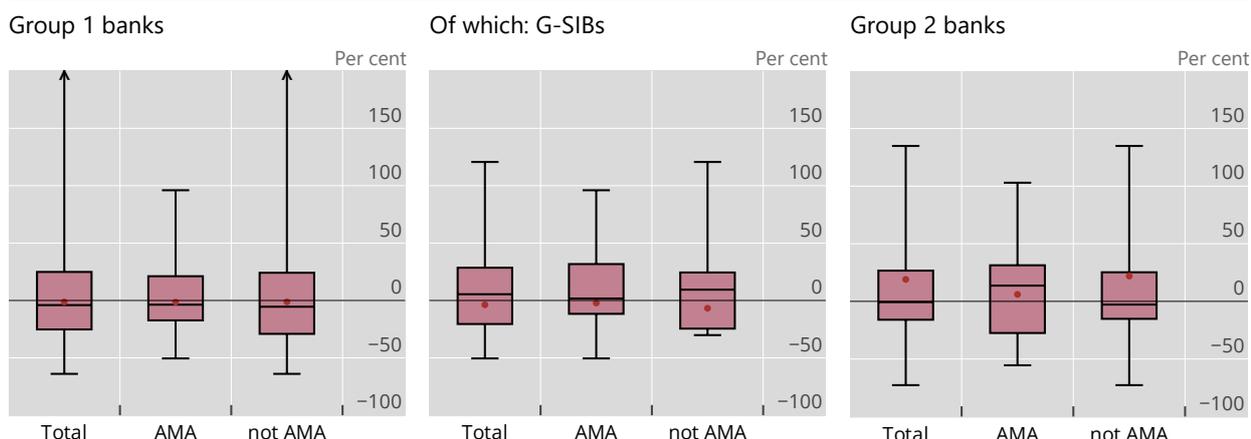
Graph 75



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

Graph 76 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.

<sup>38</sup> 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 2021 with the loss component of 157.2% for non-AMA banks seems to be not that different from 224.2% for AMA banks, they are twice as high for AMA banks if the loss component values are divided by their hypothetical 2021 BIA (62.2% for AMA and 106.5% for non-AMA banks). With this further adjustment, the value for AMA banks at 379.0% would be more than twice as high as for non-AMA banks with 172.7%.



<sup>1</sup> 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 requirements under fully phased-in initial Basel III standards

Graph 77 below shows the interaction between the fully phased-in Basel III Tier 1 leverage ratios (horizontal axis) and the fully phased-in 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%,<sup>39</sup> whereas the dashed vertical line represents a Basel III Tier 1 leverage ratio of 3%.

The diagonal line represents points where an 8.5% fully phased-in Basel III Tier 1 target risk-based capital ratio results in the same amount of required fully phased-in Basel III Tier 1 capital as a fully phased-in Basel III Tier 1 leverage ratio of 3%. By construction, it also represents a multiple of  $8.5\%/3\% \approx 2.83$  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).<sup>40</sup> 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 1 capital ratio remains the constraining requirement).

As shown in Graph 77, all banks meet the minimum Basel III Tier 1 leverage ratio of 3% (plotted left of the vertical dashed line) as well as the Tier 1 target risk-based capital ratio under the fully phased-in initial Basel III standards of 8.5%. This graph also shows that the fully phased-in Basel III Tier 1 leverage

<sup>39</sup> Calculated as the sum of a 6.0% Tier 1 minimum capital ratio plus 2.5% capital conservation buffer.

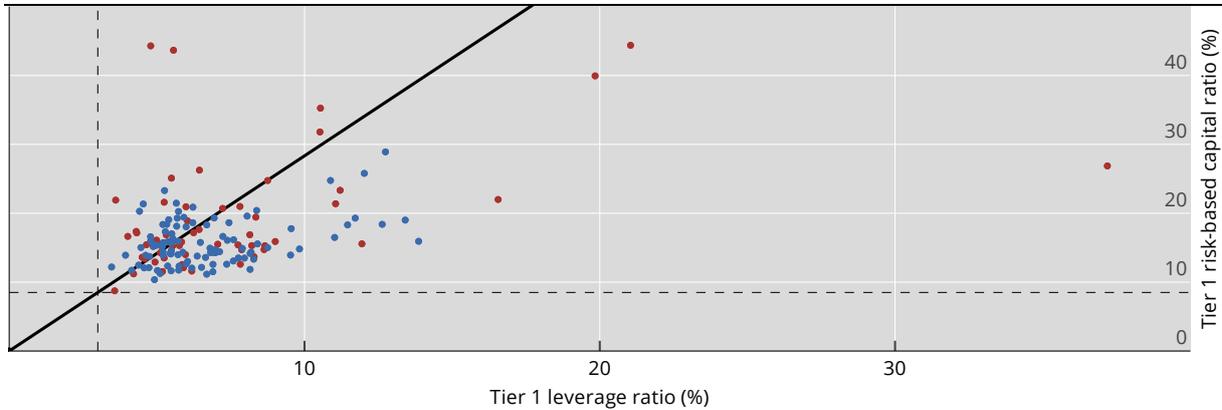
<sup>40</sup> Note that the effect of the G-SIB surcharge is not taken into account here. As the G-SIB surcharges only apply to the risk-based requirement under the initial Basel III framework, the relevant proportion between RWA and total leverage ratio exposure that determines whether the Basel III leverage ratio is constraining or not and hence the slope of the diagonal line would be different by bank.

ratio is constraining for 55 banks out of 157, including 34 Group 1 and 21 Group 2 banks (plotted above the diagonal line).

## Fully phased-in initial Basel III Tier 1 risk-based capital and leverage ratios

Balanced data set, in per cent

Graph 77



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 only results in a shortfall for very few 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, compared to the actual situation where those additional requirements would be considered. In the actual situation, fewer banks are constrained by the leverage ratio.

Graph 78 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”).<sup>41</sup>

Since this section by looking at final Basel III takes a long run perspective, consistently with Section 2.2 temporary COVID-related exemptions to the leverage ratio have been re-included in the leverage ratio exposure measure. This results in a significantly larger share of banks bound by the leverage

<sup>41</sup> Graph 78 does not distinguish between IRB and “pure SA” Group 1 banks as out of the 91 Group 1 banks in the sample only 16 are “pure SA” banks.

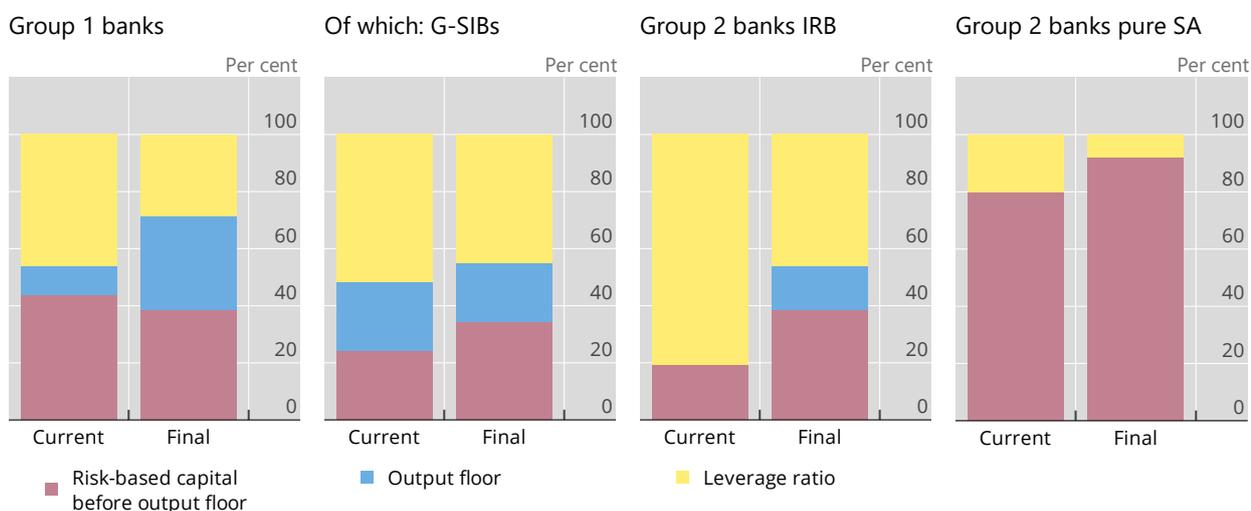
ratio. For a detailed analysis on the effect of the temporary leverage ratio exemptions we refer to the special feature in the September 2021 public report.<sup>42</sup>

Under the current initial Basel III framework, the transitional Basel I based floor is binding for 9 out of the 94 Group 1 banks. For the remaining Group 1 banks, the binding ratio is quite balanced between the risk-based ratio and the leverage ratio (40 and 42 banks respectively). Globally, under the fully phased-in final Basel III framework, the output floor becomes more binding for Group 1 banks, especially at the expense of the leverage ratio as the binding requirement: The number of banks for which the output floor is binding increases from 9 to 30. In parallel, the number drops from 41 to 25 Group 1 banks for which the leverage ratio is the binding requirement.

Contrary, the number of G-SIBs constrained by the minimum leverage ratio remains high under the final initial Basel III framework, going from 15 to 13. Under the fully phased-in final Basel III framework, the number of G-SIBs restricted by the output floor remains stable as it goes from seven to six banks, while the relevance of the risk-based ratio rises from 7 to ten banks between the current and the final framework.

For Group 2 banks, for analysis purposes, graph 115 distinguishes between IRB and pure SA banks (26 and 25 banks, respectively). Under the current initial Basel III framework, the leverage ratio is binding for 21 out of 26 Group 2 IRB banks, whereas for 20 out of 25 pure SA Group 2 banks the risk-based capital requirements are binding. No Group 2 banks are restricted by the transitional Basel I based floor under the current initial Basel III framework. Under the fully phased-in final Basel III framework, four Group 2 IRB banks become constrained by the output floor. The relevance of the risk-based capital requirements before application of the output floor increases and is constraining 10 IRB and 23 pure SA banks (compared to five and 20 under the initial framework, respectively).

Percentage of banks constrained by different parts of the framework Graph 78



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

Graph 79 shows the percentage of banks constrained by different parts of the framework, by region. In Europe, no bank is constrained by the transitional Basel I based floor. Under the current initial Basel III framework, the main binding ratio is the leverage ratio, of which 25 out of 35 of European banks are constrained. This seems partially driven by the methodological choices of re-including the temporary exemptions in the leverage ratio exposure measure and further the non-consideration of some capital requirements, such as D-SIB buffer and Pillar 2 requirements in the analysis. Against this background, the

<sup>42</sup> Basel Committee on Banking Supervision, *Basel III monitoring report*, September 2021, [www.bis.org/bcbs/publ/d524.htm](http://www.bis.org/bcbs/publ/d524.htm).

numbers in Graph 78 might overestimate the impact of the leverage ratio constraint. Under the fully phased-in final Basel III framework, the output floor significantly gains relevance: 13 European banks become restricted by the output floor. Consequently, the number of banks for which the leverage ratio is the binding ratio decreases remarkably (from 25 to 14) as well as the number of banks constrained by the risk-based capital requirements before application of the output floor (from 10 to 8)

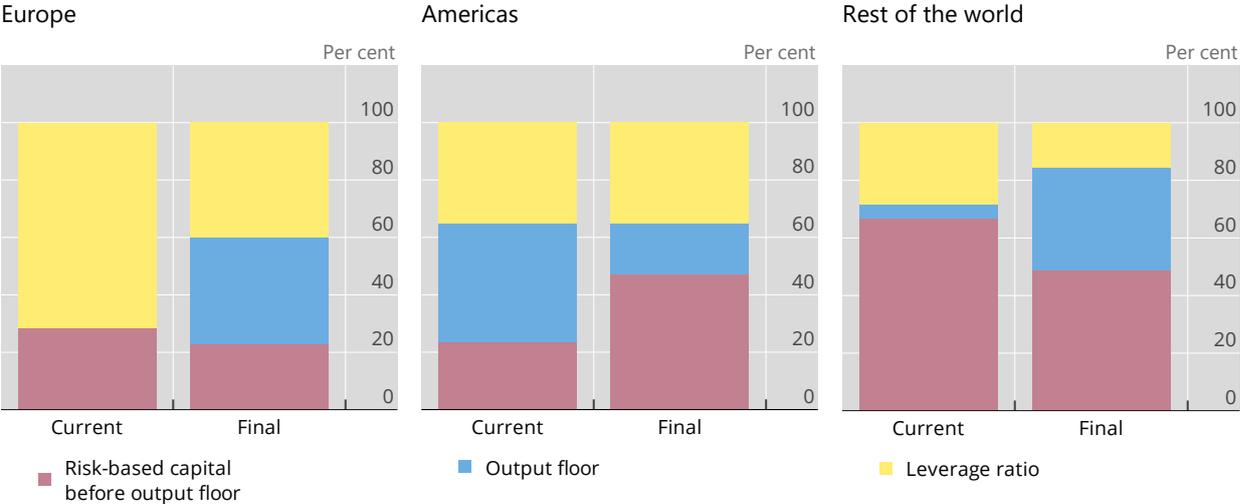
In contrast, the development in the Americas is very different. Under the current initial Basel III framework, the transitional Basel I-based floor is the binding constraint for the majority of banks (seven banks out of 17), while six banks are restricted by the leverage ratio and four by the risk-based capital requirements before floor-application. Under the fully phased-in final Basel III framework, the share of banks constrained by the leverage ratio remains stable, whereas the output floor loses significance as binding restriction (only three banks constrained). Consequently, under the fully phased-in final Basel III framework, the majority of banks in the Americas (eight banks) is now constrained by the risk-based capital requirements before application of the output floor.

For the rest of the world, most banks are constrained by the risk-based capital requirements before floor-application under the current initial Basel III framework as well as under the fully phased-in final Basel III framework (26 and 19 banks, respectively). Nevertheless, the output floor constraint is the measure that experiences the most important change in terms of constraints between both frameworks. The number of banks constrained by the output floor increases from two to 14. The number of banks restricted by the leverage ratio decreases from 11 to six.

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

Group 1 banks

Graph 79



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

## 6. Liquidity<sup>43</sup>

### 6.1 Liquidity Coverage Ratio

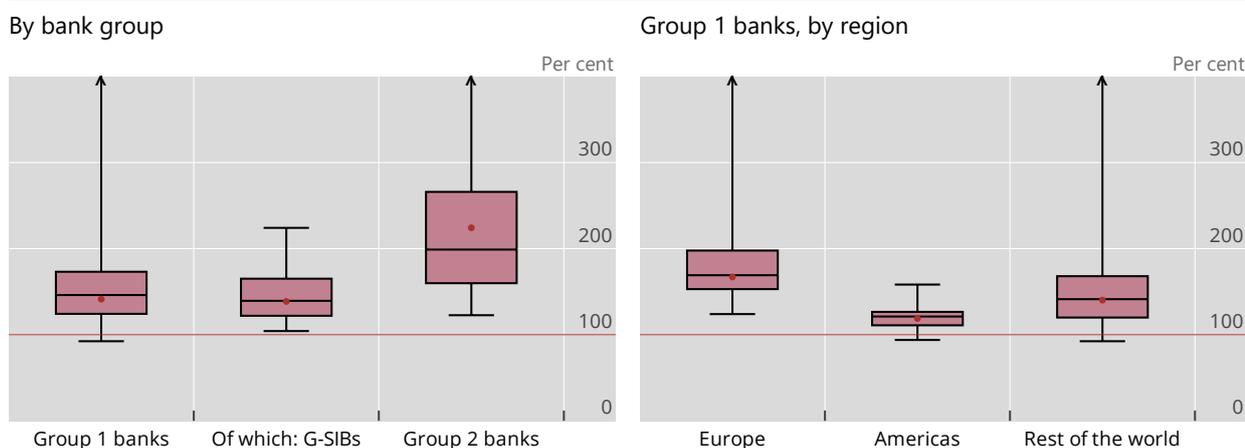
One of the two liquidity standards introduced by the Committee is the 30-day Liquidity Coverage Ratio (LCR), which promotes short-term resilience against potential liquidity disruptions. The LCR requires global banks to have sufficient high-quality liquid assets to withstand a stressed 30-day funding scenario specified by supervisors. The LCR numerator consists of a stock of unencumbered, high-quality liquid assets (HQLAs) 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 181 banks (116 Group 1 banks and 65 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 €89.7 trillion. Based on an inconsistent sample of banks, the weighted average LCR for the Group 1 banks reporting data for the December 2021 reporting date decreased by 2.2 percentage points from end-June 2021 to 141.3%. The weighted average LCR for Group 2 banks slightly decreased by 0.1 percentage points from 224.3% at end-June 2021 to 224.2% at the end of December 2021.

While the weighted average LCR decreased for Group 1 banks, at end-December 2021, six Group 1 banks in two regions reported an LCR below 100%. This is a decrease from seven banks at end-June 2021, and it is driven by HQLA increasing between end-June 2021 and end-December 2021 after declining from end-December 2020 to end-June 2021. All Group 2 banks report an LCR well above 100%.

Liquidity Coverage Ratio<sup>1</sup>

Graph 80



<sup>1</sup> 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 high quality liquid assets and net cash outflows) which amounts to €21.0 billion.

<sup>43</sup> The dashboards on the Committee's website provide more detailed insights into the components of the LCR and the NSFR.

## 6.2 Net Stable Funding Ratio

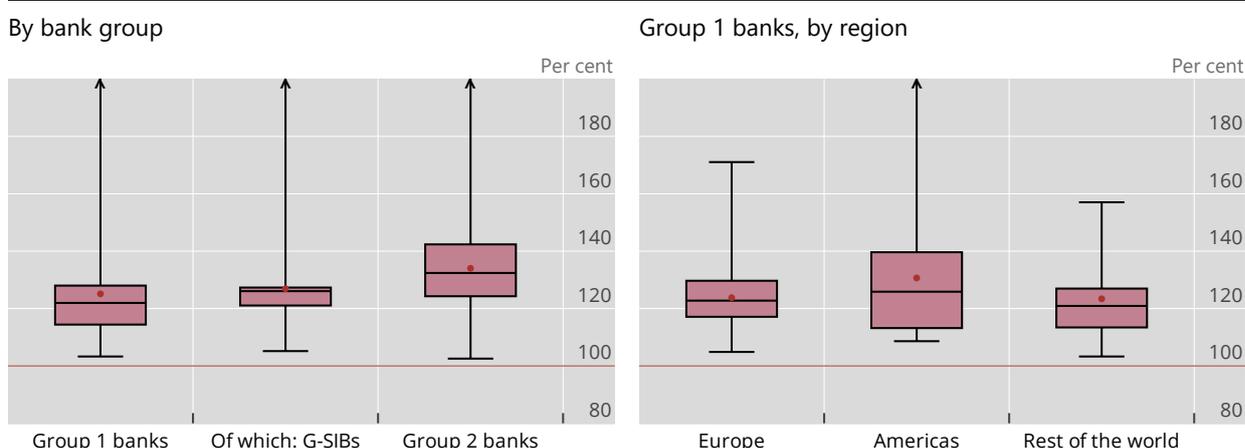
The second liquidity standard introduced by the Basel III reforms is the Net Stable Funding Ratio (NSFR), a longer-term structural ratio designed to reduce funding risk over a longer time horizon by requiring banks to fund their activities with sufficiently stable sources of funding in order to mitigate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

For the NSFR, data provided by 157 banks (108 Group 1 and 49 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 €85.9 trillion.

The weighted average NSFR was 125.1% for Group 1 banks and 134.0% for Group 2 banks at end-December 2021 compared with 124.6% and 129.7%, respectively, at end-June 2021. Overall, all Group 1 and Group 2 banks reported an NSFR that met or exceeded 100%. This compares to 99.0% of Group 1 banks and 100.0% of Group 2 banks that reported a ratio that met or exceeded 100% as of end-June 2021.

Net Stable Funding Ratio<sup>1</sup>

Graph 81



<sup>1</sup> 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. This compares to an €8.0 billion shortfall for Group 1 banks and no shortfalls for Group 2 banks at end-June 2021. This number is reflective only of the aggregate shortfall for banks that are below the 100% NSFR requirement and does not reflect any surplus stable funding at banks above the 100% requirement.<sup>44</sup> It also does not take into account sample changes from the June 2021 to the December 2021 reporting date. 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 82 below displays the weighted average LCR, weighted average NSFR and shortfalls associated with each standard for a consistent sample of banks across reporting periods since end-December 2012.<sup>45</sup>

<sup>44</sup> 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.

<sup>45</sup> 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.

Given the different samples of banks, results for the end-June and end-December 2021 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 the first decline in weighted average LCR since end-December 2019. The weighted average LCR for these banks was 144.0% at end-December 2021, compared to 145.8% at end-June 2021. The LCR was slowly increasing from end-December 2012 to end-December 2019, followed by a distinct uptick during the pandemic. While the average LCR for Group 1 banks shows a decrease, the aggregate LCR shortfall decreased from €9.7 billion at end-June 2021 to €5.6 billion at end-December 2021.

Group 2 banks followed a similar pattern, with the weighted average LCR declining to 222.8% at end-December 2021, compared to 228.4% at end-June 2021. The reported LCR data for each of the reporting periods since end-December 2012 increased gradually through end-December 2019, before spiking during the pandemic. However, the weighted average LCR of Group 2 banks increased much more than Group 1 banks, growing from 162.6% at end-December 2019 to a high of 228.4% at the end-June 2021 reporting date.

The graph also displays NSFRs since end-December 2012.<sup>46</sup> The weighted average NSFR for Group 1 banks was 124.1% at end-December 2021 and 123.8% at end-June 2021. The weighted average NSFR for Group 2 banks was 131.6% at end-December 2021 and 129.9% at end-June 2021.

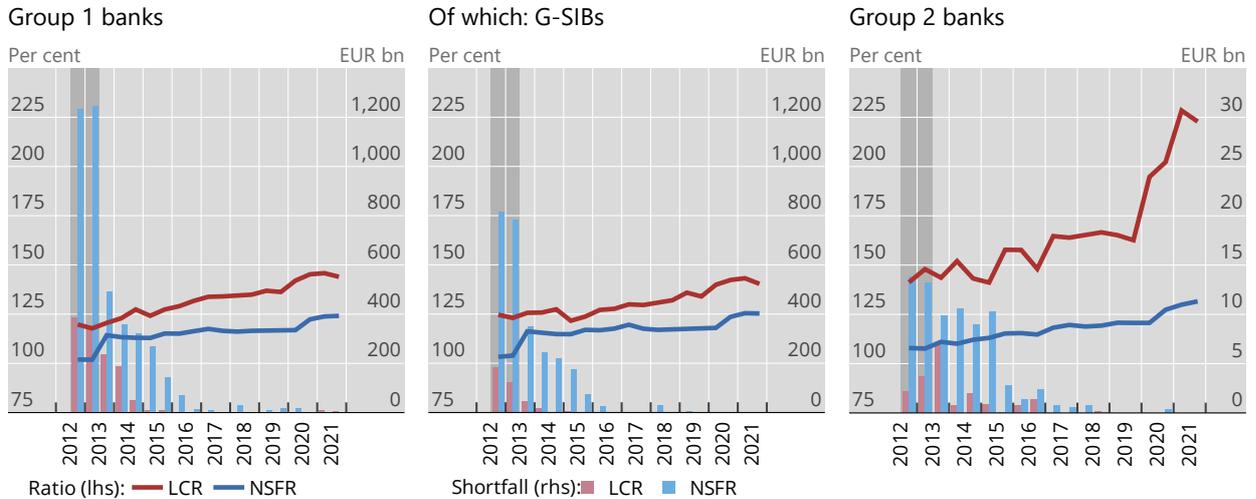
The aggregate shortfall for Group 1 banks that do not meet the 100% NSFR requirement generally declined for each of the respective standards from end-June 2012 through end-December 2017. Since then, the aggregate shortfall has consistently been relatively small. For the second period in a row, there was no aggregate shortfall with regard to the 100% NSFR minimum requirement for both Group 1 banks and Group 2 banks at end-December 2021.

<sup>46</sup> Graph 82 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](http://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.

## LCR, NSFR and related shortfalls at a 100% minimum requirement<sup>1</sup>

Balanced data set, exchange rates as at the reporting dates

Graph 82



<sup>1</sup> 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.

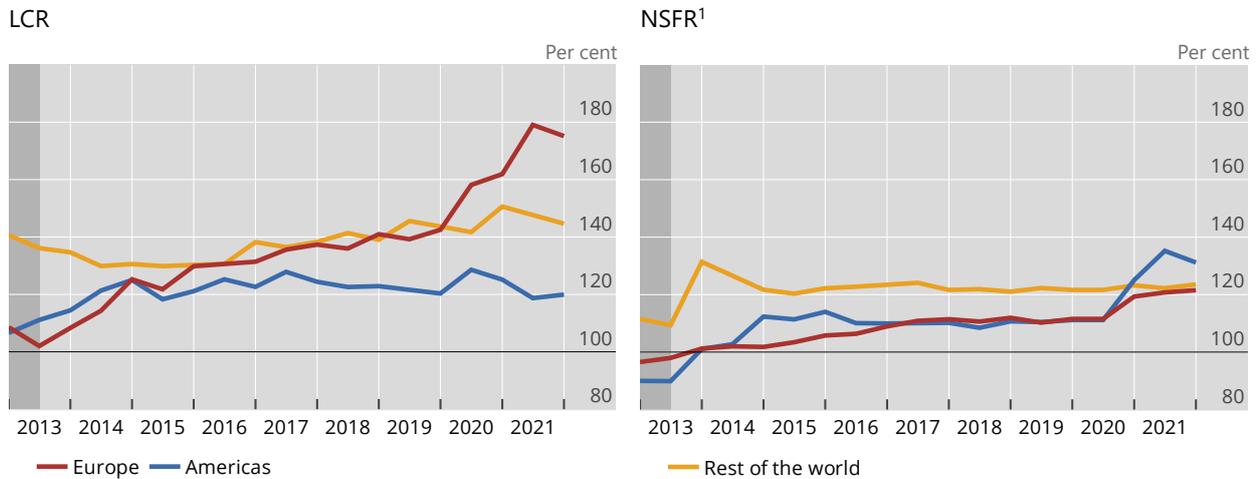
Graph 83 displays the regional breakdown of the weighted average LCR and the weighted average NSFR for a consistent sample of Group 1 banks across reporting periods since end-December 2012. The weighted average LCR at end-December 2021 for Europe and the rest of the world was in excess of 140%, while the average LCR of the Americas is around 120%. 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 important increases in particular between end-2012 and June 2014, and again since the start of the pandemic.

The weighted average NSFR at end-December 2021 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 two years, from 111.5% and 111.1% since end-December 2019 to respectively 121.5% and 131.2% at end-December 2021. This increase brought both regions to a level in line with the rest of the world, which reported an average NSFR of 123.5% at end-December 2021. The average NSFR of banks in Americas has decreased from a peak of 135.2% at end-June 2021 to 131.2% at end-December 2021.

## LCR and NSFR by region

Group 1 banks, balanced data set

Graph 83



<sup>1</sup> See footnote 1 to Graph 89.

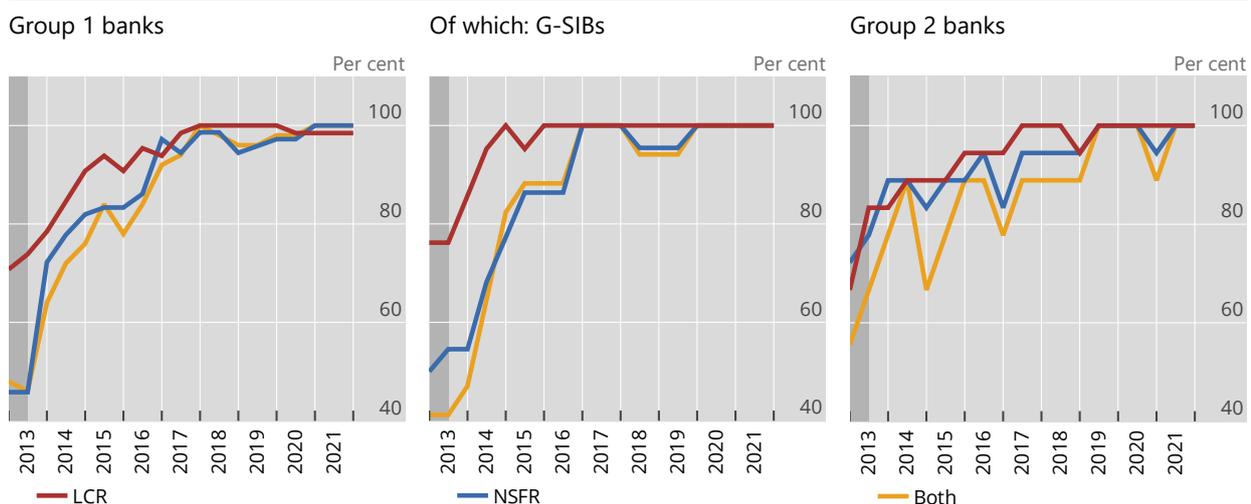
Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size. The LCR dashboard on the Committee's website provides the same regional breakdown for G-SIBs.

Graph 84 displays the share of banks, in a consistent sample, that meet the 100% LCR and NSFR requirements. The share of Group 1 banks meeting both requirements has increased from 48.0% at end-December 2012 to 100% at end-December 2021, while the share of Group 2 banks meeting both requirements increased from 55.6% to 100.0% during the same period.

## Share of banks meeting the LCR and NSFR requirements<sup>1</sup>

Balanced data

Graph 84



<sup>1</sup> Samples for LCR and NSFR may differ.

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

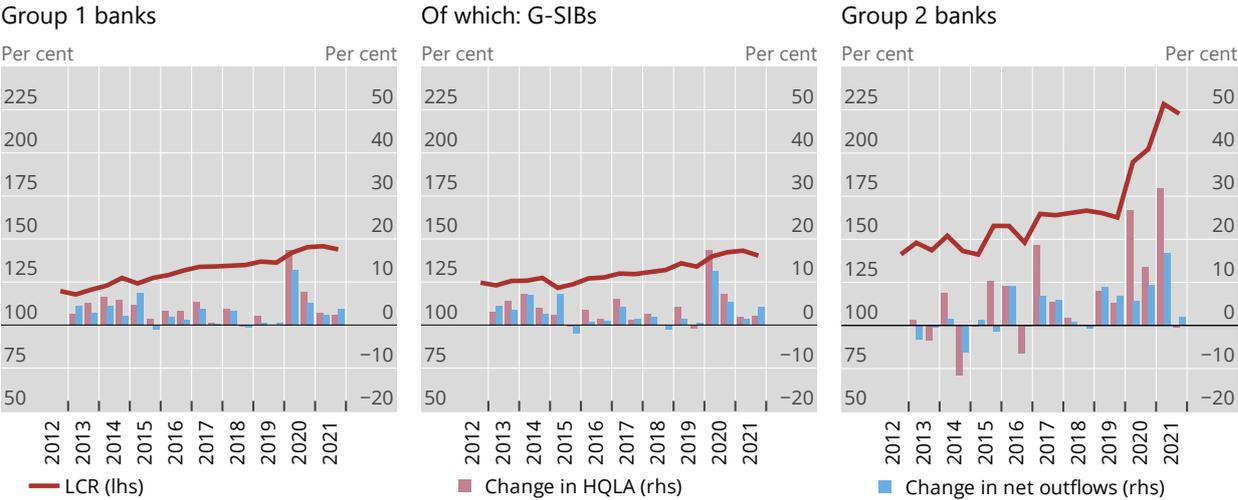
Graph 85 displays the weighted average LCR for a consistent sample of banks across reporting periods since end-December 2012, along with a breakdown of the period-to-period changes of the LCR into changes in HQLA and changes in net outflows. This decomposition shows that the recent decrease in the weighted average LCR for Group 1 banks is driven by increases in net outflows which was only partially

offset by increases in HQLA. For Group 2 banks, the changes in the weighted average LCR (increases as well as decreases compared with the relevant previous period) can also mainly be explained by higher volatility in HQLA, partially offset by changes in net outflows. The recent decrease in weighted average LCR for Group 2 banks has been driven by a decrease in HQLA and an increase in net outflows. 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 85



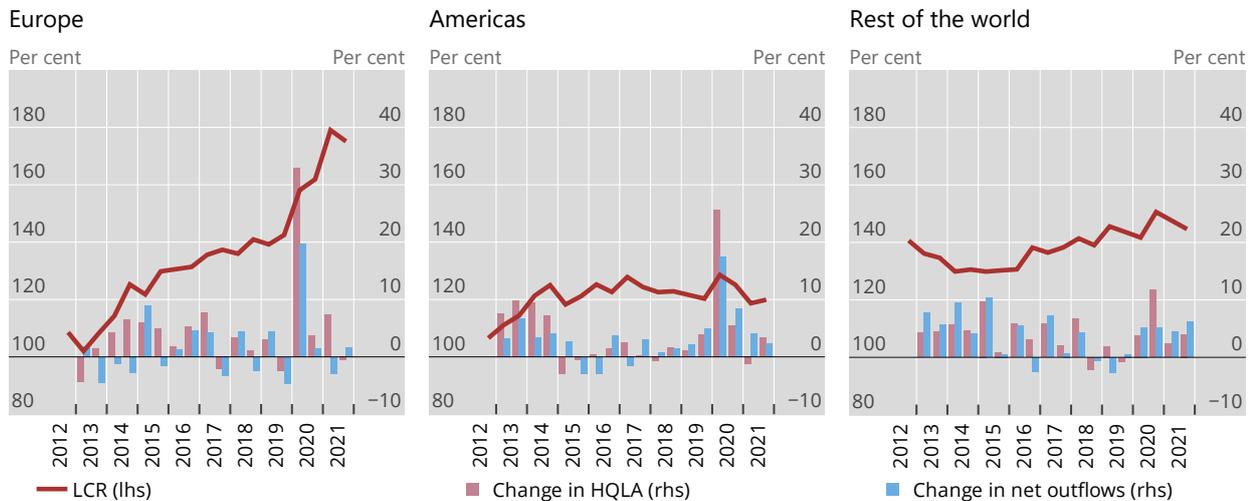
Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

Graph 86 provides a breakdown by region of the results in Graph 85 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, LCR of banks in Europe have decreased as net outflows increased slightly while the amount of HQLA remained stable. On the other hand, LCR of banks in the Americas picked up as a result of the increase in HQLA that exceeded the increase in net outflows. For the rest of the world, both net outflows and HQLA increased during the past four periods, and for this period, LCR decreased as HQLA showed a smaller increase compared to the net outflows.

## 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 86



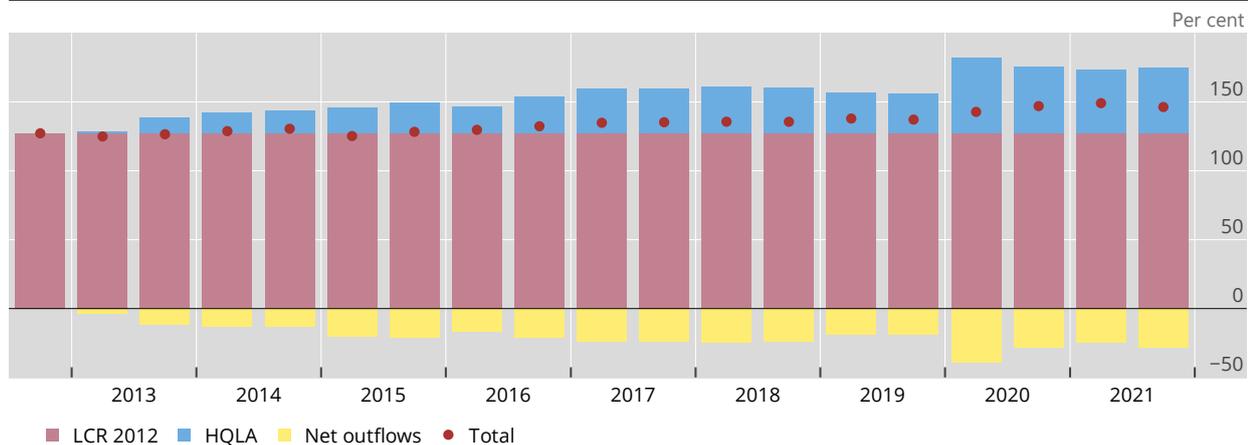
Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size. The LCR dashboard on the Committee's website provides the same regional breakdown for G-SIBs.

Graph 87 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 to 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 87

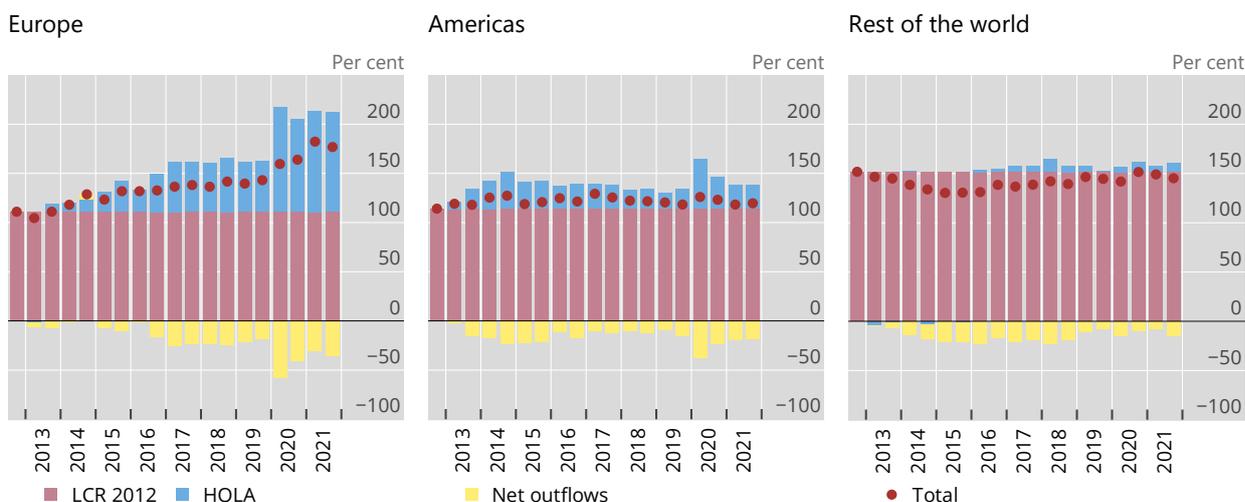


Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

## Evolution of the LCR and its drivers, by region

Group 1 banks, balanced data set

Graph 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.

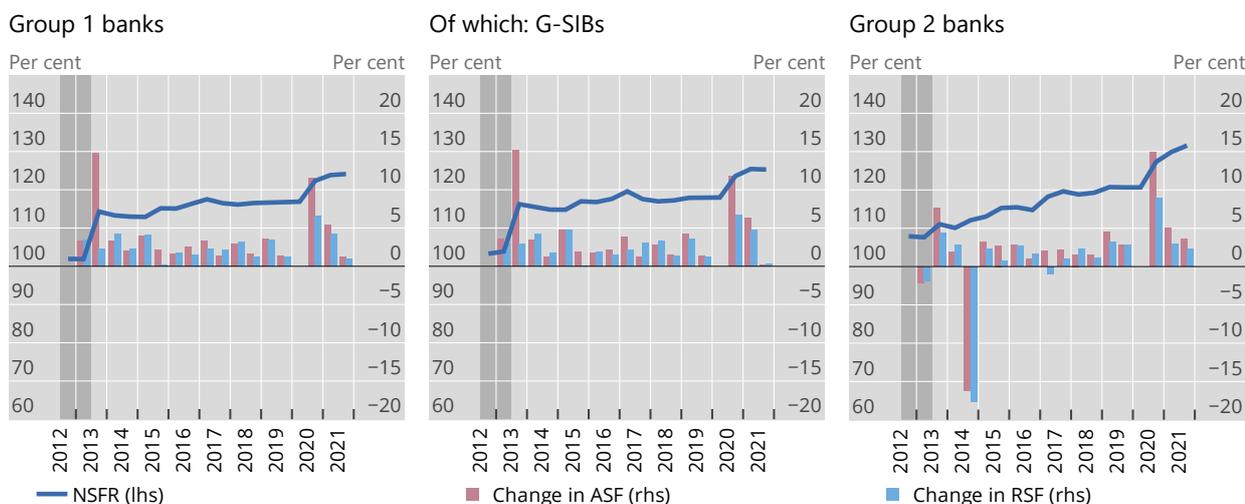
Graph 89 depicts the change in ASF and RSF over time. For all bank groups, there were significant positive changes in ASF of more than 9.8 percentage points for the end-December 2013 reporting date, also reflecting the changes to the definition of the NSFR standard. Since 2015, the change in ASF has generally stabilised for Group 1 banks within 5% over a six-month period, but experienced a turbulence during the pandemic. For this period, the effect of the pandemic seems to have settled down as end-December 2021 reporting period shows a 1.3% increase in ASF and a 1.0% increase in RSF, compared to an 11.5% increase in ASF and a 6.6% increase in RSF in the end-December 2020 reporting period when banks experienced the largest increase in ASF and RSF for recent years due to the pandemic. The average NSFR is at an all-time high and increased from 123.8% at end-June 2021 to 124.1% at end-December 2021, which is not the case for G-SIBs where the average NSFR decreased from 125.4% to 125.3% in this period. Figures of Group 2 banks were more volatile for both ASF and RSF but also stabilized since 2015 until the pandemic. Also for Group 2 banks, the end-December 2021 reporting period shows similar variation with a 3.6% increase in ASF and a 2.3% increase in RSF from previous period, compared to a 14.9% increase in ASF and an 8.9% increase in RSF in end-December 2020 period.

Graph 90 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<sup>1</sup>

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

Graph 89



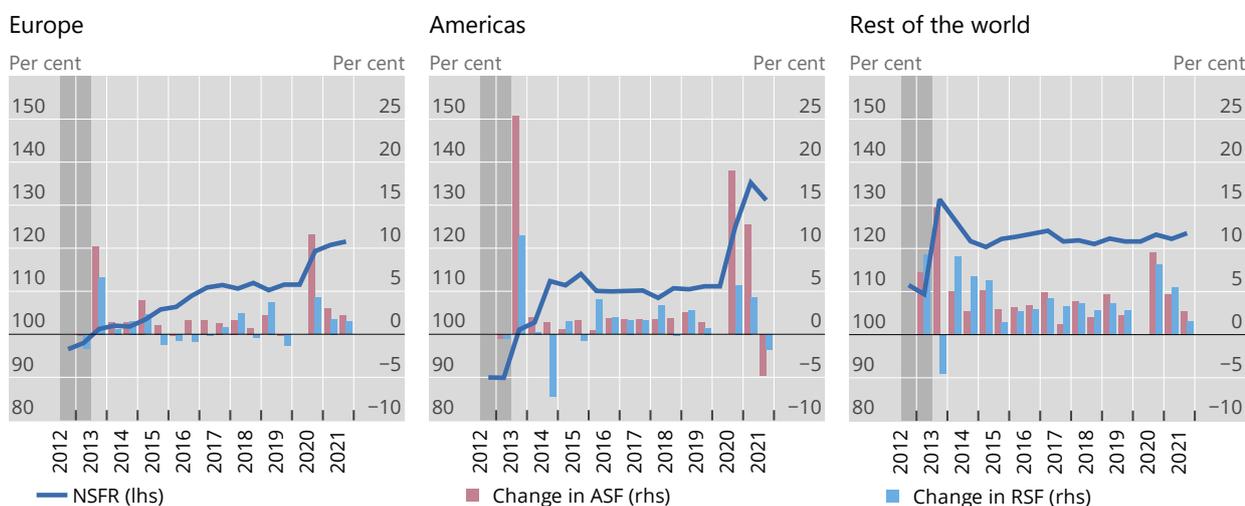
<sup>1</sup> See footnote 1 to Graph 82.

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

## NSFR and change in ASF and RSF,<sup>1</sup> by region

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

Graph 90



<sup>1</sup> See footnote 1 to Graph 82.

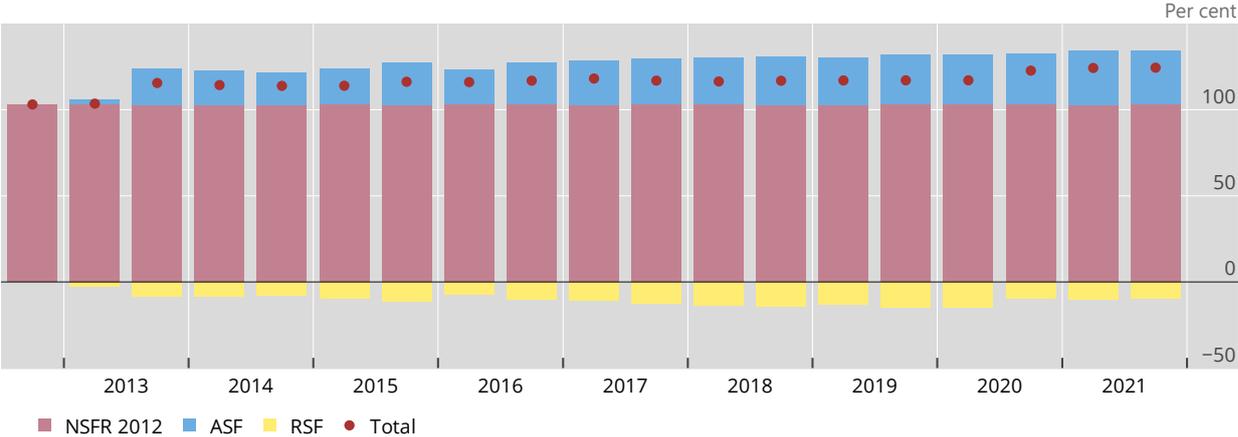
Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size. The NSFR dashboard on the Committee's website provides the same regional breakdown for G-SIBs.

Graph 91 shows the evolution of the NSFR and its drivers.<sup>47</sup> 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 to RSF, which has resulted in an overall improvement in the NSFR over time. Graph 92 shows the same evolution for the three regions.

Evolution of NSFR and its drivers<sup>1</sup>

Group 1 banks, balanced data set

Graph 91



<sup>1</sup> See footnote 1 to Graph 82.

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

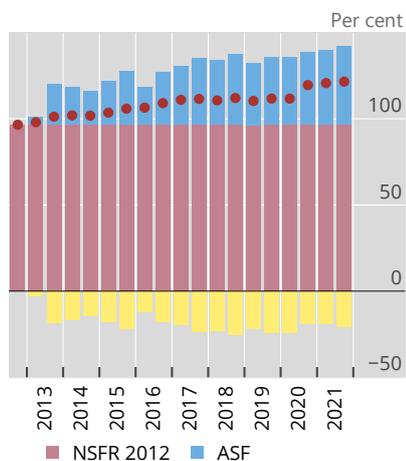
<sup>47</sup> Please note that while Graph 89 shows significant increases in both ASF and RSF, this is not the case for Graph 91. Graph 91 uses a different methodology in which the growth rate of both ASF and RSF is deflated by the growth in total assets/liabilities to avoid continuously growing stacks 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 89. 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 91 compared to the previous period. The same remark goes for the discrepancy between Graph 90 and Graph 92.

# Evolution of NSFR and its drivers,<sup>1</sup> by region

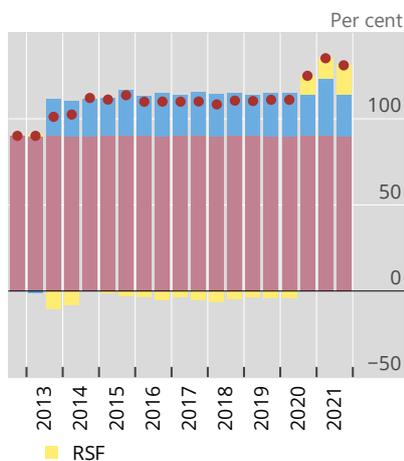
Group 1 banks, balanced data set

Graph 92

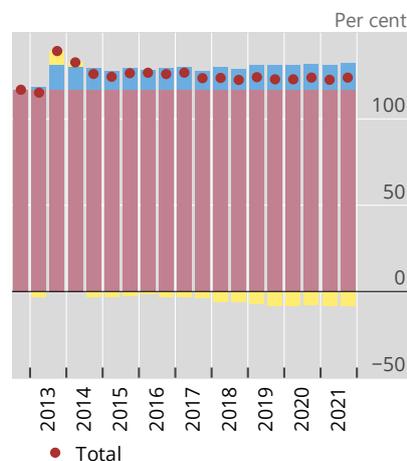
## Europe



## Americas



## Rest of the world



<sup>1</sup> See footnote 1 to Graph 82.

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.

## Banks' exposures to cryptoassets – a novel dataset

### 1. Introduction

Since 2018, the Basel Committee has been pursuing a multi-pronged set of analytical, supervisory and policy initiatives related to cryptoassets. As part of this work, a new cryptoasset data collection template was introduced starting with the current Basel III monitoring exercise based on end-2021 data. The template was specifically designed to support the Committee's two consultative documents on the prudential treatment of banks' cryptoasset exposures, which were published on 10 June 2021 and 30 June 2022.<sup>53</sup> It collects granular information on banks' holdings of cryptoassets, including information at the level of individual cryptoassets. This special feature provides some analysis on banks' exposures to cryptoassets based on the data collected.

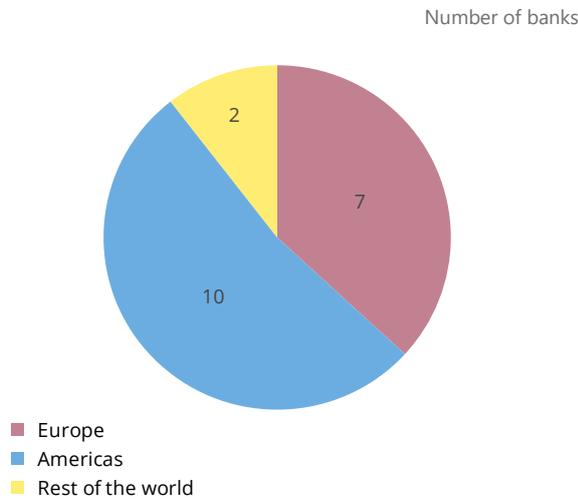
Overall, 19 banks submitted cryptoasset data – 10 from the Americas, seven from Europe and two from the rest of the world (Graph , left panel). All reporting banks are Group 1 banks, except for three Group 2 banks (of these, two Group 2 banks do not participate in the wider Basel III monitoring exercise and appear to specialise in cryptoassets). These banks make up a relatively small part of the wider sample of 182 banks considered in the Basel III monitoring exercise – 17.1% of total RWA, and 20.9% of overall leverage ratio exposure measure (LREM) (Graph 1, right panel), with banks from the Americas contributing to approximately three quarters of these amounts.<sup>54</sup>

As this is the first data collection using the new template, the results in this special feature are subject to a number of data quality caveats and potential biases. As the cryptoasset market is fast evolving, it is difficult to ascertain whether some banks have under- or over-reported their exposures to cryptoassets, and the extent to which they have consistently applied the same approach to classifying any exposures. As such, while they are helpful in providing a broad indication of banks' cryptoasset activity, they should be interpreted with a degree of caution.

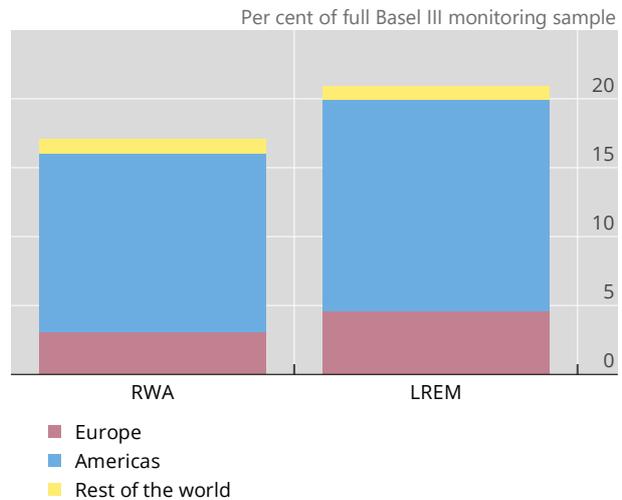
<sup>53</sup> See [www.bis.org/bcbs/publ/d533.htm](http://www.bis.org/bcbs/publ/d533.htm).

<sup>54</sup> These amounts also account for the amounts of the two Group 2 banks which only participate in the crypto exercise and are not included in the general analysis of the Basel III monitoring exercise.

Number of banks reporting cryptoasset exposures<sup>1</sup>



Proportion of banks reporting crypto exposures<sup>2</sup>



<sup>1</sup> All reporting banks are Group 1 banks, except for three Group 2 banks. Two Group 2 banks participated only in the crypto exercise and did not participate in the wider Basel III monitoring exercise. <sup>2</sup> The denominators used also account for the amounts of the two Group 2 banks which only participate in the crypto exercise and are not included in the general analysis of the Basel III monitoring exercise.

Source: BCBS end-2021 data collection and Secretariat calculations.

## 2. Composition of crypto exposures

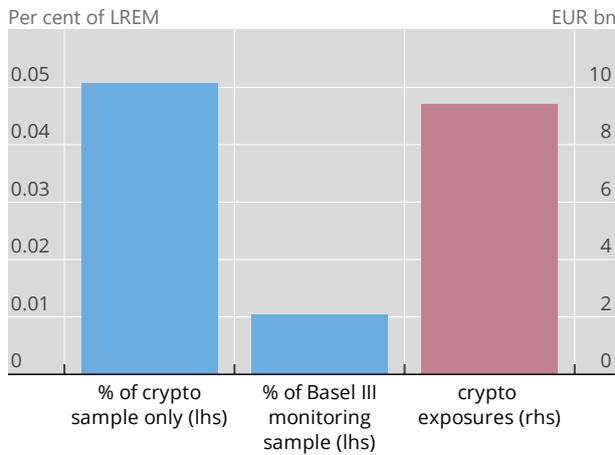
### 2.1 Overall amounts

Total cryptoasset exposures reported by banks amount to approximately €9.4 billion. In relative terms, these exposures make up only 0.05% of total exposures on a weighted average basis across the sample of banks reporting cryptoasset exposures.<sup>55</sup> When considering the whole sample of banks included in the Basel III monitoring exercise (ie also those that do not report cryptoasset exposures), the amount shrinks to 0.01% of total exposures (Graph 2, left panel).

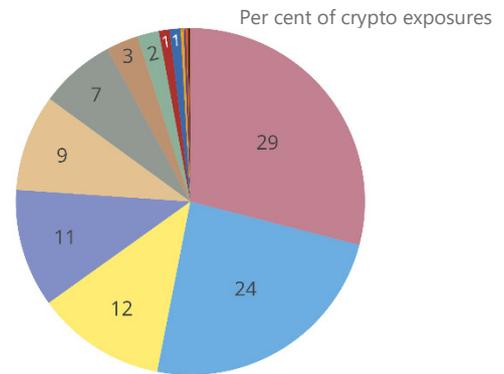
Cryptoasset exposures are distributed unevenly across reporting banks, with two banks making up more than half of overall cryptoasset exposures, and four more banks making up just below 40% of the remaining exposures (Graph 2, right panel).

<sup>55</sup> Cryptoasset exposures are weighted by the leverage ratio exposure measure.

Reported crypto exposures



Distribution of total crypto exposures across banks<sup>1</sup>



<sup>1</sup> Each slice represents one of the banks which reported crypto exposures.

Source: BCBS end-2021 data collection and Secretariat calculations.

## 2.2 Composition across cryptoassets

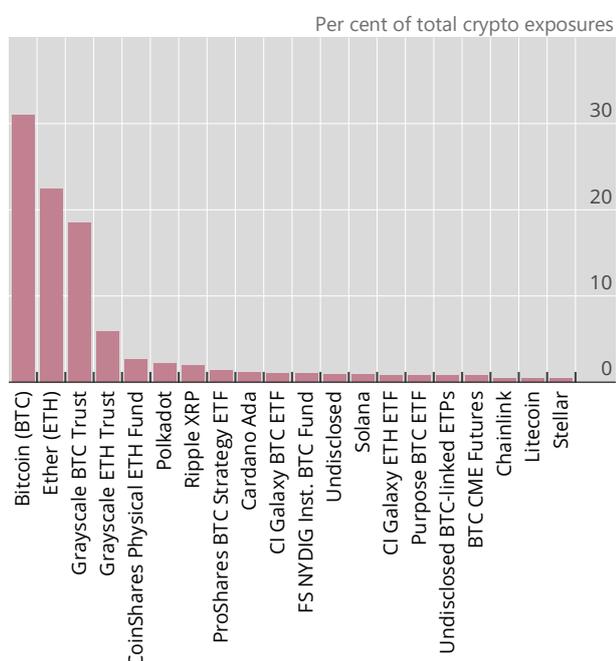
Reported cryptoasset exposures are primarily composed of Bitcoin (31%), Ether (22%) and a multitude of instruments with either Bitcoin or Ether as the underlying cryptoassets (25% and 10% respectively). Together, these make up almost 90% of reported exposures (Graph 3). Focusing on the top 20 reported cryptoassets by exposure amount, other relatively significant reported cryptoassets include Polkadot (2% of reported exposures), Ripple XRP (2%), Cardano Ada (1%), Solana (1%), Litecoin (0.4%) and Stellar (0.4%). These exposures would likely be classified as Group 2 cryptoassets under the current consultative proposal of the Basel Committee.<sup>56</sup> Banks also reported, in smaller amounts, a stablecoin (USD coin) and tokenised assets (not shown).

<sup>56</sup> See [www.bis.org/press/p220630.htm](http://www.bis.org/press/p220630.htm). The proposal divides cryptoassets into two broad groups: (i) Group 1 cryptoassets, which must meet in full a set of classification conditions and are either tokenised traditional assets, or cryptoassets with effective stabilisation mechanisms, which would be eligible for treatment under the existing Basel Framework with some modifications; and (ii) Group 2 cryptoassets, which include unbacked cryptoasset and stablecoins with ineffective stabilisation mechanisms, which are subject to a new conservative prudential treatment.

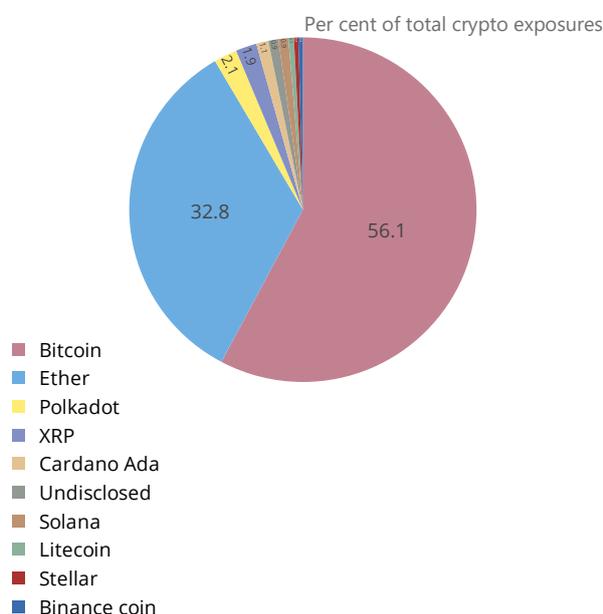
## Bitcoin, Ether and related cryptoassets make up the vast majority of crypto exposures

Graph 3

Top 20 reported cryptoassets by exposure amount



Top 10 reported cryptoassets grouped by underlying asset



Source: BCBS end-2021 data collection and Secretariat calculations.

### 2.3 Distribution across activities

The reported exposures span a variety of activities which directly or indirectly expose banks to cryptoassets. For the purpose of this special feature, they have been grouped into three broad categories:

1. **Crypto holdings and lending:** this includes outright holdings and investments in cryptoassets or products with underlying cryptoassets, lending to households, corporates and financial institutions with exposures to cryptoassets (eg crypto exchanges, investment funds), and issuing cryptoassets backed by assets on the bank's balance sheet;<sup>57</sup>
2. **Clearing, client and market-making services:** this includes activities such as trading (on client accounts) and clearing cryptoasset derivatives and futures, undertaking securities financing transactions (SFTs) involving cryptoassets, underwriting initial coin offerings and issuing securities with underlying cryptoassets (eg crypto trackers) while hedging the underlying exposures; and
3. **Custody/wallet/insurance and other services:** this includes providing custody/wallet/insurance services for cryptoassets, and facilitating client activity of products with underlying cryptoassets, including self-directed or manager-directed trading of cryptoassets or crypto-related securities.

Graph 4 (left panel) shows the split of reported cryptoasset exposures across those categories. Custody/wallet/insurance and other services make up half of the reported crypto exposures, with the rest largely made up of clearing and market making services (46%) and the remaining 4% due to crypto

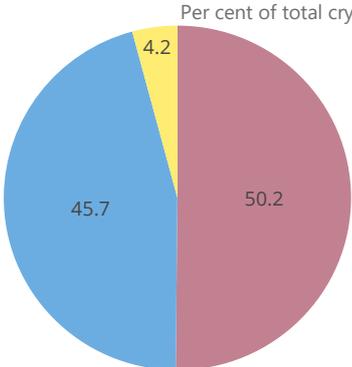
<sup>57</sup> This category also includes proprietary trading of cryptoassets or securities with cryptoassets as underlying, as well as transactions that involve exchanging virtual currency for real currency, and use of cryptoassets for internal or inter-bank operational processes.

holdings and lending. Zooming in on activity subcategories, (i) providing custody and wallet services, (ii) trading crypto on client accounts and (iii) facilitating client self-directed trading make up 14.4%, 13.4% and 11.7% of total reported crypto exposures respectively, followed by (iv) SFTs involving cryptoassets (7.8%) and (v) issuing crypto-related securities while hedging the underlying exposure (7.5%) (Graph 5). Several of these subcategories are also the most reported by banks, particularly providing custody and wallet services (seven banks), trading on client accounts (four banks) and SFTs (three banks). Owning cryptoassets, or owning products with underlying cryptoassets are also popular activities (six banks), even though their combined exposures are relatively small. Nonetheless, there is significant heterogeneity in the distribution of activities across banks, and most banks appear to have crypto exposures primarily or exclusively in one activity group (Graph 4, right panel).

Custodian, clearing and market-making services dominate bank crypto activities

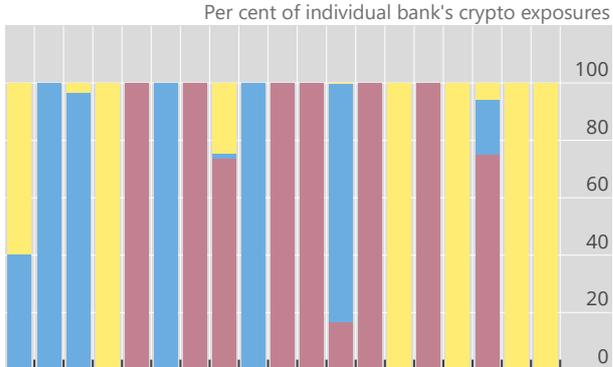
Graph 4

Crypto exposures by main activity group<sup>1</sup>



- Custody/wallet/insurance and other services
- Clearing, client and market-making services
- Crypto holdings and lending

Crypto-related activities by bank<sup>2</sup>



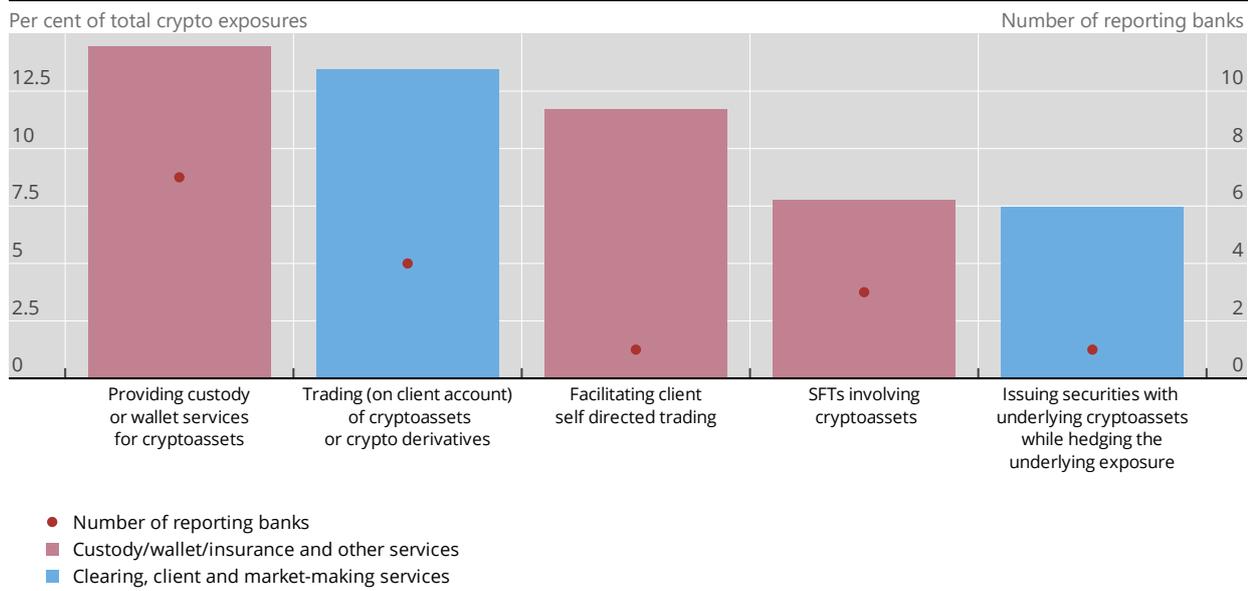
- Custody/wallet/insurance and other services
- Clearing, client and market-making services
- Crypto holdings and lending

<sup>1</sup> *Crypto holdings and lending* includes outright holdings and investments in cryptoassets or products with underlying cryptoassets, lending to households, corporates and financial institutions with exposures to cryptoassets (eg crypto exchanges, investment funds, etc), issuing cryptoassets backed by assets on the bank's balance sheet, proprietary trading of cryptoassets or securities with cryptoassets as underlying, as well as transactions that involve exchanging virtual currency for real currency, and use of cryptoassets for internal or inter-bank operational processes; *clearing, client and market-making services* includes activities such as trading (on client accounts) and clearing cryptoasset derivatives and futures, undertaking securities financing transactions (SFTs) involving cryptoassets, underwriting initial coin offerings, and issuing securities with underlying cryptoassets (eg crypto trackers) while hedging the underlying exposures; *custody/wallet/insurance and other services* includes providing custody/wallet/insurance services for cryptoassets, and facilitating client activity of products with underlying cryptoassets, including self-directed or manager-directed trading of cryptoassets or crypto-related securities. <sup>2</sup> Each column represents one of the banks which reported crypto exposures.

Source: BCBS end-2021 data collection and Secretariat calculations.

## Top 5 activities by exposure amount

Graph 5



Source: BCBS end-2021 data collection and Secretariat calculations.

## Capital buffers and total CET1 requirements including Pillar 2

### 1. Introduction

The Basel III reforms introduced several capital buffers on top of the minimum 4.5% CET1 ratio to total risk-weighted assets (RWA). Some of the buffers are jurisdictional and bank-specific, such as the countercyclical capital buffer (CCyB), which depends on the bank's geographic footprint and jurisdictional policies and reciprocity. In addition, supervisors could require further CET1 capital under Pillar 2<sup>58</sup> of the Basel III framework, that could also vary across banks. Prior Basel III monitoring reports have included only the capital conservation buffer (CCoB) and G-SIB buffers in the analyses. This special feature is the first to include any additional CET1 capital requirements under Pillar 2, any other Pillar 1 requirements such as higher loss absorbency requirements for domestic systemically important banks, and any countercyclical capital buffer requirements.

The supervisory reporting system (SRS) data set was only recently augmented with information on total CET1 requirements including Pillar 2.<sup>59</sup> The information, however, was also backfilled as applicable for each jurisdiction. Thus, it is now possible to calculate for each bank CET1 capital surplus resulting from the risk-weighted capital stack as the difference between the amount of total CET1 capital held and the total required amount of CET1. Note that risk-based capital requirements were specifically defined based on CET1 capital only in the post-crisis reforms. Furthermore, the buffer framework was introduced in subsequent years with a fully phased-in target of 2019.<sup>60</sup> Jurisdictional implementation of all these components varied as well.<sup>61</sup> Since the additional data on buffers are sparse prior to 2017, with most coverage starting in 2019, and for broadest consistency of the total CET1 requirements measure, we focus on the more recent data in this section.

Note that the other risk-based capital requirements analyses in this and prior reports are based on Tier 1 capital requirements, rather than CET1. This is a first view of risk-based capital in CET1 terms, its components and how they compare across segments of global banks and regions. The data availability is sufficient to provide a systemwide view, although the set of banks is slightly smaller than in the broader report due to data quality.

<sup>58</sup> For more details, see [www.bis.org/bcbs/publ/d465.htm](http://www.bis.org/bcbs/publ/d465.htm).

<sup>59</sup> The data were added in the end-June 2021 exercise, but significantly improved only with the end-December 2021 data collection. These data are used for the Committee's Basel III reforms evaluation work.

<sup>60</sup> See Box A earlier in the report.

<sup>61</sup> For more detail on the rate of jurisdictional implementation see the BCBS Implementation reports and dashboard [www.bis.org/bcbs/implementation/rcap\\_reports.htm](http://www.bis.org/bcbs/implementation/rcap_reports.htm).

## 2. Total CET1 requirements in relation to actual CET1 capital

In this section we analyse the evolution of the CET1 capital stack to fulfil the various requirements and buffers in the period around the Covid-19 pandemic for the global banking system. The period between 2019 and 2021 includes better data coverage as well as temporary changes in CET1 requirements due to Covid-19 related measures.<sup>62</sup> The decrease in some buffers in early 2020, including CCyB but also CCoB and Pillar 2, led to significant capital requirement releases. A balanced data set is defined to show the evolution through time.<sup>63</sup> Furthermore, the figures are based on fully phased-in buffers and total CET1 requirements.

The left panel of Graph 1 below shows the shares of CET1 capital held used to fulfil the various requirements and buffers over time. The brown part of the bar shows the percentage of surplus CET1 on top of all the CET1 requirements.<sup>64</sup> The red line corresponds to the evolution of total CET1 requirement, including Pillar 2, as a percentage of RWA. The graph shows that all the buffers combined have a share of around 35–39%, slightly larger than the one of the minimum 4.5% requirement, which accounts for around one third (33–35%) of total CET1. The CCoB is the buffer requiring the most capital systemwide, followed by the G-SIB buffers, other Pillar 1 buffers<sup>65</sup> and Pillar 2. The CCyB is negligible at the beginning of the period even before any releases. While the CET1 requirements were reduced in H1 2020 across jurisdictions to help banks maintain lending and support the economy during the pandemic, the graph shows that relative capital surplus has also increased in the period after the onset of the pandemic. The right panel presents how total CET1 has been increasing for the system over time. Thus, the surplus increase is not just in relative but also absolute terms. The aggregate CET1 ratio (blue line) only drops briefly in H1 2020 and overall keeps an upward trend, unlike the CET1 requirement (red line) which remains lower for the periods after the initial release in H1 2020.

<sup>62</sup> See [www.bis.org/press/p200320.htm](http://www.bis.org/press/p200320.htm).

<sup>63</sup> The balanced data set consists of 94 banks of which 56 are Group 1 banks, 26 are G-SIBs and 38 are Group 2 banks.

<sup>64</sup> Note that a bank could use its CET1 surplus to fulfil Tier 1 or total capital requirements. Therefore, the effective CET1 surplus, when considering also other capital requirements that apply in parallel to the risk weighted capital requirements, might be smaller.

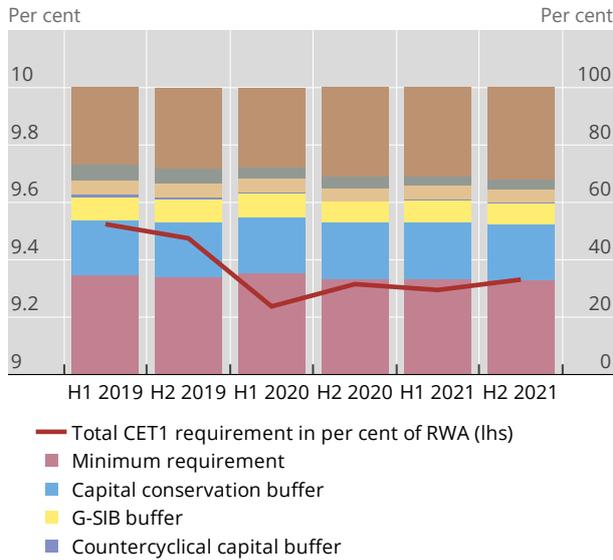
<sup>65</sup> Other Pillar 1 buffers include any additional CET1 requirement deriving from D-SIB buffers, other systemic buffers and any other additive capital requirements.

## Evolution of CET1 stack

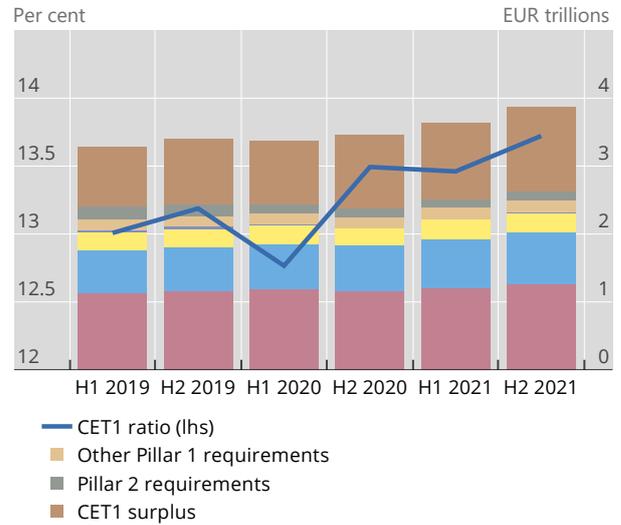
Balanced data set

Graph 1

### In per cent of CET1 capital held



### In EUR trillions



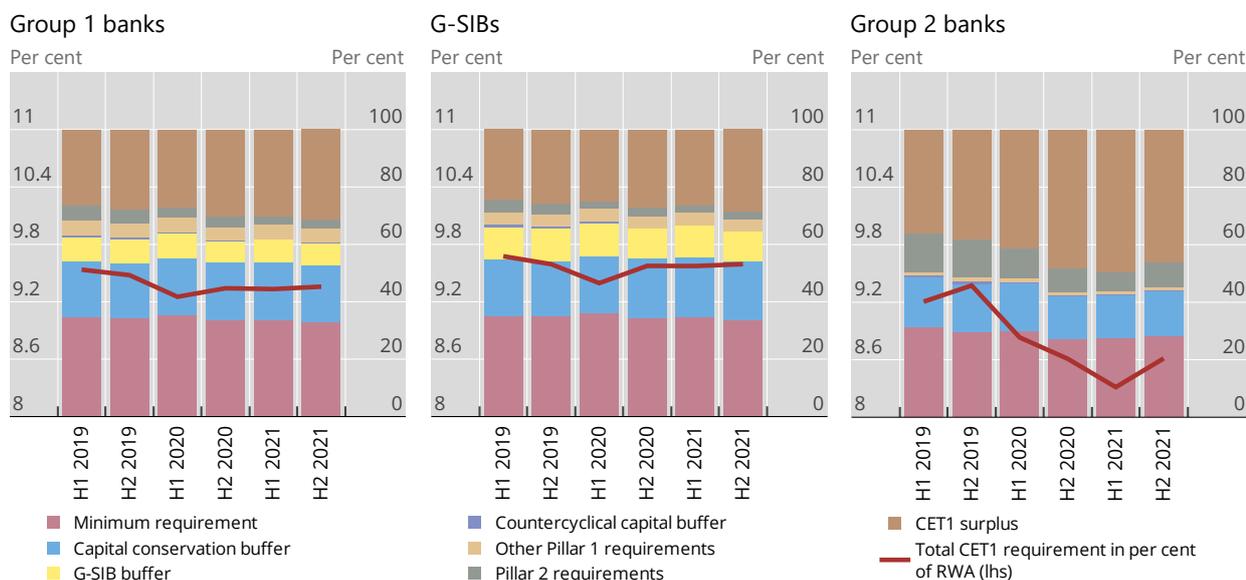
Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

A normalised view of the CET1 composition is used to compare the buffer dynamics between bank groups in Graph 2. Group 1 banks and G-SIBs experience regulatory buffer releases at the same time in H1 2020 (see red line). While requirements for G-SIBs quickly reverted closer to pre-pandemic levels in 2021, requirements for the broader Group 1 are not yet close to pre-pandemic levels. As expected, the G-SIB buffer accounts for a larger share of CET1 for G-SIBs rather than for Group 1 banks, and it is not present for Group 2 banks. For this latter group of banks, Pillar 2 takes up a much larger share of CET1 capital. Consistently across all groups, the CET1 surplus increases post H1 2020, just as CET1 requirements decreased. There is no reversal to the trend of larger surplus even as requirements are beginning to climb up again.

## Evolution of CET1 stack in percent of CET1 capital held and total CET1 requirement

By bank group, balanced data set

Graph 2



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

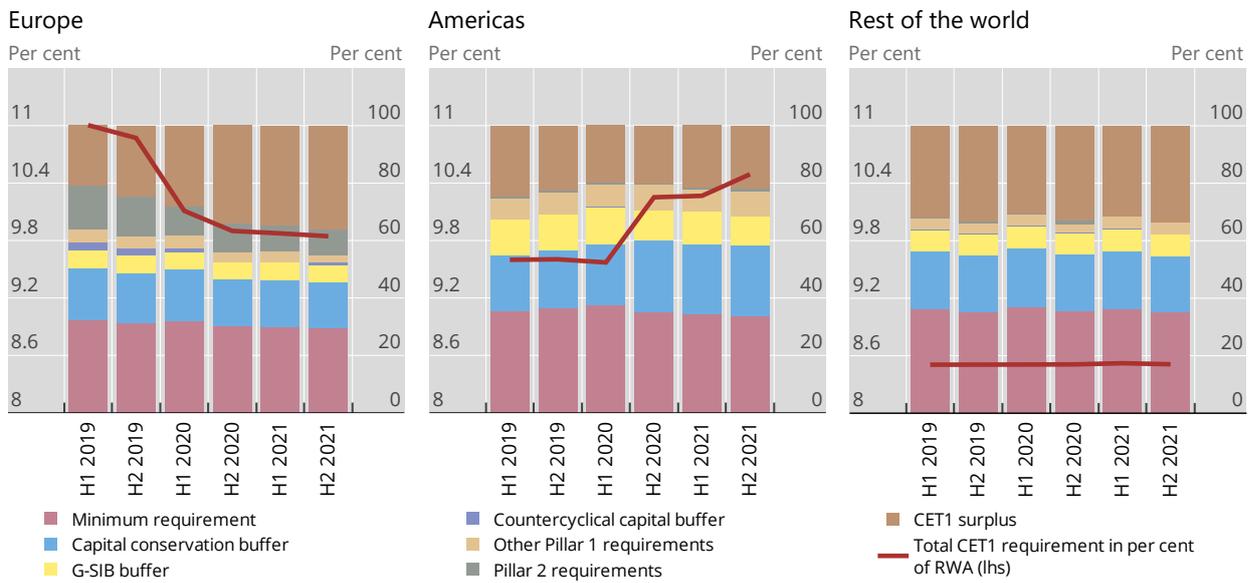
Looking across Group 1 banks by regions (Graph 3), the dynamics of buffers and surplus around the pandemic are similar, but the relative size of CET1 components differ. Europe and rest of the world show a larger portion of CET1 surplus than the Americas. Moreover, Pillar 2 is much larger for Europe. While the Americas have hardly any Pillar 2 CET1 requirements, the CCoB, G-SIB buffers and other Pillar 1 buffers are much more significant than in the other regions. This is consistent with the fact that in the US capital requirements resulting from the stress testing programme are reported as “other Pillar 1 requirements”, whereas many other countries use stress testing as an input to Pillar 2 requirements. For the rest of the world all buffers other than CCoB and G-SIB buffer have a negligible share, and the total share of buffers is smaller compared to the other two regions. The regional decomposition also shows differences in the overall CET1 requirements dynamics, which continued to decrease in Europe and increased sharply in the Americas<sup>66</sup>, while remaining stable in the rest of the world. However, the CET1 surplus is consistently larger after H1 2020 for all regions. Surpluses appear to have the largest share of CET1 in the rest of the world. While CET1 requirements are lowest in this region, the actual CET1 capital ratios are at the level of the Americas, as shown in Graph 15 (left panel) of the main report.

<sup>66</sup> Since H2 2020, the increase in overall CET1 requirements and the higher share of the capital conservation buffer in the Americas are partially driven by the implementation of a more conservative national framework for buffer requirements in the United States.

## Evolution of CET1 stack in percent of CET1 capital held and total CET1 requirement

Group 1 banks by region, balanced data set

Graph 3



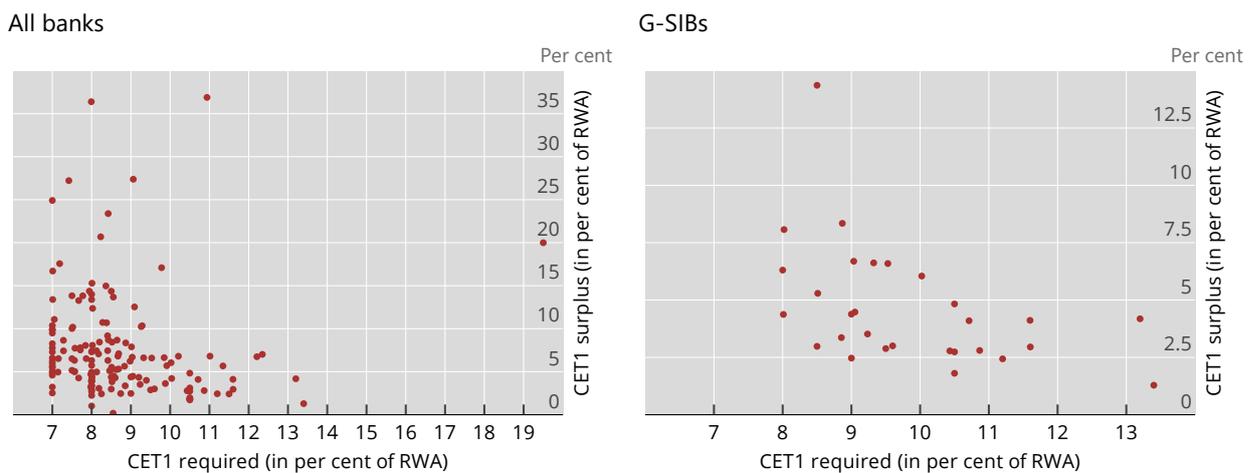
Source: Basel Committee on Banking Supervision. See the Excel data file for underlying data and sample size.

Looking beyond the aggregate system levels, Graph 4 shows the individual bank level scatterplot of CET1 requirements and CET1 surplus in percent of RWA, at the end of 2021. Based on the full set of banks reporting end-December 2021 data (left panel), it seems that those banks with higher required CET1 could have lower levels of surplus. The same negative correlation pattern is observed for the G-SIBs (right panel) and holds by region, by bank group, and at other points in time. More granular analysis through time is needed to characterise banks' surplus targets in relation to requirements post-pandemic.

## CET1 required in per cent of RWA vs CET1 surplus in per cent of RWA

End-December 2021 data

Graph 4



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



## 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% <sup>1</sup>	

<sup>1</sup>fnNote 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](http://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	<i>Basel III: A global framework for more resilient banks and the banking system,</i> <a href="http://www.bis.org/publ/bcbs189.htm">www.bis.org/publ/bcbs189.htm</a>		
Credit risk	<i>Basel III: A global framework for more resilient banks and the banking system,</i> <a href="http://www.bis.org/publ/bcbs189.htm">www.bis.org/publ/bcbs189.htm</a> <i>Capital requirements for bank exposures to central counterparties,</i> <a href="http://www.bis.org/publ/bcbs227.htm">www.bis.org/publ/bcbs227.htm</a>	Basel III: Finalising post-crisis reforms, <a href="http://www.bis.org/bcbs/publ/d424.htm">www.bis.org/bcbs/publ/d424.htm</a> Capital requirements for bank exposures to central counterparties, <a href="http://www.bis.org/publ/bcbs227.htm">www.bis.org/publ/bcbs227.htm</a> Capital requirements for banks' equity investments in funds, <a href="http://www.bis.org/publ/bcbs266.htm">www.bis.org/publ/bcbs266.htm</a>	
Operational risk	Basel II: International Convergence of Capital Measurement and Capital Standards: A Revised Framework, <a href="http://www.bis.org/publ/bcbs128.htm">www.bis.org/publ/bcbs128.htm</a>	Basel III: Finalising post-crisis reforms, <a href="http://www.bis.org/bcbs/publ/d424.htm">www.bis.org/bcbs/publ/d424.htm</a>	
Market risk	Revisions to the Basel II market risk framework, <a href="http://www.bis.org/publ/bcbs158.htm">www.bis.org/publ/bcbs158.htm</a> Guidelines for computing capital for incremental risk in the trading book, <a href="http://www.bis.org/publ/bcbs159.htm">www.bis.org/publ/bcbs159.htm</a>	Minimum capital requirements for market risk, <a href="http://www.bis.org/bcbs/publ/d457.htm">www.bis.org/bcbs/publ/d457.htm</a>	
Counterparty credit risk	Basel III: A global framework for more resilient banks and the banking system, <a href="http://www.bis.org/publ/bcbs189.htm">www.bis.org/publ/bcbs189.htm</a>	The standardised approach for measuring counterparty credit risk exposures, <a href="http://www.bis.org/publ/bcbs279.htm">www.bis.org/publ/bcbs279.htm</a>	
CVA	Basel III: A global framework for more resilient banks and the banking system, <a href="http://www.bis.org/publ/bcbs189.htm">www.bis.org/publ/bcbs189.htm</a>	Basel III: Finalising post-crisis reforms, <a href="http://www.bis.org/bcbs/publ/d424.htm">www.bis.org/bcbs/publ/d424.htm</a> Targeted revisions to the revised CVA framework published in July 2020 are <b>not</b> yet considered for the end-December 2019 reporting date. They will be reflected in the exercise on the end-2020 reporting date. <a href="http://www.bis.org/bcbs/publ/d507.htm">www.bis.org/bcbs/publ/d507.htm</a>	
Securitisation	Basel III: A global framework for more resilient banks and the banking system, <a href="http://www.bis.org/publ/bcbs189.htm">www.bis.org/publ/bcbs189.htm</a>	Revisions to the securitisation framework, <a href="http://www.bis.org/bcbs/publ/d374.htm">www.bis.org/bcbs/publ/d374.htm</a>	
Floor	Basel II: International Convergence of Capital Measurement and Capital Standards: A Revised Framework, <a href="http://www.bis.org/publ/bcbs128.htm">www.bis.org/publ/bcbs128.htm</a>	Output floor of 50%, Basel III: Finalising post-crisis reforms, <a href="http://www.bis.org/bcbs/publ/d424.htm">www.bis.org/bcbs/publ/d424.htm</a>	Output floor of 72.5%, Basel III: Finalising post-crisis reforms, <a href="http://www.bis.org/bcbs/publ/d424.htm">www.bis.org/bcbs/publ/d424.htm</a>
Leverage ratio	Basel III: A global framework for more resilient banks and the banking system, <a href="http://www.bis.org/publ/bcbs189.htm">www.bis.org/publ/bcbs189.htm</a> ; Basel III leverage ratio framework and disclosure requirements, <a href="http://www.bis.org/publ/bcbs270.htm">www.bis.org/publ/bcbs270.htm</a>	Basel III: Finalising post-crisis reforms, <a href="http://www.bis.org/bcbs/publ/d424.htm">www.bis.org/bcbs/publ/d424.htm</a> ; Leverage ratio treatment of client cleared derivatives <a href="http://www.bis.org/bcbs/publ/d467.htm">www.bis.org/bcbs/publ/d467.htm</a>	

## 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

	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	2	2	2	2	2	2
Australia (RW)	4	4	0	4	4	0	1	1	0	1	1	0
Belgium (EU)	4	4	4	4	1	3	2	2	2	2	0	1
Brazil (AM)	2	2	2	2	2	2	0	0	0	0	0	0
Canada (AM)	6	6	6	6	6	6	0	0	0	0	0	0
China (RW)	6	6	6	6	6	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	4	2	2	2	2	2	1
Germany (EU)	11	11	11	11	10	7	25	25	24	25	20	3
India (RW)	9	9	9	9	9	1	0	0	0	0	0	0
Indonesia (RW)	0	0	0	0	0	0	2	2	0	2	2	0
Italy (EU)	2	2	2	2	2	2	9	9	9	9	1	7
Japan (RW)	16	15	16	16	15	13	3	3	3	3	3	3
Korea (RW)	8	8	8	8	8	1	0	0	0	0	0	0
Luxembourg (EU)	0	0	0	0	0	0	3	3	2	3	3	1
Mexico (AM)	1	1	0	0	1	0	0	0	0	0	0	0
Netherlands (EU)	4	4	4	4	2	2	4	4	3	4	4	1
Saudi Arabia (RW)	3	3	2	3	2	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	3	4	4	3	2	2	2	2	2	1
Spain (EU)	2	2	2	2	2	2	4	4	4	4	3	3
Sweden (EU)	3	3	3	3	3	1	3	3	3	3	3	0
Switzerland (EU)	2	2	2	2	2	2	0	0	0	0	0	0
Turkey (EU)	3	3	2	3	3	0	0	0	0	0	0	0
United Kingdom (EU)	5	5	5	5	5	5	3	3	3	3	3	3
United States (AM)	13	12	13	13	12	8	0	0	0	0	0	0
<b>Total</b>	<b>117</b>	<b>115</b>	<b>109</b>	<b>116</b>	<b>108</b>	<b>67</b>	<b>65</b>	<b>65</b>	<b>59</b>	<b>65</b>	<b>49</b>	<b>26</b>
Of which: G-SIBs	30	30	30	30	29	24	0	0	0	0	0	0

<sup>1</sup> 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<sup>1</sup>

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	107	5,351	35,203	81,596	84,137
Of which: Europe	20	1,296	8,740	19,666	22,237
Of which: Americas	41	1,476	8,587	27,662	26,452
Of which: Rest of the world	46	2,579	17,876	34,268	35,448
Of which: G-SIBs	30	3,692	24,235	56,620	58,503
Group 2 banks	57	246	1,334	4,425	3,891

<sup>1</sup> 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<sup>1</sup>

Table B.3

	Group 1 banks	Group 2 banks
Argentina (AM)	0	2
Belgium (EU)	4	2
Brazil (AM)	2	0
Canada (AM)	6	0
China (RW)	6	0
Finland (EU)	1	0
France (EU)	5	2
Germany (EU)	11	23
India (RW)	3	0
Indonesia (RW)	0	1
Italy (EU)	2	6
Japan (RW)	11	2
Korea (RW)	6	0
Luxembourg (EU)	0	3
Netherlands (EU)	4	4
Saudi Arabia (RW)	2	0
Singapore (RW)	3	0
South Africa (RW)	4	2
Spain (EU)	2	4
Sweden (EU)	3	3
Switzerland (EU)	2	0
Turkey (EU)	2	0
United Kingdom (EU)	5	3
United States (AM)	10	0
<b>Total</b>	<b>94</b>	<b>57</b>

<sup>1</sup> 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.



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