

HSBC Holdings plc

Pillar 3 Disclosures at 31 December 2020

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Unless the context requires otherwise, 'HSBC Holdings' means HSBC Holdings plc and 'HSBC', the 'Group', 'we', 'us' and 'our' refer to HSBC Holdings together with its subsidiaries. Within this document the Hong Kong Special Administrative Region of the People's Republic of China is referred to as 'Hong Kong'. When used in the terms 'shareholders' equity' and 'total shareholders' equity', 'shareholders' means holders of HSBC Holdings ordinary shares and those preference shares and capital securities issued by HSBC Holdings classified as equity. The abbreviations '\$m' and '\$bn' represent millions and billions (thousands of millions) of US dollars respectively.

Tables

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The Group has adopted the EU's regulatory transitional arrangements for International Financial Reporting Standard ('IFRS') 9 Financial instruments. A number of tables in this document report under this arrangement as follows:

a. Some figures (indicated with [^]) within the table have been prepared on an IFRS 9 transitional basis.

b. All figures within the table have been prepared on an IFRS 9 transitional basis.

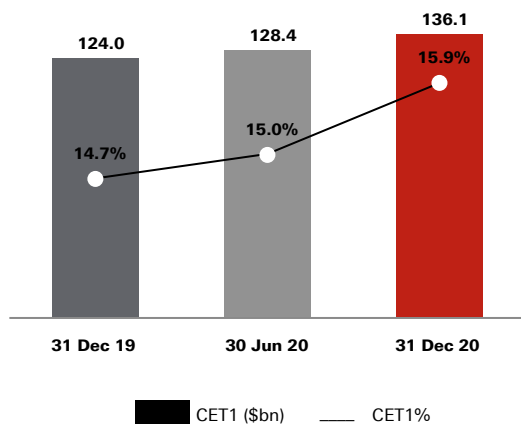
All other tables report numbers on the basis of full adoption of IFRS 9.

Introduction

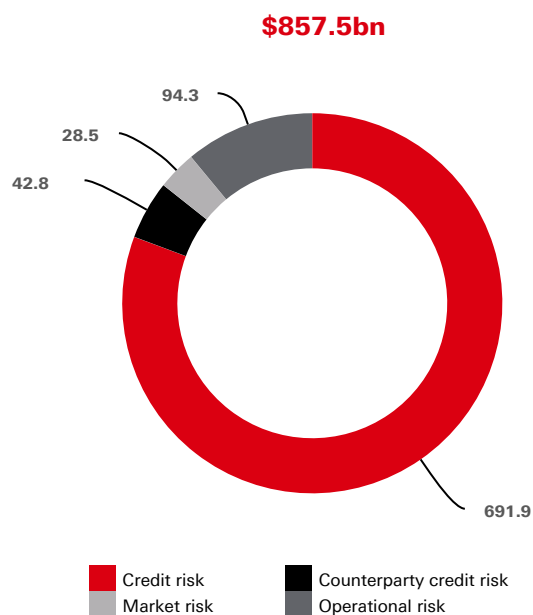
Highlights

Common equity tier 1 ratio ('CET1') of 15.9%, up 1.2 percentage points from 14.7% at 31 December 2019, which included the impact of the cancellation of the fourth interim dividend of 2019 and changes to the capital treatment of software assets.

Common equity tier 1: \$136.1bn and 15.9%¹

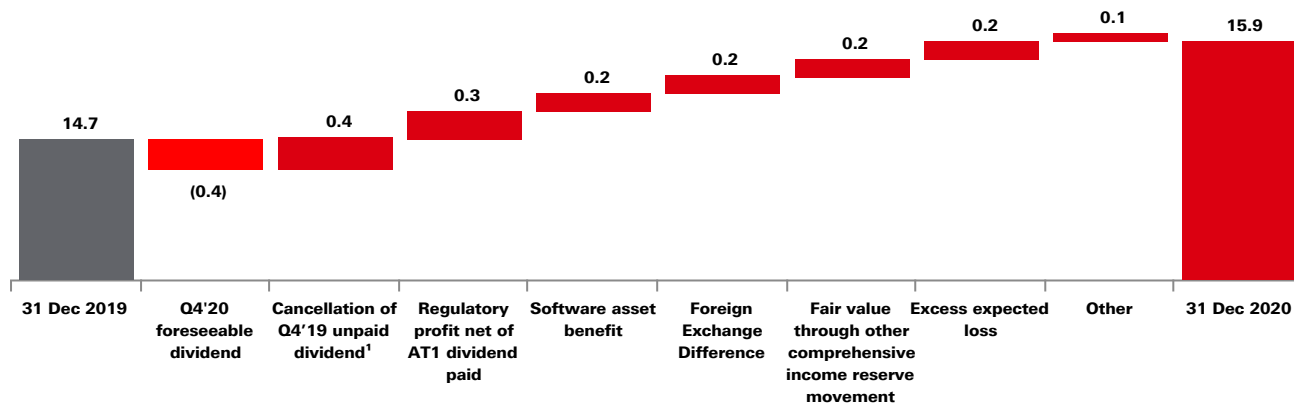


Risk-weighted assets by risk type at 31 December 2020 (\$bn)



¹ Capital figures and ratios are reported on a CRR II transitional basis for capital instruments.

Common equity tier 1 ratio movement, %



¹ The 4Q19 unpaid dividend was net of expected scrip take-up.

Key metrics

Table 1: Key metrics (KM1/IFRS9-FL)

Ref*	Footnotes	At				
		31 Dec 2020	30 Sep 2020	30 Jun 2020	31 Mar 2020	31 Dec 2019
Available capital (\$bn)						
1	Common equity tier 1 ('CET1') capital	136.1	133.4	128.4	125.2	124.0
2	CET1 capital as if IFRS 9 transitional arrangements had not been applied	134.9	132.2	127.4	124.5	123.1
3	Tier 1 capital	160.2	157.4	152.5	149.2	148.4
4	Tier 1 capital as if IFRS 9 transitional arrangements had not been applied	159.0	156.2	151.4	148.5	147.5
5	Total regulatory capital	184.4	181.8	177.2	174.0	172.2
6	Total capital as if IFRS 9 transitional arrangements had not been applied	183.2	180.7	176.1	173.3	171.3
Risk-weighted assets ('RWAs') (\$bn)						
7	Total RWAs	857.5	857.0	854.6	857.1	843.4
8	Total RWAs as if IFRS 9 transitional arrangements had not been applied	856.6	856.6	854.1	856.7	842.9
Capital ratios (%)						
9	CET1	15.9	15.6	15.0	14.6	14.7
10	CET1 as if IFRS 9 transitional arrangements had not been applied	15.7	15.4	14.9	14.5	14.6
11	Tier 1	18.7	18.4	17.8	17.4	17.6
12	Tier 1 as if IFRS 9 transitional arrangements had not been applied	18.6	18.2	17.7	17.3	17.5
13	Total capital	21.5	21.2	20.7	20.3	20.4
14	Total capital as if IFRS 9 transitional arrangements had not been applied	21.4	21.1	20.6	20.2	20.3
Additional CET1 buffer requirements as a percentage of RWA (%)						
	Capital conservation buffer requirement	2.50	2.50	2.50	2.50	2.50
	Countercyclical buffer requirement	0.21	0.22	0.20	0.22	0.61
	Bank G-SIB and/or D-SIB additional requirements	2.00	2.00	2.00	2.00	2.00
	Total of bank CET1 specific buffer requirements	4.71	4.72	4.70	4.72	5.11
Total capital requirement (%)						
	Total capital requirement	11.0	11.1	11.1	11.0	11.0
	CET1 available after meeting the bank's minimum capital requirements	9.7	9.3	8.8	8.4	8.5
Leverage ratio						
15	Total leverage ratio exposure measure (\$bn)	2,897.1	2,857.4	2,801.4	2,782.7	2,726.5
16	Leverage ratio (%)	5.5	5.4	5.3	5.3	5.3
17	Leverage ratio as if IFRS 9 transitional arrangements had not been applied	5.4	5.4	5.3	5.2	5.3
Liquidity Coverage Ratio ('LCR')						
	Total high-quality liquid assets (\$bn)	677.9	654.2	654.4	617.1	601.4
	Total net cash outflow (\$bn)	487.3	446.3	442.9	395.0	400.5
	LCR ratio (%)	139.1	146.6	147.8	156.3	150.2

* The references in this and subsequent tables identify the lines prescribed in the EBA template where applicable and where there is a value.

^ Figures have been prepared on an IFRS 9 transitional basis.

1 Capital figures and ratios are reported using the CRR II transitional basis for capital instruments.

2 Total capital requirement is defined as the sum of Pillar 1 and Pillar 2A capital requirements set by the UK Prudential Regulation Authority ('PRA'). The minimum requirements represent the total capital requirement to be met by CET1.

3 Leverage ratio is calculated using the CRR II end point basis for capital instruments.

4 The EU's regulatory transitional arrangements for IFRS 9 in article 473a of the Capital Requirements Regulation do not apply to liquidity coverage measures. LCR is calculated as at the end of each period rather than using average values.

We have adopted the regulatory transitional arrangements in CRR II for IFRS 9, including paragraph four of article 473a. These transitional arrangements permit banks to add back to their capital base a proportion of the impact that IFRS 9 has upon their loan loss allowances during the first five years of use. The impact is defined as:

- the increase in loan loss allowances on day one of IFRS 9 adoption; and
- any subsequent increase in expected credit losses ('ECL') in the non-credit-impaired book thereafter.

Any add-back must be tax affected and accompanied by a recalculation of exposure and RWAs. The impact is calculated separately for portfolios using the standardised ('STD') and internal ratings based ('IRB') approaches. For IRB portfolios, there is no add-back to capital unless loan loss allowances exceed regulatory 12-month expected losses.

The EU's CRR 'Quick Fix' relief package enacted in June 2020 increased from 70% to 100% the relief that banks may take for loan loss allowances recognised since 1 January 2020 on the non-credit-impaired book.

In the current period, the add-back to the capital base amounted to \$1.6bn under the STD approach with a tax impact of \$0.4bn. This resulted in a net add-back of \$1.2bn.

Where applicable, our reporting throughout this document also reflects government relief schemes intended to mitigate the impact of the Covid-19 outbreak.

Pillar 3 disclosures

Regulatory framework for disclosure

We are supervised on a consolidated basis in the United Kingdom ('UK') by the Prudential Regulation Authority ('PRA'), which receives information on the capital adequacy of, and sets capital requirements for, the Group as a whole. Individual banking subsidiaries are directly regulated by their local banking supervisors, who set and monitor their local capital adequacy requirements. In most jurisdictions, non-banking financial subsidiaries are also subject to the supervision and capital requirements of local regulatory authorities.

At the consolidated Group level, capital is calculated for prudential regulatory reporting purposes using the Basel III framework of the Basel Committee ('Basel') as implemented by the European Union ('EU') in CRR II, and in the PRA Rulebook for the UK banking industry. The regulators of Group banking entities outside the EU are at varying stages of implementation of Basel's framework, so local regulation in 2020 may have been on the basis of Basel I, II or III.

The Basel framework is structured around three 'pillars': the Pillar 1 minimum capital requirements and Pillar 2 supervisory review process are complemented by Pillar 3 market discipline. The aim of Pillar 3 is to produce disclosures that allow market participants to assess the scope of application by banks of the Basel framework and the rules in their jurisdiction, their capital condition, risk exposures and risk management processes, and hence their capital adequacy.

Following the end of the transition period following the UK's withdrawal from the EU, any reference to EU regulations and directives (including technical standards) should be read as a reference to the UK's version of such regulation and/or directive, as onshored into UK law under the European Union (Withdrawal) Act 2018, as amended.

Our Pillar 3 Disclosures at 31 December 2020 comprises both quantitative and qualitative information required under Pillar 3. They are made in accordance with Part Eight of CRR II and the European Banking Authority's ('EBA') guidelines on disclosure requirements. These disclosures are supplemented by specific additional requirements of the PRA and discretionary disclosures on our part.

The Pillar 3 disclosures are governed by the Group's disclosure policy framework as approved by the Group Audit Committee ('GAC'). Information relating to the rationale for withholding certain disclosures is provided in Appendix IV.

Comparatives

To give insight into movements during the year, we provide comparative figures for the previous year or period, analytical review of variances and 'flow' tables for capital requirements. In all tables where the term 'capital requirements' is used, this represents the minimum total capital charge set at 8% of RWAs by article 92 of the Capital Requirements Regulation. Table name references and row numbering in tables identify those prescribed in the relevant EBA guidelines where applicable and where there is a value.

Where disclosures have been enhanced, or are new, we do not generally restate or provide prior year comparatives. Wherever specific rows and columns in the tables prescribed by the EBA or Basel are not applicable or immaterial to our activities, we omit them and follow the same approach for comparative disclosures.

Frequency and location

We publish comprehensive Pillar 3 disclosures annually and at interim on our website www.hsbc.com, concurrently with the release of our Annual Report and Accounts and Interim Report. Quarterly earnings releases also include regulatory information in line with the guidelines on the frequency of regulatory disclosures. Pillar 3 requirements may be met by inclusion in other disclosure media. Where we adopt this approach, references are provided to the relevant pages of the *Annual Report and Accounts 2020* or other locations. We continue to engage in the work of the UK authorities and industry associations to improve the transparency and comparability of UK banks' Pillar 3 disclosures.

Material risks

Pillar 3 requires all material risks to be disclosed to provide a comprehensive view of a bank's risk profile. In addition to the disclosure in this document, other information on material risks can be found on page 118 of the *Annual Report and Accounts 2020*. This includes:

- Credit risk (refer to page 119 of the *Annual Report and Accounts 2020*)
- Treasury risk (refer to page 169 of the *Annual Report and Accounts 2020*)
- Market risk (refer to page 182 of the *Annual Report and Accounts 2020*)
- Resilience risk (refer to page 186 of the *Annual Report and Accounts 2020*)
- Regulatory compliance risk (refer to page 186 of the *Annual Report and Accounts 2020*)
- Financial crime and fraud risk (refer to page 187 of the *Annual Report and Accounts 2020*)
- Model risk (refer to page 188 of the *Annual Report and Accounts 2020*)
- Insurance manufacturing operations risk (refer to page 189 of the *Annual Report and Accounts 2020*)

Further information on Climate Risk can be found on page 111 of the *Annual Report and Accounts 2020*.

Capital buffers

Our geographical breakdown and institution-specific countercyclical capital buffer ('CCyB') disclosure is provided in Appendix II. The G-SIB Indicators disclosure is published annually on our website, www.hsbc.com.

Remuneration

Our remuneration policy, including the remuneration committee membership and activities, remuneration strategy and remuneration details of HSBC's Identified Staff and Material Risk Takers, is set out in the Directors' Remuneration Report on page 229 of the *Annual Report and Accounts 2020*.

Regulatory developments

The UK's withdrawal from the EU

At 11pm on 31 December 2020, the UK ceased to be subject to the EU's legal and regulatory framework. In preparation for this, Her Majesty's Treasury ('HMT'), the Prudential Regulation Authority ('PRA') and the Financial Conduct Authority ('FCA') undertook an exercise of converting all of the EU's existing legislation into UK law, regulatory rules and guidance. Broadly, these entered into force on 31 December 2020.

Only those parts of the EU's framework that were published and in force on 31 December 2020 have been imported into the UK's framework. This includes any rules contained in EU Directives, Regulations, Regulatory Technical Standards ('RTS') and Implementing Technical Standards ('ITS'). In some circumstances, the EU's framework has been amended, principally to make the legislation operable in the UK, but also to reflect the EU's new status as a 'third country' under UK law. Any legislation that was published but not in force on or before the 31 December has not been incorporated into UK law.

In November 2020, the UK made a series of equivalence decisions in relation to the EU, which applied from 31 December 2020. The decisions serve to negate potential RWA uplifts in relation to risk weights for exposures to financial institutions in the EU and give clarity on the continued application of credit valuation adjustment ('CVA') exemptions for intra-group exposures between the UK and the EU.

In December 2020, the Bank of England and the PRA published changes to their rules and technical standards in preparation for the UK ceasing to be subject to EU law. As part of this, the PRA exercised temporary transitional powers to delay the implementation of any rule changes arising from the UK's withdrawal from the EU. The transitional provisions are wide reaching, with limited exemptions, and expire on 31 March 2022.

Covid-19

The Covid-19 pandemic has created an unprecedented challenge to the global economy. Governments, central banks and regulatory authorities have responded to this challenge with a number of customer support and operational capacity measures, and amendments to the RWA, capital and liquidity frameworks.

In the EU, the measures included a package known as the 'CRR Quick Fixes' that was enacted in June 2020. This implemented some of the beneficial elements of the amendments to the Capital Requirements Regulation ('CRR II'), which were originally scheduled for June 2021, together with other amendments to mitigate any undue volatility in capital ratios arising from the pandemic. This included the amended transitional provisions on the regulatory capital treatment of IFRS 9, the revised small- and medium-sized enterprise ('SME') and infrastructure supporting factors, and changes to the capital treatment of software assets. In large part, the package came into effect in 2020 and therefore has been transposed into UK law, following the UK's withdrawal from the EU.

While the PRA confirmed in December 2020 that the revised treatment of software assets had been onshored into UK law, it issued a consultation in February 2021 on the CRR II, which includes a proposal to reverse the EU's changes on software assets. In the meantime, it has recommended that firms not base their distribution decisions on any capital increase from applying the EU's changes.

In addition to the CRR Quick Fix package, there were other changes to the regime during 2020 in response to Covid-19. This included the enactment by the EU of beneficial changes to the CET1 deduction for prudent valuation adjustments, which ceased to apply on 1 January 2021.

Following the suspension of dividend payments earlier in 2020, in December, the PRA announced it had reassessed banks' capital positions in light of the economic uncertainty caused by Covid-19 and concluded that banks are now able to resume external

distributions, subject to restrictions. The PRA intends to transition back to its standard approach to capital-setting and shareholder distributions during 2021. In the meantime, for 2021 dividends the PRA is content for appropriately prudent dividends to be accrued but not paid out and the PRA aims to provide a further update ahead of the 2021 half-year results of large UK banks.

The Basel III Reforms

The Basel Committee on Banking Supervision ('Basel') completed the Basel III Reforms in July 2020 when it published the final revisions to the CVA framework. The package is scheduled to be implemented on 1 January 2023, with a five-year transitional provision for the output floor. This floor ensures that, at the end of the transitional period, banks' total RWAs will be no lower than 72.5% of those generated by the standardised approaches. The final standards will need to be transposed into the relevant local law before coming into effect.

In June 2019, the EU enacted the CRR II. This implemented changes to the own funds regime and to the Financial Stability Board's ('FSB') requirements for total loss-absorbing capacity ('TLAC'), known in the EU as the minimum requirements for own funds and eligible liabilities ('MREL'). It also included the first tranche of changes to the EU's legislation to reflect the Basel III Reforms, including the changes to market risk rules under the Fundamental Review of the Trading Book, revisions to the standardised approach for measuring counterparty risk, changes to the equity investments in funds rules, amendments to the large exposures rules, the new leverage ratio rules and the implementation of the net stable funding ratio.

Given that many of the CRR II changes do not enter into force until June 2021, these were not transposed into UK law on 31 December 2020 and therefore will be implemented separately in the UK. In February 2021, HMT issued a consultation paper clarifying certain elements of the implementation of the UK's version of the CRR II including in relation to the equivalence regime for equity investments in funds. Consequently, the PRA issued its own consultation on the implementation of the CRR II, which covers all of the key elements with the exception of the changes relating to the leverage ratio. Final rules are expected to be published by the end of June 2021, with a target implementation date of 1 January 2022.

The PRA has confirmed that its proposed changes to the leverage ratio will be published once a review by the Financial Policy Committee and Prudential Regulation Committee has been completed in the summer of 2021.

The remaining elements of the Basel III Reforms will be implemented separately in the UK; however, the PRA has yet to consult on these. There remains a significant degree of uncertainty in the impact of the Basel III Reforms due to the number of national discretions and the need for further supporting technical standards to be developed. The UK's implementation of the remaining elements of the Basel III Reforms is expected to be on 1 January 2023, consistent with Basel's timeline.

The Fifth Capital Requirements Directive ('CRD V') and the Second Bank Recovery and Resolution Directive ('BRRD II')

The CRD V and BRRD II were implemented in the EU on 28 December 2020. The UK's approach was to enact only those elements that came into force before it ceased to be subject to EU law. For CRD V, this includes the changes to the structure of capital buffers that apply to ring-fenced banks and the regulation of financial holding companies.

In support of this, the PRA published its final CRD V rules in December 2020. This included the implementation of Basel's standards on interest rate risk in the banking book ('IRRBB'); changes to the calculation of the maximum distributable amount ('MDA'); the introduction of regulation for bank holding companies; and the re-designation of ring-fenced bank's buffers from Systemic Risk Buffers ('SyRB') into Other Systemically Important Institutions ('O-SII') buffers. The changes are subject to a phased implementation.

Pillar 3 Disclosures at 31 December 2020

Although the UK implemented the changes in BRRD II, a sunset clause was built into the legislation, so that some of the requirements were revoked when the UK ceased to be subject to EU law on 31 December 2020. This included the restrictions on dividends as a result of a breach of the combined buffer requirement, pre-resolution moratorium powers and the contractual recognition of bail-in. The restrictions on selling of subordinated eligible liabilities to retail clients were retained in UK law.

Credit Risk

In order to address concerns about the variability and comparability of the capital requirements under the IRB Approach to credit risk, the EU has undertaken a review of the requirements and proposed a series of changes to the framework. This includes changes to the definition of default and to the methodologies for risk parameter estimation. Broadly, these changes are being implemented in the UK and will take effect from 1 January 2022.

In September 2020, the PRA published a consultation to introduce risk-weight floors for UK mortgages subject to the IRB approach. The PRA has proposed that each individual mortgage should be subject to a 7% risk-weight floor. In addition, there will be an exposure-weighted average portfolio risk-weight of at least 10% for all IRB UK residential mortgage exposures. The PRA is proposing to implement the changes from 1 January 2022.

In a further model-related consultation published in October 2020, the PRA set out the criteria for when a firm may use models approved by overseas regulators in the calculation of a UK group's consolidated capital requirements. The PRA has proposed that the use of models approved by overseas regulators in a UK group's consolidated capital requirements is limited to retail exposures and subject to an overall limit. Where existing non-UK IRB models do not meet the new criteria by 1 July 2021, firms are required to remediate by 1 January 2023, in line with the planned implementation of the Basel III Reforms.

Capital Buffers

In its December 2020 Financial Stability Report ('FSR'), the Financial Policy Committee ('FPC') updated its guidance on the path for the UK Countercyclical Capital Buffer ('CCyB') rate. It now expects this rate to remain at 0% until at least the last quarter of 2021 meaning that any subsequent increase is not expected to take effect until the last quarter of 2022 at the earliest given the 12-month implementation lag.

Other Developments

In October 2020, HMT published a consultation launching the second phase of its Future Regulatory Framework ('FRF') review of how the UK's regulatory framework needs to adapt long term. This proposes a framework where detailed prudential rules are designed and implemented by the PRA, based upon high-level principles set by the UK's Parliament and government. Furthermore, there will be improvements to the accountability of the PRA to Parliament, HMT and the industry.

In November 2020, the PRA published a Dear CFO letter requesting firms take action to address issues arising from the planned treatment of a firm's legacy capital instruments. The PRA cited two main risks in this respect, namely subordination provisions and the flexibility of distribution payments. It expects firms to undertake a risk-based approach to their affected legacy instruments and assess appropriate remedial actions before the end of the grandfathering period, i.e. 31 December 2021.

In December, the PRA published a Dear CEO letter setting out its six 2021 supervisory priorities; namely, financial and operational resilience, credit and operational risk, transition from LIBOR and financial risks arising from climate change. The PRA also stressed that the submission of complete, timely and accurate regulatory returns continues to be the foundation of effective supervision and that the pilot project it has been running to assess the standard of regulatory returns will continue into 2021.

In parallel with similar developments in Europe, it is anticipated that the PRA will review the requirements for the capitalisation of structural FX risk to align to a Pillar 1 approach.

Risk management

Our risk management framework

We use a risk management framework across our organisation and across all risk types. It is underpinned by our culture.

The framework fosters continuous monitoring of the risk environment, and promotes risk awareness and sound operational and strategic decision making. It also ensures we have a consistent approach to monitoring, managing and mitigating the risks we accept and incur in our activities.

Further information on our risk management framework is set out on page 107 of the Annual Report and Accounts 2020. The management and mitigation of principal risks facing the Group is described in our top and emerging risks on page 110 of the Annual Report and Accounts 2020.

Commentary on hedging strategies and associated processes can be found in the Market risk and Securitisation sections of this document.

Culture

HSBC has long recognised the importance of a strong culture. Our culture refers to our shared attitudes, values and standards that shape behaviours related to risk awareness, risk taking and risk management. It is instrumental in aligning the behaviours of individuals with our attitude to assuming and managing risk, which helps to ensure that our risk profile remains in line with our risk appetite. The fostering of a strong culture is a key responsibility of our senior executives.

Our culture is also reinforced by our approach to remuneration. Individual awards, including those for senior executives, are based on compliance with our values and the achievement of financial and non-financial objectives, which are aligned to our risk appetite and global strategy.

Further information on risk and remuneration is set out on page 252 of the Annual Report and Accounts 2020.

Risk governance

The Board has ultimate responsibility for the effective management of risk and approves our risk appetite. It is advised on risk-related matters by the Group Risk Committee ('GRC').

The activities of the GRC are set out on pages 224 to 228 of the Annual Report and Accounts 2020.

Executive accountability for the ongoing monitoring, assessment and management of the risk environment, and the effectiveness of the risk management framework resides with the Group Chief Risk Officer ('CRO'). The CRO is supported by the Risk Management Meeting ('RMM') of the Group Executive Committee.

The management of compliance risk resides with the Group Chief Compliance Officer ('COO').

Further information is available on page 187 of the Annual Report and Accounts 2020.

Day-to-day responsibility for risk management is delegated to senior managers with individual accountability for decision making. These senior managers are supported by global functions. All our people have a role to play in risk management. These roles are defined using the three lines of defence model, which takes into account our business and functional structures.

We use a defined executive risk governance structure to ensure appropriate oversight and accountability for risk, which facilitates the reporting and escalation to the RMM.

Further information about the Group's three lines of defence model and executive risk governance structures is available on page 109 of the Annual Report and Accounts 2020.

Risk appetite

Risk appetite is a key component of our management of risk. It describes the type and quantum of risk that the Group is willing to accept in achieving its medium- and long-term strategic goals. At HSBC, risk appetite is managed through a global risk appetite framework and articulated in a risk appetite statement ('RAS'),

which is reviewed and approved by the Board, on the advice of the GRC, twice a year to make sure it remains fit for purpose.

Our risk appetite informs our strategic and financial planning process, defining the desired forward-looking risk profile of the Group. It is also integrated within other risk management tools, such as stress testing, to ensure consistency in risk management.

Information about our risk management tools and risk appetite are set out from page 107 of the Annual Report and Accounts 2020.

Stress testing

HSBC operates a wide-ranging stress testing programme that supports our risk management and capital planning. It includes execution of stress tests mandated by our regulators. Our stress testing is supported by dedicated teams and infrastructure.

Our testing programme assesses our capital strength and enhances our resilience to external shocks. It also helps us understand and mitigate risks, and informs our decision about capital levels. As well as taking part in regulatory driven stress tests, we conduct our own internal stress tests.

The Group stress testing programme is overseen by the GRC, and results are reported, where appropriate, to the RMM and GRC.

Further information about stress testing and details of the Group's regulatory stress test results are set out on page 109 of the Annual Report and Accounts 2020.

Global Risk function

We have a dedicated Global Risk function, headed by the Group Chief Risk Officer, which is responsible for the Group's risk management framework. This includes establishing global policy, monitoring risk profiles, and forward-looking risk identification and management. Global Risk is made up of sub-functions covering Financial and Non-financial risks. It is independent from the global businesses in order to provide challenge, appropriate oversight and balance in risk/return decisions. The Global Risk function operates in line with the three lines of defence model.

For further information see page 109 of the Annual Report and Accounts 2020.

Risk management and internal control systems

The Directors are responsible for maintaining and reviewing the effectiveness of risk management and internal control systems, and for determining the aggregate level and risk types they are willing to accept in achieving the Group's business objectives. On behalf of the Board, the GAC has responsibility for oversight of risk management and internal controls over financial reporting, and the GRC has responsibility for oversight of risk management and internal controls other than for financial reporting.

The Directors, through the GRC and the GAC received regular updates and confirmation that management has taken, or was taking, the necessary actions to remediate any failings or weaknesses identified through the operation of our framework of controls.

HSBC's key risk management and internal control procedures are described on page 224 of the Annual Report and Accounts 2020, where the Report of the Directors on the effectiveness of internal controls can also be found.

Regulatory reporting processes and controls

There is a continued focus on the quality of regulatory reporting by the PRA and other regulators globally. We continue to strengthen our processes and controls, including commissioning independent external reviews of various aspects of regulatory reporting. As a result, there may be impacts on some of our regulatory ratios such as the CET1 and LCR. We continue to keep the PRA and other relevant regulators informed of adverse findings from external reviews and our progress in strengthening the control environment.

Risk measurement and reporting systems

Our risk measurement and reporting systems are designed to help ensure that risks are comprehensively captured with all the attributes necessary to support well-founded decisions, that those attributes are accurately assessed, and that information is delivered in a timely manner for those risks to be successfully managed and mitigated.

Risk measurement and reporting systems are also subject to a governance framework designed to ensure that their build and implementation are fit for purpose and functioning appropriately. Risk information systems development is a key responsibility of the Global Risk function, while the development and operation of risk rating and management systems and processes are ultimately subject to the oversight of the Board.

We continue to invest significant resources in IT systems and processes in order to maintain and improve our risk management capabilities. Group standards govern the procurement and operation of systems used in our subsidiaries to process risk information within business lines and risk functions.

Risk measurement and reporting structures deployed at Group level are applied throughout global businesses and major operating subsidiaries through a common operating model for integrated risk management and control. This model sets out the respective responsibilities of Group, global business, region and country level risk functions in respect of risk governance and oversight, compliance risks, approval authorities and lending guidelines, global and local scorecards, management information and reporting, and relations with third parties such as regulators, rating agencies and auditors.

Risk analytics and model governance

The Global Risk function manages a number of analytics disciplines supporting the development and management of models, including those for risk rating, scoring, economic capital and stress testing; covering different risk types and business segments. The analytics functions formulate technical responses to industry developments and regulatory policy in the field of risk analytics, develop HSBC's global risk models, and oversee local model development and use around the Group toward our implementation targets for IRB approaches.

The Global Model Risk Committee ('GMRC') is the primary committee responsible for the oversight of Model Risk globally within HSBC. It serves an important role in providing strategic direction on the management of models and their associated risks to HSBC's businesses globally and is an essential element of the governance structure for model risk management. GMRC is supported by Global Model Oversight Forums ('GMOF') at the global and regional levels which are responsible for model risk management within their functional areas, including Wholesale credit risk, Market risk, Wealth and personal banking risk, and finance.

The GMRC meets regularly and reports to Global Risk Management Meeting ('GRMM'). It is chaired by the Group CRO and membership includes the CEOs of the Global Businesses, and senior executives from Risk, Finance and global businesses. Through its oversight of the GMOFs, it identifies emerging risks for all aspects of the risk rating system, ensuring that model risk is managed within our risk appetite statement, and formally advises GRMM on any material model-related issues.

Models are also subject to an independent validation process and governance oversight by the Model Risk Management team within Global Risk. The team provides robust challenge to the modelling approaches used across the Group. It also ensures that the performance of those models is transparent and that their limitations are visible to key stakeholders. The development and use of data and models to meet local requirements are the responsibility of global businesses or functions, as well as regional and/or local entities under the governance of their own management, subject to overall Group policy and oversight.

Regulatory and other expectations continue to evolve with regards to our capability and practice of model risk management.

Further information is available on page 188 of the Annual Report and Accounts 2020.

Linkage to the Annual Report and Accounts 2020

Structure of the regulatory group

Assets, liabilities and post-acquisition reserves of subsidiaries engaged in insurance activities are excluded from the regulatory consolidation. Our investments in these insurance subsidiaries are recorded at cost and deducted from CET1 capital, subject to thresholds.

The regulatory consolidation also excludes special purpose entities ('SPEs') where significant risk has been transferred to third parties. Exposures to these SPEs are risk-weighted as securitisation positions for regulatory purposes.

Participating interests in banking associates are proportionally consolidated for regulatory purposes by including our share of assets, liabilities, profit and loss, and risk-weighted assets in accordance with the PRA's application of EU legislation. Non-participating significant investments, along with non-financial associates, are deducted from capital, subject to thresholds.

Table 2: Reconciliation of balance sheets – financial accounting to regulatory scope of consolidation

Ref t	Accounting balance sheet \$m	Deconsolidation of insurance/ other entities \$m	Consolidation of banking associates \$m	Regulatory balance sheet \$m
Assets				
Cash and balances at central banks	304,481	(4)	337	304,814
Items in the course of collection from other banks	4,094	–	–	4,094
Hong Kong Government certificates of indebtedness	40,420	–	–	40,420
Trading assets	231,990	(1,784)	–	230,206
Financial assets designated and otherwise mandatorily measured at fair value through profit or loss	45,553	(37,894)	670	8,329
– of which: debt securities eligible as tier 2 issued by Group Financial Sector Entities ('FSEs') that are outside the regulatory scope of consolidation	r	–	653	–
Derivatives	307,726	(47)	180	307,859
Loans and advances to banks	81,616	(1,930)	1,345	81,031
Loans and advances to customers	1,037,987	(749)	12,569	1,049,807
– of which: lending eligible as tier 2 to Group FSEs outside the regulatory scope of consolidation	r	–	411	–
– expected credit losses on IRB portfolios	h	(11,637)	–	–
Reverse repurchase agreements – non-trading	230,628	2,184	622	233,434
Financial investments	490,693	(72,504)	5,200	423,389
– of which: lending eligible as tier 2 to Group FSEs outside the regulatory scope of consolidation	r	–	368	–
Capital invested in insurance and other entities	–	2,601	–	2,601
Prepayments, accrued income and other assets	156,412	(6,771)	711	150,352
– of which: retirement benefit assets	j	10,450	–	–
Current tax assets	954	(11)	15	958
Interests in associates and joint ventures	26,684	(419)	(4,857)	21,408
– of which: positive goodwill on acquisition	e	517	(12)	–
Goodwill and intangible assets	e	20,443	(9,740)	918
Deferred tax assets	f	4,483	148	128
Total assets at 31 Dec 2020	2,984,164	(126,920)	17,838	2,875,082
Liabilities and equity				
Hong Kong currency notes in circulation	40,420	–	–	40,420
Deposits by banks	82,080	(3)	1,311	83,388
Customer accounts	1,642,780	3,931	14,890	1,661,601
Repurchase agreements – non-trading	111,901	–	–	111,901
Items in course of transmission to other banks	4,343	–	–	4,343
Trading liabilities	75,266	–	–	75,266
Financial liabilities designated at fair value	157,439	(4,554)	–	152,885
– of which:				
– included in tier 1	n	–	–	–
– included in tier 2	o, q, i	10,844	–	–
Derivatives	303,001	71	254	303,326
– of which: debit valuation adjustment	i	89	–	–
Debt securities in issue	95,492	(1,344)	–	94,148
Accruals, deferred income and other liabilities	128,624	(3,082)	867	126,409
Current tax liabilities	690	(163)	45	572
Liabilities under insurance contracts	107,191	(107,191)	–	–
Provisions	3,678	(20)	56	3,714
– of which: credit-related contingent liabilities and contractual commitments on IRB portfolios	h	809	–	–
Deferred tax liabilities	4,313	(1,390)	–	2,923
Subordinated liabilities	21,951	–	415	22,366
– of which:				
– included in tier 1	l, n	1,856	–	–
– included in tier 2	o, q	19,031	–	–
Total liabilities at 31 Dec 2020	2,779,169	(113,745)	17,838	2,683,262
Equity				
Called up share capital	a	10,347	–	–
Share premium account	a, c	14,277	–	–
Other equity instruments	k	22,414	–	–
Other reserves	c, g	8,833	1,741	–
Retained earnings	b, c	140,572	(13,718)	–
Total shareholders' equity	196,443	(11,977)	–	184,466
Non-controlling interests	d, m, n, p	8,552	(1,198)	–
Total equity at 31 Dec 2020	204,995	(13,175)	–	191,820
Total liabilities and equity at 31 Dec 2020	2,984,164	(126,920)	17,838	2,875,082

t The references (a)–(r) identify balance sheet components that are used in the calculation of regulatory capital in Table 6: Own funds disclosure. This table shows such items at their accounting values, which may be subject to analysis or adjustment in the calculation of regulatory capital shown in Table 6.

Pillar 3 Disclosures at 31 December 2020

Table 3: Principal entities with a different regulatory and accounting scope of consolidation (L13)

	Footnotes	Principal activities	Method of accounting consolidation	At 31 Dec 2020		
				Method of regulatory consolidation		
				Proportional consolidation	Neither consolidated nor deducted	Deducted from capital subject to thresholds
Principal associates						
The Saudi British Bank		Banking services	Equity	●		
Principal insurance entities excluded from the regulatory consolidation						
HSBC Life (International) Ltd		Life insurance	Fully consolidated			●
HSBC Assurances Vie (France)		Life insurance	Fully consolidated			●
Hang Seng Insurance Company Ltd		Life insurance	Fully consolidated			●
HSBC Insurance (Singapore) Pte Ltd		Life insurance	Fully consolidated			●
HSBC Life (UK) Ltd		Life insurance	Fully consolidated			●
HSBC Life Assurance (Malta) Ltd		Life insurance	Fully consolidated			●
HSBC Life Insurance Company Ltd		Life insurance	Fully consolidated			●
HSBC Seguros S.A. (Mexico)		Life insurance	Fully consolidated			●
Principal SPEs excluded from the regulatory consolidation						
	1					
Metrix Portfolio Distribution plc		Securitisation	Fully consolidated		●	
Neon Portfolio Distribution DAC		Securitisation	Fully consolidated		●	
Regency Assets DAC		Securitisation	Fully consolidated		●	

1 These SPEs issued no or de minimis share capital.

Measurement of regulatory exposures

This section sets out the main reasons why the measurement of regulatory exposures is not directly comparable with the financial information presented in the *Annual Report and Accounts 2020*.

The Pillar 3 Disclosures at 31 December 2020 are prepared in accordance with regulatory capital adequacy concepts and rules, while the *Annual Report and Accounts 2020* are prepared in accordance with IFRSs. The purpose of the regulatory balance sheet is to provide a point-in-time ('PIT') value of all on-balance sheet assets.

The regulatory exposure value includes an estimation of risk, and is expressed as the amount expected to be outstanding if and when the counterparty defaults.

Moreover, regulatory exposure classes are based on different criteria from accounting asset types and are therefore not comparable on a line by line basis.

The following tables show in two steps how the accounting values in the regulatory balance sheet link to regulatory exposure at default ('EAD').

Table 4 shows the difference between the accounting and regulatory scope of consolidation, and a breakdown of the accounting balances into the risk types that form the basis for regulatory capital requirements. Table 5 then shows the main differences between the accounting balances and regulatory exposures by regulatory risk type.

Table 4: Differences between accounting and regulatory scopes of consolidation and mapping of financial statement categories with regulatory risk categories (L11)

	Carrying value of items						
	Carrying values as reported in published financial statements	Carrying values under scope of regulatory consolidation ¹	Subject to the credit risk framework	Subject to the counterparty credit risk framework ²	Subject to the securitisation framework ³	Subject to the market risk framework	Subject to deduction from capital or not subject to regulatory capital requirements
Assets							
Cash and balances at central banks	304.5	304.8	304.8	–	–	–	–
Items in the course of collection from other banks	4.1	4.1	4.1	–	–	–	–
Hong Kong Government certificates of indebtedness	40.4	40.4	40.4	–	–	–	–
Trading assets	232.0	230.2	0.8	22.8	–	230.2	–
Financial assets designated and otherwise mandatorily measured at fair value	45.6	8.3	5.0	3.2	–	–	0.1
Derivatives	307.7	307.9	–	306.7	1.2	307.9	–
Loans and advances to banks	81.6	81.0	79.1	0.8	1.1	–	–
Loans and advances to customers	1,038.0	1,049.8	1,027.7	0.2	20.8	–	1.1
Reverse repurchase agreements – non-trading	230.6	233.4	–	233.4	–	–	–
Financial investments	490.7	423.4	420.6	–	2.4	–	0.4
Capital invested in insurance and other entities	–	2.6	1.6	–	–	–	1.0
Prepayments, accrued income and other assets	156.4	150.4	46.7	69.8	–	20.1	25.1
Current tax assets	1.0	1.0	1.0	–	–	–	–
Interests in associates and joint ventures	26.7	21.4	12.7	–	–	–	8.7
Goodwill and intangible assets	20.4	11.6	2.3	–	–	–	9.1
Deferred tax assets	4.5	4.8	6.5	–	–	–	(1.7)
Total assets at 31 Dec 2020	2,984.2	2,875.1	1,953.3	636.9	25.5	558.2	43.8
Liabilities							
Hong Kong currency notes in circulation	40.4	40.4	–	–	–	–	40.4
Deposits by banks	82.1	83.4	–	–	–	–	83.4
Customer accounts	1,642.8	1,661.6	–	–	–	–	1,661.6
Repurchase agreements – non-trading	111.9	111.9	–	111.9	–	–	–
Items in course of transmission to other banks	4.3	4.3	–	–	–	–	4.3
Trading liabilities	75.3	75.3	–	16.3	–	75.3	–
Financial liabilities designated at FV	157.4	152.9	–	–	–	59.8	93.1
Derivatives	303.0	303.3	–	303.4	–	303.3	–
Debt securities in issue	95.5	94.1	–	–	–	–	94.1
Accruals, deferred income, and other liabilities	128.6	126.4	–	65.5	–	–	60.7
Current tax liabilities	0.7	0.6	–	–	–	–	0.6
Liabilities under insurance contract	107.2	–	–	–	–	–	–
Provisions	3.7	3.7	1.1	–	–	–	2.6
Deferred tax liabilities	4.3	2.9	1.9	–	–	–	3.8
Subordinated liabilities	22.0	22.4	–	–	–	–	22.4
Total liabilities at 31 Dec 2020	2,779.2	2,683.2	3.0	497.1	–	438.4	2,067.0

1 The amounts shown in the column 'Carrying values under scope of regulatory consolidation' do not equal the sum of the amounts shown in the remaining columns of this table for line items 'Derivatives', 'Trading assets' and 'Prepayments, accrued income and other assets' as some of the assets in this column are subject to regulatory capital charges for credit risk, counterparty credit risk and market risk.

2 The amounts shown in the column 'Subject to the counterparty credit risk framework' include both non-trading book and trading book.

3 The amounts shown in the column 'Subject to the securitisation framework' are non-trading book positions. Trading book securitisation positions are included in the market risk column.

Table 5: Main sources of differences between regulatory exposure amounts and carrying values in financial statements (L12)

	Footnotes	Of which items subject to:			
		Total \$bn	Credit risk framework \$bn	CCR framework \$bn	Securitisation framework \$bn
Carrying value of assets within scope of regulatory consolidation	1	2,831.3	1,953.3	636.9	25.5
Carrying value of liabilities within scope of regulatory consolidation	1	616.2	3.0	497.1	—
Net carrying value within scope of regulatory consolidation		2,215.1	1,950.3	139.8	25.5
Off-balance sheet amounts and potential future exposure for counterparty risk		893.9	291.6	44.7	11.5
Differences in netting rules		0.8	10.9	(10.1)	—
Differences due to financial collateral on standardised approach		(4.5)	(4.5)	—	—
Differences due to expected credit losses on IRB approach		11.9	11.9	—	—
Differences due to EAD modelling and other differences		5.4	7.8	—	(2.4)
Differences due to credit risk mitigation		(19.5)	—	(19.5)	—
Exposure values considered for regulatory purposes at 31 Dec 2020		3,103.1	2,268.0	154.9	34.6

1 Excludes amounts subject to deduction from capital or not subject to regulatory capital requirements.

Explanations of differences between accounting and regulatory exposure amounts

Off-balance sheet amounts and potential future exposure for counterparty risk

Off-balance sheet amounts subject to credit risk and securitisation regulatory frameworks include undrawn portions of committed facilities, various trade finance commitments and guarantees. We apply a credit conversion factor ('CCF') to these items and add potential future exposures ('PFE') for counterparty credit risk.

Differences in netting rules

The increase from carrying value due to differences in netting rules is the reversal of amounts deducted from gross loans and advances to customers in the published financial statements in accordance with the offsetting criteria of IAS 32 'Financial instruments: presentation'.

Differences due to financial collateral

Exposure value under the standardised approach is calculated after deducting credit risk mitigation whereas accounting value is before such deductions.

Differences due to expected credit losses

The carrying value of assets is net of credit risk adjustments. The regulatory exposure value under IRB approaches is before deducting credit risk adjustments.

Differences due to EAD modelling and other differences

The carrying value of assets is usually measured at amortised cost or fair value as at the balance sheet date. For certain IRB models, the exposure value used as EAD is the projected value over the next year. Other differences include IFRS 9 transitional arrangements applicable to standardised credit risk exposure and dilution risk.

Differences due to credit risk mitigation

In counterparty credit risk ('CCR'), differences arise between accounting carrying values and regulatory exposure as a result of the application of credit risk mitigation and the use of modelled exposures.

Explanation of differences between accounting fair value and regulatory prudent valuation

Fair value is defined as the best estimate of the price that would be received to sell an asset or be paid to transfer a liability in an orderly transaction between market participants at the measurement date.

Some fair value adjustments already reflect valuation uncertainty to some degree. These are market data uncertainty and model uncertainty.

However, it is recognised that a variety of valuation techniques using stressed assumptions and combined with the range of plausible market parameters at a given point in time may still generate unexpected uncertainty beyond fair value.

A series of additional valuation adjustments ('AVAs') are therefore required to reach a specified degree of confidence (the 'prudent value') set by regulators that differs both in terms of scope and measurement from HSBC's own quantification for disclosure purposes.

AVAs should consider at the minimum: market price uncertainty, bid-offer (close-out) uncertainty, model risk, concentration, administrative costs, unearned credit spreads and investing and funding costs.

AVAs are not limited to level 3 exposures, for which a 95% uncertainty range is already computed and disclosed, but must also be calculated for any exposure for which the exit price cannot be determined with a high degree of certainty. Table 67 presents further information on the prudent valuation adjustment.

Capital and RWAs

Capital management

Approach and policy

Our approach to capital management is driven by our strategic and organisational requirements, taking into account the regulatory, economic and commercial environment. We aim to maintain a strong capital base to support the risks inherent in our business and invest in accordance with our strategy, meeting both consolidated and local regulatory capital requirements at all times.

Our capital management process culminates in the annual Group capital plan, which is approved by the Board. HSBC Holdings is the primary provider of equity capital to its subsidiaries and also provides them with non-equity and loss-absorbing capital where necessary. These investments are substantially funded by HSBC Holdings' issuance of equity and non-equity capital and by profit retention. As part of its capital management process, HSBC Holdings seeks to maintain a balance between the composition of its capital and its investment in subsidiaries, including management of double leverage. Subject to the above, there is no current or foreseen impediment to HSBC Holdings' ability to provide such investments.

Each subsidiary manages its own capital to support its planned business growth and meet its local regulatory requirements within the context of the Group capital plan. Capital generated by subsidiaries in excess of planned requirements is returned to HSBC Holdings, normally by way of dividends, in accordance with the Group's capital plan.

The ability of subsidiaries to pay dividends or advance monies to HSBC Holdings depends on, among other things, their respective local regulatory capital and banking requirements, exchange controls, statutory reserves, and financial and operating performance. HSBC Holdings has not entered into any Group Financial Support Agreements pursuant to the application of early intervention measures under the Bank Recovery and Resolution Directive.

All capital securities included in the capital base of HSBC have either been issued as fully compliant CRD IV securities (on an end point basis) or in accordance with the rules and guidance in the PRA's previous General Prudential Sourcebook, which are included in the capital base by virtue of the application of CRR II.

The values disclosed are the IFRS balance sheet carrying amounts, not the amounts that these securities contribute to regulatory capital. For example, the IFRS accounting and the regulatory treatments differ in their approaches to issuance costs, regulatory amortisation and regulatory eligibility limits prescribed by the relevant regulatory legislation.

A list of the main features of our capital instruments in accordance with Annex III of Commission Implementing Regulation 1423/2013 is also published on our website with reference to our balance sheet on 31 December 2020. This is in addition to the full terms and conditions of our securities, also available on our website.

For further details of our approach to capital risk management, please see page 169 of the Annual Report and Accounts 2020.

Own funds

Table 6: Own funds disclosure

Ref*	Ref †	At	
		31 Dec 2020 \$m	31 Dec 2019 \$m
Common equity tier 1 ('CET1') capital: instruments and reserves			
1		23,219	22,873
		23,219	22,873
2	a	128,665	127,188
3	b	9,768	1,735
5	c	4,079	4,865
5a	d	(252)	(3,381)
6	e	165,479	153,280
Common equity tier 1 capital: regulatory adjustments			
7		(1,175)	(1,327)
8		(9,590)	(12,372)
10		(1,741)	(1,281)
11	f	(365)	(41)
12	g	(1,462)	(2,424)
14	h	2,101	2,450
15	i	(7,885)	(6,351)
16	j	(40)	(40)
19		(9,272)	(7,928)
28		(29,429)	(29,314)
29		136,050	123,966
Additional tier 1 ('AT1') capital: instruments			
30		22,414	20,871
31		22,414	20,871
33		900	2,305

Pillar 3 Disclosures at 31 December 2020

Table 6: Own funds disclosure (continued)

Ref ^f	Ref ^t	At	
		31 Dec 2020 \$m	31 Dec 2019 \$m
34	Qualifying tier 1 capital included in consolidated AT1 capital (including minority interests not included in CET1) issued by subsidiaries and held by third parties	869	1,277
35	– of which: instruments issued by subsidiaries subject to phase out	812	1,218
36	Additional tier 1 capital before regulatory adjustments	24,183	24,453
	Additional tier 1 capital: regulatory adjustments		
37	Direct and indirect holdings of own AT1 instruments ²	(60)	(60)
43	Total regulatory adjustments to additional tier 1 capital	(60)	(60)
44	Additional tier 1 capital	24,123	24,393
45	Tier 1 capital (T1 = CET1 + AT1)	160,173	148,359
	Tier 2 capital: instruments and provisions		
46	Capital instruments and the related share premium accounts	20,987	20,525
	– of which: instruments grandfathered under CRR II	7,357	7,067
48	Qualifying own funds instruments included in consolidated T2 capital (including minority interests and AT1 instruments not included in CET1 or AT1) issued by subsidiaries and held by third parties ⁴	4,735	4,667
49	– of row 48: instruments issued by subsidiaries subject to phase out	2,150	2,251
	– of row 48: instruments issued by subsidiaries grandfathered under CRR II	1,427	1,452
51	Tier 2 capital before regulatory adjustments	25,722	25,192
	Tier 2 capital: regulatory adjustments		
52	Direct and indirect holdings of own T2 instruments ²	(40)	(40)
55	Direct and indirect holdings by the institution of the T2 instruments and subordinated loans of financial sector entities where the institution has a significant investment in those entities (net of eligible short positions)	(1,432)	(1,361)
57	Total regulatory adjustments to tier 2 capital	(1,472)	(1,401)
58	Tier 2 capital	24,250	23,791
59	Total capital (TC = T1 + T2)	184,423	172,150
60	Total risk-weighted assets	857,520	843,395
	Capital ratios and buffers		
61	Common equity tier 1	15.9%	14.7%
62	Tier 1	18.7%	17.6%
63	Total capital	21.5%	20.4%
64	Institution specific buffer requirement	4.71%	5.11%
65	– capital conservation buffer requirement	2.50%	2.50%
66	– counter-cyclical buffer requirement	0.21%	0.61%
67a	– Global Systemically Important Institution ('G-SII') buffer	2.00%	2.00%
68	Common equity tier 1 available to meet buffers	9.7%	8.5%
	Amounts below the threshold for deduction (before risk weighting)		
72	Direct and indirect holdings of the capital of financial sector entities where the institution does not have a significant investment in those entities (amount below 10% threshold and net of eligible short positions)	2,485	2,938
73	Direct and indirect holdings by the institution of the CET1 instruments of financial sector entities where the institution has a significant investment in those entities (amount below 10% threshold and net of eligible short positions)	14,409	13,189
75	Deferred tax assets arising from temporary differences (amount below 10% threshold, net of related tax liability)	4,418	4,529
	Applicable caps on the inclusion of provisions in tier 2		
77	Cap on inclusion of credit risk adjustments in T2 under standardised approach	2,022	2,163
79	Cap for inclusion of credit risk adjustments in T2 under internal ratings-based approach	3,262	3,128
	Capital instruments subject to phase-out arrangements (only applicable until 1 Jan 2022)		
82	Current cap on AT1 instruments subject to phase out arrangements	3,461	5,191
83	Amount excluded from AT1 due to cap (excess over cap after redemptions and maturities)	144	122
84	Current cap on T2 instruments subject to phase out arrangements	1,792	2,737

^f The references (a) – (r) identify balance sheet components in Table 2: Reconciliation of balance sheets – financial accounting to regulatory scope of consolidation which is used in the calculation of regulatory capital. This table shows how they contribute to the regulatory capital calculation. Their contribution may differ from their accounting value in Table 2 as a result of adjustment or analysis to apply regulatory definitions of capital.

1 Additional value adjustments are deducted from CET1. These are calculated on all assets measured at fair value.

2 The deduction for holdings of own CET1, T1 and T2 instruments is set by the PRA.

3 The threshold deduction for significant investments is drawn from numerous lines of the balance sheet and includes: investments in insurance subsidiaries and non-consolidated associates, other CET1 equity held in financial institutions, and connected funding of a capital nature.

4 Following the call and subsequent redemption of HSBC Holdings' non-cumulative preference shares, the remaining share premium that was related to such preference shares is now treated as an 'other reserve' and included in CET1.

At 31 December 2020, our CET1 ratio increased to 15.9% from 14.7% at 31 December 2019. CET1 capital increased during the year by \$12.1bn, mainly as a result of:

- the cancellation of the fourth interim dividend of \$3.4bn for 2019;
- favourable foreign currency translation differences of \$3.4bn;
- capital generation of \$2.8bn net of dividends relating to other equity instruments;
- a fall of \$2.1bn in the deduction for other intangible assets due to changes to the capital treatment of software assets;

- a \$1.8bn increase in fair value through other comprehensive income reserve; and
- a \$1.8bn fall in the deduction for excess expected loss.

These increases were partly offset by:

- an interim dividend for 2020 of \$3.1bn; and
- a \$0.8bn fall in allowable non-controlling interest in CET1. This partly reflected the acquisition in May 2020 of additional shares representing 18.66% of the capital of HSBC Trinkaus and Burkhardt from Landesbank Baden-Württemberg, the principal minority shareholder.

We have applied the revised regulatory treatment of software assets which became a UK requirement in December 2020. Subsequently, the PRA published a consultation on the reversal of this change and recommended firms do not base their distribution

decision on any capital increase from applying this requirement. As a result, we have not considered the related capital benefit in our distributions.

Leverage

Table 7: Leverage ratio common disclosure (LRCom)

Ref*	Footnotes	At 31 Dec	
		2020 \$bn	2019 \$bn
On-balance sheet exposures (excluding derivatives and SFT)			
1	On-balance sheet items (excluding derivatives, SFTs and fiduciary assets, but including collateral)	2,317.1	2,119.1
2	(Asset amounts deducted in determining tier 1 capital)	(27.7)	(30.5)
3	Total on-balance sheet exposures (excluding derivatives, SFTs and fiduciary assets)	2,289.4	2,088.6
Derivative exposures			
4	Replacement cost associated with all derivatives transactions (i.e. net of eligible cash variation)	82.4	53.5
5	Add-on amounts for potential future exposure ('PFE') associated with all derivatives transactions (mark-to-market method)	146.4	162.1
6	Gross-up for derivatives collateral provided where deducted from the balance sheet assets pursuant to IFRSs	18.0	8.3
7	(Deductions of receivables assets for cash variation margin provided in derivatives transactions)	(64.5)	(43.1)
8	(Exempted central counterparty ('CCP') leg of client-cleared trade exposures)	(86.5)	(53.2)
9	Adjusted effective notional amount of written credit derivatives	127.6	159.4
10	(Adjusted effective notional offsets and add-on deductions for written credit derivatives)	(121.3)	(150.4)
11	Total derivative exposures	102.1	136.6
Securities financing transaction exposures			
12	Gross SFT assets (with no recognition of netting), after adjusting for sales accounting transactions	434.0	451.0
13	(Netted amounts of cash payables and cash receivables of gross SFT assets)	(174.1)	(196.1)
14	Counterparty credit risk exposure for SFT assets	11.4	10.7
16	Total securities financing transaction exposures	271.3	265.6
Other off-balance sheet exposures			
17	Off-balance sheet exposures at gross notional amount	893.9	865.5
18	(Adjustments for conversion to credit equivalent amounts)	(659.6)	(629.8)
19	Total off-balance sheet exposures	234.3	235.7
Capital and total exposures			
20	Tier 1 capital	158.5	144.8
21	Total leverage ratio exposure	2,897.1	2,726.5
22	Leverage ratio (%)	5.5	5.3
EU-23	Choice of transitional arrangements for the definition of the capital measure	Fully phased-in	Fully phased-in

1 Leverage ratio is calculated using the CRR II end point basis for capital

The risk of excessive leverage is managed as part of HSBC's global risk appetite framework and monitored using a leverage ratio metric within our RAS. The RAS articulates the aggregate level and types of risk that HSBC is willing to accept in its business activities in order to achieve its strategic business objectives. The RAS is monitored via the risk appetite profile report, which includes comparisons of actual performance against the risk appetite and tolerance thresholds assigned to each metric, to ensure that any excessive risk is highlighted, assessed and mitigated appropriately. The risk appetite profile report is presented monthly to the RMM and the GRC.

Our approach to risk appetite is described on page 107 of the Annual Report and Accounts 2020.

Our leverage ratio calculated in accordance with the Capital Requirements Regulation was 5.5% at 31 December 2020, up from 5.3% at 31 December 2019 due to an increase in tier 1 capital, offset by an increase in exposure primarily due to growth in central bank deposits and financial investments.

At 31 December 2020, the Group's leverage ratio measured under the PRA's UK leverage framework was 6.2%. This measure excludes qualifying central bank balances and loans under the UK Bounce Back Loan scheme from the calculation of exposure.

At 31 December 2020, our UK minimum leverage ratio requirement of 3.25% under the PRA's UK leverage framework was supplemented by an additional leverage ratio buffer of 0.7% and a countercyclical leverage ratio buffer of 0.1%. These additional buffers translated into capital values of \$17.9bn and \$1.8bn respectively. We exceeded these leverage requirements.

For further details of the UK leverage ratio, please see page 176 of the Annual Report and Accounts 2020.

The following table provide a reconciliation of the total assets in our published balance sheet under IFRS and the total leverage exposure (Table 8) and a breakdown of on-balance sheet exposures excluding derivatives, SFTs and exempted exposures, by asset class (Table 9).

Pillar 3 Disclosures at 31 December 2020

Table 8: Summary reconciliation of accounting assets and leverage ratio exposures (LRSum)

Ref*		At 31 Dec	
		2020 \$bn	2019 \$bn
1	Total assets as per published financial statements	2,984.2	2,715.2
	Adjustments for:		
2	– entities which are consolidated for accounting purposes but are outside the scope of regulatory consolidation	(109.1)	(101.2)
4	– derivative financial instruments	(205.6)	(106.4)
5	– securities financing transactions ('SFT')	15.2	2.8
6	– off-balance sheet items (i.e. conversion to credit equivalent amounts of off-balance sheet exposures)	234.3	235.7
7	– other	(21.9)	(19.6)
8	Total leverage ratio exposure	2,897.1	2,726.5

Table 9: Leverage ratio – Split of on-balance sheet exposures (excluding derivatives, SFTs and exempted exposures) (LRSpI)

Ref		At 31 Dec	
		2020 \$bn	2019 \$bn
EU-1	Total on-balance sheet exposures (excluding derivatives, SFTs and exempted exposures)	2,252.6	2,076.0
EU-2	– trading book exposures	207.1	230.8
EU-3	– banking book exposures	2,045.5	1,845.2
	'banking book exposures' comprises:		
EU-4	covered bonds	2.7	2.6
EU-5	exposures treated as sovereigns	743.5	539.3
EU-6	exposures to regional governments, multilateral development banks ('MDB'), international organisations and public sector entities not treated as sovereigns	9.4	9.4
EU-7	institutions	60.1	59.3
EU-8	secured by mortgage of immovable property	380.2	330.4
EU-9	retail exposures	91.3	106.2
EU-10	corporate	565.6	603.2
EU-11	exposures in default	13.8	9.9
EU-12	other exposures (e.g. equity, securitisations and other non-credit obligation assets)	178.9	184.9

Pillar 1 minimum capital requirements and RWA flow

Pillar 1 covers the minimum capital resource requirements for credit risk, counterparty credit risk, equity, securitisation, market

risk and operational risk. These requirements are expressed in terms of RWAs. The table provides information on the scope of permissible approaches and our adopted approach by risk type.

Risk category	Scope of permissible approaches	Approach adopted by HSBC
Credit risk	The Basel framework applies three approaches of increasing sophistication to the calculation of Pillar 1 credit risk capital requirements. The most basic level, the standardised approach, requires banks to use external credit ratings to determine the risk weightings applied to rated counterparties. Other counterparties are grouped into broad categories and standardised risk weightings are applied to these categories. The next level, the foundation IRB ('FIRB') approach, allows banks to calculate their credit risk capital requirements on the basis of their internal assessment of a counterparty's probability of default ('PD'), but subjects their quantified estimates of EAD and loss given default ('LGD') to standard supervisory parameters. Finally, the advanced IRB ('AIRB') approach allows banks to use their own internal assessment in determining PD and in quantifying EAD and LGD.	For consolidated Group reporting, we have adopted the AIRB approach for the majority of our business. Some portfolios remain on the standardised or FIRB approaches: <ul style="list-style-type: none"> • pending the issuance of local regulations or model approval; • following supervisory prescription of a non-advanced approach; or • under exemptions from IRB treatment.
Counterparty credit risk	Four approaches to calculating CCR and determining exposure values are defined by Basel: mark-to-market, original exposure, standardised and internal model method ('IMM'). These exposure values are used to determine capital requirements under one of the three approaches to credit risk: standardised, FIRB or AIRB.	We use the mark-to-market and IMM approaches for CCR. Details of the IMM permission we have received from the PRA can be found in the Financial Services Register on the PRA website. Our aim is to increase the proportion of positions on IMM over time.
Equity	For the non-trading book, equity exposures can be assessed under standardised or IRB approaches.	For Group reporting purposes, all non-trading book equity exposures are treated under the standardised approach.
Securitisation	The framework prescribes the following approaches: <ul style="list-style-type: none"> • internal ratings-based approach ('SEC-IRBA'); • standardised approach ('SEC-SA'); • external ratings-based approach ('SEC-ERBA'); and • internal assessment approach ('IAA'). Where a split between IRB and standardised approaches is disclosed, exposures under the SEC-IRBA approach are mapped to IRB. Exposures under the other approaches are mapped to standardised.	Under the new framework: <ul style="list-style-type: none"> • Our originated positions are reported under SEC-IRBA. • Our positions in the sponsored Solitaire programme and our investment in third-party positions are reported under SEC-SA and SEC-ERBA. • Our sponsored positions in Regency are reported under IAA. Our IAA approach is audited annually by internal model review and is subject to review by the PRA. • Wherever broader approach categorisation is required, 'SEC-IRBA' is mapped to IRB approach and the remaining three approaches are mapped to standardised category.
Market risk	Market risk capital requirements are calculated using a combination of standard rules and the internal models approach ('IMA'). The latter involves the use of internal value at risk ('VaR') models to measure market risks and determine the appropriate capital requirement. The internal model approach also includes stressed VaR ('SVaR') and incremental risk charge ('IRC'). HSBC does not use or need a Comprehensive Risk Model ('CRM').	The market risk capital requirement is measured using internal market risk models, where approved by the PRA, or under the standard rules. Our internal market risk models comprise VaR, stressed VaR and IRC. Non-proprietary details of the scope of our IMA permission are available in the Financial Services Register on the PRA website. We are in compliance with the requirements regarding <ol style="list-style-type: none"> rules and procedures for inclusion of positions within trading books and application of prudent valuation adjustments to trading book positions.
Operational risk	Basel allows firms to calculate their operational risk capital requirement under the basic indicator approach, the standardised approach or the advanced measurement approach.	We currently use the standardised approach in determining our operational risk capital requirement. We have in place an operational risk model that is used for economic capital calculation purposes.

Table 10: Overview of RWAs (OV1)

	At		
	31 Dec 2020	30 Sep 2020	31 Dec 2020
	RWAs \$bn	RWAs \$bn	Capital required \$bn
1 Credit risk (excluding counterparty credit risk)	634.6	637.3	50.7
2 – standardised approach	112.1	121.8	8.9
3 – foundation IRB approach	103.5	104.6	8.3
4 – advanced IRB approach	419.0	410.9	33.5
6 Counterparty credit risk	42.8	41.6	3.4
7 – mark-to-market	21.7	20.4	1.7
10 – internal model method	17.4	17.5	1.4
11 – risk exposure amount for contributions to the default fund of a central counterparty	0.6	0.5	–
12 – credit valuation adjustment	3.1	3.2	0.3
13 Settlement risk	–	–	–
14 Securitisation exposures in the non-trading book	10.2	10.1	0.9
14a – internal ratings-based approach ('SEC-IRBA')	2.0	1.9	0.2
14b – external ratings-based approach ('SEC-ERBA')	3.6	3.7	0.3
14c – internal assessment approach ('IAA')	1.9	2.1	0.2
14d – standardised approach ('SEC-SA')	2.7	2.4	0.2
19 Market risk	28.5	31.3	2.3
20 – standardised approach	8.6	8.2	0.7
21 – internal models approach	19.9	23.1	1.6
23 Operational risk	94.3	91.4	7.5
25 – standardised approach	94.3	91.4	7.5
27 Amounts below the thresholds for deduction (subject to 250% risk weight)	47.1	45.3	3.8
29 Total	857.5	857.0	68.6

Credit risk (including amounts below the thresholds for deduction)

RWAs decreased by \$0.9bn in the fourth quarter of the year. Excluding foreign currency translation differences, the remaining decrease of \$19.1bn included a \$20.8bn fall in asset size across all of our global businesses. A \$8.1bn reduction in Wealth and Personal Banking ('WPB') was driven by a fall in short-term lending in Hong Kong. Lower lending and management initiatives in Global Banking and Markets ('GBM') and Commercial Banking ('CMB') led to a further reduction of \$13.8bn.

Changes in methodology in policy led to a \$3.2bn reduction in RWAs, mainly in GBM and CMB. These changes included management initiatives in Asia and Europe, and the implementation of the revised small- and medium-sized enterprise supporting factor. These were partly offset by a \$5.8bn increase in Corporate Centre as a result of updates to exposures in Asia and to the regulatory treatment of software assets.

An increase of \$3.3bn was due to changes in asset quality, mostly in GBM. This was driven by the credit migration of exposures in Asia.

Counterparty credit risk (including settlement risk)

Counterparty credit risk RWAs rose by \$1.2bn primarily due to mark-to-market movements in Europe, partly offset by reductions under management initiatives.

Securitisation

The \$0.1bn RWA increase is primarily due to methodology and policy changes in Europe.

Market risk

RWAs fell by \$2.8bn, driven by asset size reductions of \$1.8bn, reflecting lower exposures and market conditions. Model updates caused a further drop of \$1bn, largely due to the implementation of a new model for an options portfolio.

Operational risk

RWAs increased by \$2.9bn, mostly due to foreign currency translation differences. Changes in the calculation of operational risk largely offset across the global businesses.

Table 11: RWA flow statements of credit risk exposures under the IRB approach¹ (CR8)

	RWAs \$bn	Capital required \$bn
1 At 1 Oct 2020	515.5	41.2
2 Asset size	(9.5)	(0.8)
3 Asset quality	2.7	0.2
4 Model updates	1.0	0.1
5 Methodology and policy	(1.7)	(0.1)
7 Foreign exchange movements	14.5	1.2
9 At 31 Dec 2020	522.5	41.8

¹ Securitisation positions are not included in this table.

Excluding foreign currency translation differences, RWAs under the IRB approach decreased by \$7.5bn in the fourth quarter of the year. These movements comprised:

- Asset size reductions of \$9.5bn, which were primarily due to lower lending and management initiatives, most significantly in GBM and CMB;

- An increase of \$2.7bn due to changes in asset quality, was driven by credit rating downgrades, partly offset by decreases due to changes in portfolio mix; and

- Changes in methodology and policy that led to a \$1.7bn fall in RWAs. The implementation of the revised small- and medium-sized enterprise supporting factor reduced RWAs by \$3.4bn.
- Changes to the calculation of undrawn commitments in Asia and to the regulatory treatment of software assets led to a

\$5.8bn rise in RWAs in Corporate Centre. The remaining reduction in RWAs was mostly due to risk parameter refinements in Europe and Asia under management initiatives.

Table 12: RWA flow statements of CCR exposures under IMM (CCR7)

	RWAs \$bn	Capital required \$bn
1 At 1 Oct 2020	20.0	1.6
2 Asset size	(0.3)	—
3 Asset quality	(0.1)	—
4 Model updates	—	—
5 Methodology and policy	0.2	—
9 At 31 Dec 2020	19.8	1.6

RWAs under the IMM decreased by \$0.2bn primarily due to management initiatives, partly offset by mark-to-market movements and market volatility.

Table 13: RWA flow statements of market risk exposures under IMA (MR2-B)

	VaR \$bn	Stressed VaR \$bn	IRC \$bn	Other \$bn	Total RWAs \$bn	Total capital required \$bn
1 At 1 Oct 2020	5.9	8.2	6.4	2.6	23.1	1.8
2 Movement in risk levels	(0.8)	0.1	(0.3)	0.1	(0.9)	—
3 Model updates/changes	(0.3)	(0.3)	—	(0.4)	(1.0)	(0.1)
4 Methodology and policy	0.6	(1.7)	—	(0.2)	(1.3)	(0.1)
8 At 31 Dec 2020	5.4	6.3	6.1	2.1	19.9	1.6

RWAs under the IMA decreased by \$3.2bn in 4Q20. A \$0.9bn decrease in risk levels was mainly due to lower equity and sovereign exposures. Model updates led to a \$1.0bn fall, largely from the implementation of a new model for an options portfolio. A further \$1.3bn reduction stemmed from methodology and policy changes, mostly due to changes in the calculated of VaR and stressed VaR.

Minimum requirement for own funds and eligible liabilities

Overview and requirements

A requirement for total loss-absorbing capacity ('TLAC'), as defined in the final standards adopted by the Financial Stability Board, came into effect on 1 January 2019. In the EU, TLAC requirements were implemented via CRR II, which came into force in June 2019 and included a framework on minimum requirement for own funds and eligible liabilities ('MREL').

MREL includes own funds and liabilities that can be written down or converted into capital resources in order to absorb losses or recapitalise a bank in the event of its failure. The framework is complemented with disclosure requirements. As the specific UK format for disclosure is yet to be agreed, the disclosures are based on the formats provided in the Basel Standards for Pillar 3 disclosures requirements.

HSBC issues loss absorbing instruments to external investors predominantly from HSBC Holdings in order to ensure loss absorbing capacity is available to support the objectives of a resolution, were such an event to occur. In the event of a resolution of the HSBC Group, in the UK, it is anticipated that the MREL issued externally by HSBC Holdings would be written down or converted to equity by the BoE using its statutory powers. This would enable subsidiaries of the HSBC Group to be recapitalised, as needed, to support the resolution objectives and maintain the provision of critical functions. Recapitalisation of subsidiaries could be achieved through the write-down, or conversion to equity, of internally issued MREL, TLAC or LAC. It is anticipated that this approach to recapitalising the HSBC Group's subsidiaries could allow the HSBC Group to stay together in order to ensure an effective stabilisation of the HSBC Group, as a whole, whilst also facilitating an orderly restructuring process, as needed, to remediate the cause of resolution.

In view of the HSBC Group's legal structure which comprises a group of locally regulated operating banks, HSBC recognises the imperative for local regulators to be satisfied with resolution planning as those regulators may ultimately determine the need to use the statutory powers available to them locally to resolve or place into insolvency HSBC subsidiaries in their jurisdictions. In addition to the BoE and the PRA/FCA, HSBC is overseen locally by other regulators and resolution authorities such as the ECB, the European Banking Union's Single Resolution Board, the HKMA, and the FRB, FDIC and OCC, and many of these have statutory resolution powers which could be applied to the local subsidiaries of the HSBC Group in their jurisdictions. The application of these local statutory resolution powers may result in one or more individual resolution authorities leading a local resolution of the subsidiaries within their jurisdiction. This may or may not result in such subsidiaries ceasing to be part of the HSBC Group, depending on the resolution strategy adopted by the relevant resolution authority.

The HSBC Group can, therefore, be resolved either on a consolidated basis or at a local level, in combination with a bail-in of externally issued MREL at the HSBC Holdings level. This preferred resolution strategy for the HSBC Group, as confirmed by its regulators, is a multiple point of entry ('MPE') strategy.

In line with the existing structure and business model of the Group, we have three resolution groups – namely the European resolution group, the Asian resolution group and the US resolution group. There are some smaller entities that fall outside of the resolution groups, and can be separately resolved.

The table below lists the resolution groups, the related resolution entities and their material subsidiaries subject to TLAC requirements as currently agreed with the BoE.

Resolution structure

Resolution group	Resolution entity	Material entity/subgroup with MREL requirements
European resolution group	HSBC Holdings plc	HSBC UK Holdings Limited
		HSBC Bank plc
		HSBC UK Bank plc
		HSBC Continental Europe
Asian resolution group	HSBC Asia Holdings Limited	The Hongkong and Shanghai Banking Corporation Limited
		Hang Seng Bank Limited
US resolution group	HSBC North America Holdings Inc	N/A

The external MREL requirement for the Group as a whole is currently the highest of:

- 16% of the Group’s consolidated RWAs;
- 6% of the Group’s consolidated leverage exposure; and
- the sum of all loss-absorbing capacity requirements and other capital requirements relating to Group entities or sub-groups.

There are no changes to the external MREL requirements applying to the Group for 2021. The indicative, external MREL requirement applicable in 2022 is the highest of:

- 18% of the Group’s consolidated RWAs;

Key metrics of the resolution groups

The following tables summarise key metrics for each of the Group’s three resolution groups. Fully loaded values and ratios are calculated without applying any regulatory transitional arrangements for ECL that may be available to the resolution group.

- 6.75% of the Group’s consolidated leverage exposure; and
- the sum of all loss-absorbing capacity requirements and other capital requirements relating to other Group entities or sub-groups.

These indicative requirements remain subject to the BoE’s confirmation and its review of the MREL framework in 2021.

Further details of our approach to capital management may be found in ‘Treasury risk management’ on page 169 of the Annual Report and Accounts 2020.

Table 14.i: Key metrics of the European resolution group¹ (KM2)

	31 Dec 2020	At			
		30 Sep 2020	30 Jun 2020	31 Mar 2020	31 Dec 2019
	\$bn	\$bn	\$bn	\$bn	\$bn
1 Total loss absorbing capacity ('TLAC') available	97.9	96.9	94.3	98.5	94.6
1a Fully loaded ECL accounting model TLAC available	97.8	96.8	94.2	98.4	94.4
2 Total RWAs at the level of the resolution group	302.5	298.5	295.7	299.6	297.4
3 TLAC as a percentage of RWA (row1/row2)	32.4%	32.5%	31.9%	32.9%	31.8%
3a Fully loaded ECL accounting model TLAC as a percentage of fully loaded ECL accounting model RWA	32.3%	32.4%	31.9%	32.8%	31.8%
4 Leverage exposure measure at the level of the resolution group	1,265.2	1,219.0	1,166.3	1,163.0	1,166.6
5 TLAC as a percentage of leverage exposure measure (row1/row4)	7.7%	7.9%	8.1%	8.5%	8.1%
5a Fully loaded ECL accounting model TLAC as a percentage of fully loaded ECL accounting model leverage exposure measure	7.7%	7.9%	8.1%	8.5%	8.1%
6a Does the subordination exemption in the antepenultimate paragraph of section 11 of the FSB TLAC term sheet apply?	No	No	No	No	No
6b Does the subordination exemption in the penultimate paragraph of section 11 of the FSB TLAC term sheet apply?	No	No	No	No	No
6c If the capped subordination exemption applies, the amount of funding issued that ranks <i>pari passu</i> with excluded liabilities and that is recognised as external TLAC, divided by funding issued that ranks <i>pari passu</i> with excluded liabilities and that would be recognised as external TLAC if no cap was applied	N/A	N/A	N/A	N/A	N/A

Table 14.ii: Key metrics of the Asian resolution group²

		At				
		31 Dec 2020 \$bn	30 Sep 2020 \$bn	30 Jun 2020 \$bn	31 Mar 2020 \$bn	31 Dec 2019 \$bn
1	Total loss absorbing capacity ('TLAC') available	102.2	101.6	99.8	96.0	98.8
1a	Fully loaded ECL accounting model TLAC available	102.2	101.6	99.8	96.0	98.8
2	Total RWA at the level of the resolution group	381.4	390.8	379.7	374.8	366.1
3	TLAC as a percentage of RWA (row1/row2)	26.8%	26.0%	26.3%	25.6%	27.0%
3a	Fully loaded ECL accounting model TLAC as a percentage of fully loaded ECL accounting model RWA	26.8%	26.0%	26.3%	25.6%	27.0%
4	Leverage exposure measure at the level of the resolution group	1,121.8	1,116.3	1,092.4	1,055.0	1,036.2
5	TLAC as a percentage of leverage exposure measure (row1/row4)	9.1%	9.1%	9.1%	9.1%	9.5%
5a	Fully loaded ECL accounting model TLAC as a percentage of fully loaded ECL accounting model Leverage exposure measure	9.1%	9.1%	9.1%	9.1%	9.5%
6a	Does the subordination exemption in the antepenultimate paragraph of Section 11 of the FSB TLAC Term Sheet apply?	No	No	No	No	No
6b	Does the subordination exemption in the penultimate paragraph of Section 11 of the FSB TLAC Term Sheet apply?	No	No	No	No	No
6c	If the capped subordination exemption applies, the amount of funding issued that ranks <i>pari passu</i> with excluded liabilities and that is recognised as external TLAC, divided by funding issued that ranks <i>pari passu</i> with excluded liabilities and that would be recognised as external TLAC if no cap was applied	N/A	N/A	N/A	N/A	N/A

Table 14.iii: Key metrics of the US resolution group³

		At				
		31 Dec 2020 \$bn	30 Sep 2020 \$bn	30 Jun 2020 \$bn	31 Mar 2020 \$bn	31 Dec 2019 \$bn
1	Total loss absorbing capacity ('TLAC') available	30.2	30.5	30.4	30.5	29.8
1a	Fully loaded ECL accounting model TLAC available	30.1	30.5	30.3	30.4	N/A
2	Total RWAs at the level of the resolution group	113.4	119.8	127.2	140.4	128.7
3	TLAC as a percentage of RWA (row1/row2)	26.6%	25.5%	23.9%	21.7%	23.2%
3a	Fully loaded ECL accounting model TLAC as a percentage of fully loaded ECL accounting model RWA	26.6%	25.5%	23.8%	21.7%	N/A
4	Leverage exposure measure at the level of the resolution group	273.1	297.0	306.0	367.1	331.9
5	TLAC as a percentage of leverage exposure measure (row1/row4)	11.1%	10.3%	9.9%	8.3%	9.0%
5a	Fully loaded ECL accounting model TLAC as a percentage of fully loaded ECL accounting model leverage exposure measure	11.0%	N/A	N/A	N/A	N/A
6a	Does the subordination exemption in the antepenultimate paragraph of section 11 of the FSB TLAC term sheet apply?	No	No	No	No	No
6b	Does the subordination exemption in the penultimate paragraph of section 11 of the FSB TLAC term sheet apply?	No	No	No	No	No
6c	If the capped subordination exemption applies, the amount of funding issued that ranks <i>pari passu</i> with excluded liabilities and that is recognised as external TLAC, divided by funding issued that ranks <i>pari passu</i> with excluded liabilities and that would be recognised as external TLAC if no cap was applied	N/A	N/A	N/A	N/A	N/A

- 1 The European resolution group reports in accordance with the applicable provisions of the Capital Requirements Regulation as amended by CRR II. Unless otherwise stated, all figures are calculated using the EU's regulatory transitional arrangements for IFRS 9 in article 473a of the Capital Requirements Regulation.
- 2 Reporting for the Asian resolution group follows the Hong Kong Monetary Authority regulatory rules. For the Asian resolution group, there are no IFRS 9 transitional arrangements.
- 3 The US accounting standard for current expected credit losses corresponding to IFRS 9 has been effective since 31 March 2020 with transitional adjustments. Leverage exposure and ratio are calculated under the US supplementary leverage ratio rules with Covid relief (reducing on-balance sheet assets by US Treasury Securities and Deposits at FRB).

Pillar 3 Disclosures at 31 December 2020

Given the MPE resolution strategy, and the fact that the BoE framework includes requirements set on the basis of HSBC group consolidated position, the following table presents data for both the consolidated Group and the resolution groups.

The difference between Group CET1 and the aggregate of resolution groups' CET1 is driven by entities that fall outside of the resolution groups and by differences in regulatory frameworks.

Table 15: TLAC composition (TLAC1)

	At 31 Dec 2020				At 31 Dec 2019			
	Group ¹	Resolution group			Group ¹	Resolution group		
		European ¹	Asian ²	US ³		European ¹	Asian ²	US ³
Regulatory capital elements of TLAC and adjustments (\$bn)								
Common equity tier 1 capital before adjustments	136.1	116.1	65.8	17.1	124.0	110.2	63.2	16.8
Deduction of CET1 exposures between MPE resolution groups and other group entities	–	99.4	–	–	–	100.0	–	–
1 Common equity tier 1 capital ('CET1')	136.1	16.7	65.8	17.1	124.0	10.2	63.2	16.8
2 Additional tier 1 capital ('AT1') before TLAC	24.1	23.6	5.9	2.2	24.4	23.5	5.8	2.2
4 Other adjustments	–	6.7	–	–	–	6.7	–	–
5 AT1 instruments eligible under the TLAC framework (row 2 minus row 3 minus row 4)	24.1	16.9	5.9	2.2	24.4	16.8	5.8	2.2
6 Tier 2 capital ('T2') before TLAC adjustments	24.2	25.0	7.6	5.7	23.8	25.0	7.9	4.6
7 Amortised portion of T2 instruments where remaining maturity > 1 year	1.4	1.4	–	–	0.6	0.6	–	–
8 T2 capital ineligible as TLAC as issued out of subsidiaries to third parties	–	–	0.4	–	–	–	0.4	–
9 Other adjustments	–	9.2	–	2.8	0.2	8.1	–	1.8
10 T2 instruments eligible under the TLAC framework (row 6 plus row 7 minus row 8 minus row 9)	25.6	17.2	7.2	2.9	24.2	17.5	7.5	2.8
11 TLAC arising from regulatory capital	185.8	50.8	78.9	22.2	172.6	44.5	76.5	21.8
Non-regulatory capital elements of TLAC								
12 External TLAC instruments issued directly by the bank and subordinated to excluded liabilities	79.4	47.1	23.3	8.0	81.2	50.1	22.3	8.0
17 TLAC arising from non-regulatory capital instruments before adjustments	79.4	47.1	23.3	8.0	81.2	50.1	22.3	8.0
Non-regulatory capital elements of TLAC: adjustments								
18 TLAC before deductions	265.2	97.9	102.2	30.2	253.8	94.6	98.8	29.8
20 Deduction of investments in own other TLAC liabilities	–	–	–	–	0.1	–	–	–
22 TLAC after deductions (row 18 minus row 19 minus row 20 minus row 21)	265.2	97.9	102.2	30.2	253.7	94.6	98.8	29.8
Risk-weighted assets and leverage exposure measure for TLAC purposes								
23 Total risk-weighted assets	857.5	302.5	381.4	113.4	843.4	297.4	366.1	128.7
24 Leverage exposure measure	2,897.1	1,265.2	1,121.8	273.1	2,726.5	1,166.6	1,036.2	331.9
TLAC ratios and buffers								
25 TLAC (as a percentage of risk-weighted assets)	30.9%	32.4%	26.8%	26.6%	30.1%	31.8%	27.0%	23.2%
26 TLAC (as a percentage of leverage exposure)	9.2%	7.7%	9.1%	11.1%	9.3%	8.1%	9.5%	9.0%
27 CET1 (as a percentage of risk-weighted assets) available after meeting the resolution group's minimum capital and TLAC requirements ⁴	9.7%	N/A	N/A	8.6%	8.5%	N/A	N/A	5.2%
28 Institution-specific buffer requirement expressed as a percentage of risk-weighted assets	4.7%	N/A	N/A	2.5%	5.1%	N/A	N/A	2.5%
29 – of which: capital conservation buffer requirement	2.5%	N/A	N/A	2.5%	2.5%	N/A	N/A	2.5%
30 – of which: bank specific countercyclical buffer requirement	0.2%	N/A	N/A	N/A	0.6%	N/A	N/A	N/A
31 – of which: higher loss absorbency (G-SIB) requirement	2.0%	N/A	N/A	N/A	2.0%	N/A	N/A	N/A

- 1 The Group and European resolution group reports in accordance with CRR II. Unless otherwise stated all figures are calculated using the regulatory transitional arrangements for IFRS 9 in article 473a. Investments by the European resolution group in the regulatory capital or TLAC of other group companies are deducted from the corresponding form of capital in rows 1, 4 & 9. Buffer requirements are reported as 'Not applicable' as none have yet been set for the European resolution group.
- 2 Reporting for the Asian resolution group follows the Hong Kong Monetary Authority regulatory rules. For the Asian resolution group, there are no IFRS 9 transitional arrangements.
- 3 Reporting for the US resolution group is prepared in accordance with local regulatory rules. The US accounting standard for current expected credit losses corresponding to IFRS 9 has been effective since 31 March 2020 with transitional adjustments. Leverage exposure and ratio are calculated under the US supplementary leverage ratio rules with Covid relief (reducing on-balance sheet assets by US Treasury Securities and Deposits at FRB). Other adjustments for the US resolution group relate to allowances for loan and lease losses that are not TLAC eligible and Tier 2 instruments that currently do not qualify as TLAC. Under the US Final TLAC rules, in addition to the risk-weighted assets component of the TLAC requirement, the US resolution group is subject to an external 2.5% TLAC buffer that is similar to the capital conservation buffer.
- 4 For the Group, minimum capital requirement is defined as the sum of Pillar 1 and Pillar 2A capital requirements set by the PRA. The minimum requirements represent the total capital requirement to be met by CET1.

Creditor ranking at legal entity level

The following tables present information regarding the ranking of creditors in the liability structure of legal entities at 31 December 2020. The tables present the ranking of creditors of HSBC Holdings plc, its resolution entities, and their material sub-group entities. Nominal values are disclosed.

The main features of capital instruments disclosure for the Group, Asia and US resolution groups is published on our website, <https://www.hsbc.com/investors/fixed-income-investors/regulatory-capital-securities>.

European resolution group

The European resolution group comprises HSBC Holdings plc, the designated resolution entity, together with its material operating entities – namely HSBC UK Holdings Ltd, HSBC Bank plc and its subsidiaries, and HSBC UK Bank plc and its subsidiaries. The following tables present information regarding the ranking of creditors of HSBC Holdings plc, HSBC Bank plc and HSBC UK Bank plc.

Table 16: HSBC Holdings plc creditor ranking (TLAC3)

		Creditor ranking (\$m)				Sum of 1 to 4	
		1	2	3	4		
		(most junior)			(most senior)		
1	Description of creditor ranking	Footnotes	Ordinary shares ¹	Preference shares and AT1 instruments	Subordinated notes	Senior notes and other pari passu liabilities	
2	Total capital and liabilities net of credit risk mitigation	2	10,347	22,636	21,202	84,309	138,494
3	– of row 2 that are excluded liabilities	3				271	271
4	Total capital and liabilities less excluded liabilities (row 2 minus row 3)	4	10,347	22,636	21,202	84,038	138,223
5	– of row 4 that are potentially eligible as TLAC	4	10,347	22,636	21,202	76,042	130,227
6	– of row 5 with 1 year ≤ residual maturity < 2 years				–	5,177	5,177
7	– of row 5 with 2 years ≤ residual maturity < 5 years				5,338	26,162	31,500
8	– of row 5 with 5 years ≤ residual maturity < 10 years				4,501	37,727	42,228
9	– of row 5 with residual maturity ≥ 10 years, but excluding perpetual securities				10,463	6,976	17,439
10	– of row 5 that are perpetual securities		10,347	22,636	900	–	33,883

- 1 Excludes the value of share premium and reserves attributable to ordinary shareholders.
- 2 Senior notes and other pari passu liabilities includes a \$1,450m pari passu liability for the HSBC Holdings 6.20% non-cumulative US dollar preference shares. This security was called by HSBC Holdings on 10 December 2020 and was redeemed and cancelled on 13 January 2021. Between these dates, this was reported as an unsecured liability.
- 3 Excluded liabilities are defined in CRR II Article 72a (2), the current balance mainly relates to accruals for service company recharges.
- 4 The difference between rows 4 and 5 relates to TLAC eligible securities of \$4,510m which are maturing within one year and pari passu liabilities of \$3,486m, including \$1,450m for the redemption of the non-cumulative preference shares (see note 2).

Table 17: HSBC UK Bank plc creditor ranking (TLAC2)

		Creditor ranking (\$m)				Sum of 1 to 4	
		1	2	3	4		
		(most junior)			(most senior)		
1	Is the resolution entity the creditor/investor?	Footnotes	Ordinary shares ²	AT1 instruments	Subordinated loans	Senior subordinated loans	
1	Is the resolution entity the creditor/investor?	1	No	No	No	No	
2	Description of creditor ranking						
3	Total capital and liabilities net of credit risk mitigation		–	2,998	3,980	8,803	15,781
4	– of row 3 that are excluded liabilities		–	–	–	–	–
5	Total capital and liabilities less excluded liabilities (row 3 minus row 4)		–	2,998	3,980	8,803	15,781
6	– of row 5 that are eligible as TLAC		–	2,998	3,980	8,803	15,781
7	– of row 6 with 1 year ≤ residual maturity < 2 years		–	–	–	–	–
8	– of row 6 with 2 years ≤ residual maturity < 5 years		–	–	–	683	683
9	– of row 6 with 5 years ≤ residual maturity < 10 years		–	–	3,092	8,120	11,212
10	– of row 6 with residual maturity ≥ 10 years, but excluding perpetual securities		–	–	888	–	888
11	– of row 6 that are perpetual securities		–	2,998	–	–	2,998

- 1 The entity's capital and TLAC are owned by HSBC UK Holdings Limited.
- 2 The nominal value of ordinary shares is £50,002. This excludes the value of share premium and reserves attributable to ordinary shareholders.

Pillar 3 Disclosures at 31 December 2020

Table 18: HSBC Bank plc creditor ranking (TLAC2)

	Footnotes	Creditor ranking (\$m)				Sum of 1 to 4
		1 (most junior)	2	3	4 (most senior)	
1	Is the resolution entity the creditor/investor?	No	No	No	No	
2	Description of creditor ranking	Ordinary shares ²	Third Dollar preference shares and AT1 instruments	Undated primary capital notes	Subordinated notes and subordinated loans	
3	Total capital and liabilities net of credit risk mitigation	1,088	5,565	1,550	19,023	27,226
4	– of row 3 that are excluded liabilities	–	–	–	–	–
5	Total capital and liabilities less excluded liabilities (row 3 minus row 4)	1,088	5,565	1,550	19,023	27,226
6	– of row 5 that are eligible as TLAC	1,088	5,565	1,550	18,573	26,776
7	– of row 6 with 1 year ≤ residual maturity < 2 years	–	–	–	750	750
8	– of row 6 with 2 years ≤ residual maturity < 5 years	–	–	–	11,289	11,289
9	– of row 6 with 5 years ≤ residual maturity < 10 years	–	–	–	3,769	3,769
10	– of row 6 with residual maturity ≥ 10 years, but excluding perpetual securities	–	–	–	1,809	1,809
11	– of row 6 that are perpetual securities	1,088	5,565	1,550	956	9,159

1 The entity's ordinary shares are owned by HSBC UK Holdings Limited. Other instruments are either owned by HSBC UK Holdings Limited or by third parties.

2 Excludes the value of share premium and reserves attributable to ordinary shareholders.

Asian resolution group

The Asian resolution group comprises HSBC Asia Holdings Ltd, The Hongkong and Shanghai Banking Corporation Limited, Hang Seng Bank Limited and their subsidiaries. HSBC Asia Holdings Ltd

is the designated resolution entity. The following table presents information regarding the ranking of creditors of HSBC Asia Holdings Limited.

Table 19: HSBC Asia Holdings Ltd creditor ranking¹ (TLAC3)

	Creditor ranking (\$m)				Sum of 1 to 4	
	1 (most junior)	2	3	4 (most senior)		
1	Description of creditor ranking	Ordinary shares ²	AT1 instruments	Tier 2 instruments	LAC loans	
2	Total capital and liabilities net of credit risk mitigation	56,587	5,700	1,780	21,326	85,393
3	– of row 2 that are excluded liabilities	–	–	–	–	–
4	Total capital and liabilities less excluded liabilities (row 2 minus row 3)	56,587	5,700	1,780	21,326	85,393
5	– of row 4 that are potentially eligible as TLAC	56,587	5,700	1,780	21,326	85,393
6	– of row 5 with 1 year ≤ residual maturity < 2 years	–	–	–	3,070	3,070
7	– of row 5 with 2 years ≤ residual maturity < 5 years	–	–	–	6,868	6,868
8	– of row 5 with 5 years ≤ residual maturity < 10 years	–	–	1,180	9,388	10,568
9	– of row 5 with residual maturity ≥ 10 years, but excluding perpetual securities	–	–	600	2,000	2,600
10	– of row 5 that are perpetual securities	56,587	5,700	–	–	62,287

1 The entity's capital and TLAC are held by HSBC Holdings plc.

2 Excludes the value of share premium and reserves attributable to ordinary shareholders.

Table 20: The Hongkong and Shanghai Banking Corporation Ltd creditor ranking (TLAC2)

	Creditor ranking (\$m)					Sum of 1 to 5	
	1 (most junior)	2	3	4	5 (most senior)		
1	Is the resolution entity the creditor/investor?	Yes	No ¹	Yes	Yes		
2	Description of creditor ranking	Ordinary shares ²	AT1 instruments	Primary capital notes	Tier 2 instruments	LAC loans	
3	Total capital and liabilities net of credit risk mitigation	22,226	5,700	400	1,780	21,326	51,432
4	– of row 3 that are excluded liabilities	–	–	–	–	–	–
5	Total capital and liabilities less excluded liabilities (row 3 minus row 4)	22,226	5,700	400	1,780	21,326	51,432
6	– of row 5 that are eligible as TLAC	22,226	5,700	–	1,780	21,326	51,032
7	– of row 6 with 1 year ≤ residual maturity < 2 years	–	–	–	–	3,070	3,070
8	– of row 6 with 2 years ≤ residual maturity < 5 years	–	–	–	–	6,868	6,868
9	– of row 6 with 5 years ≤ residual maturity < 10 years	–	–	–	1,180	9,388	10,568
10	– of row 6 with residual maturity ≥ 10 years, but excluding perpetual securities	–	–	–	600	2,000	2,600
11	– of row 6 that are perpetual securities	22,226	5,700	–	–	–	27,926

1 The company's primary capital notes are held by third parties.

2 Excludes the value of share premium and reserves attributable to ordinary shareholders.

Table 21: Hang Seng Bank Ltd creditor ranking (TLAC2)

	Footnotes	Creditor ranking (\$m)			Sum of 1 to 3
		1 (most junior)	2 (most senior)	3	
1	1	No	No	No	
2		Ordinary shares ²	AT1 instruments	LAC loans	
3		1,246	1,500	2,513	5,259
4		–	–	–	–
5		1,246	1,500	2,513	5,259
6		1,246	1,500	2,513	5,259
7		–	–	–	–
8		–	–	–	–
9		–	–	2,513	2,513
10		–	–	–	–
11		1,246	1,500	–	2,746

1 62.14% of Hang Seng Bank Limited's ordinary share capital is owned by The Hongkong and Shanghai Banking Corporation Limited. Hang Seng Bank Limited's other TLAC eligible securities are directly held by The Hongkong and Shanghai Banking Corporation Limited.

2 Excludes the value of reserves attributable to ordinary shareholders.

US resolution group

The US resolution group comprises HSBC North America Holdings Inc. and its subsidiaries. HSBC North America Holdings Inc. is the designated resolution entity.

The following table presents information regarding the ranking of creditors of HSBC North America Holdings Inc.

Table 22: HSBC North America Holdings Inc. creditor ranking¹ (TLAC3)

	Footnotes	Creditor ranking (\$m)				Sum of 1 to 4
		1 (most junior)	2	3	4 (most senior)	
1		Common stock ²	Preferred stock	Subordinated loans	Senior unsecured loans and other <i>pari passu</i> liabilities	
2		–	2,240	2,850	8,372	13,462
3	3	–	–	–	229	229
4		–	2,240	2,850	8,143	13,233
5		–	2,240	2,850	8,000	13,090
6		–	–	–	–	–
7		–	–	1,850	3,500	5,350
8		–	–	1,000	4,500	5,500
9		–	–	–	–	–
10		–	2,240	–	–	2,240

1 The entity's capital and TLAC are held by HSBC Overseas Holdings (UK) Limited.

2 The nominal value of common stock is \$2. This excludes the value of share premium and reserves attributable to ordinary shareholders.

3 Excluded liabilities consists of 'unrelated liabilities' as defined in the Final US TLAC rules. This mainly represents accrued employee benefit obligations.

Pillar 2 and ICAAP

Pillar 2

We conduct an Internal Capital Adequacy Assessment Process ('ICAAP') to determine a forward-looking assessment of our capital requirements given our business strategy, risk profile, risk appetite and capital plan. This process incorporates the Group's risk management processes and governance framework. Our base capital plan undergoes stress testing. This, coupled with our economic capital framework and other risk management practices, is used to assess our internal capital adequacy requirements and inform our view of our internal capital planning buffer. The ICAAP is formally approved by the Board, which has the ultimate responsibility for the effective management of risk and approval of HSBC's risk appetite.

The ICAAP is reviewed by the PRA and by a college of supervisors, as part of the joint risk assessment and decision process, during the Supervisory Review and Evaluation Process. This process occurs periodically to enable the regulator to define the individual capital requirement ('ICR') or minimum capital requirements for HSBC and to define the PRA buffer, where required. The PRA buffer is not intended to duplicate the CRD IV buffers and, where necessary, will be set according to vulnerability in a stress scenario, as identified and assessed through the annual PRA stress testing exercise.

The processes of internal capital adequacy assessment and supervisory review lead to a final determination by the PRA of the ICR and any PRA buffer that may be required.

Pillar 2 comprises Pillar 2A and Pillar 2B. Pillar 2A considers, in addition to the minimum capital requirements for Pillar 1 risks described above, any supplementary requirements for those risks and any requirements for risk categories not captured by Pillar 1. The risk categories covered under Pillar 2A depend on the specific circumstances of a firm and the nature and scale of its business.

Pillar 2B consists of guidance from the PRA on the capital buffer a firm would require in order to remain above its ICR in adverse circumstances that may be largely outside the firm's normal and direct control; for example, during a period of severe but plausible downturn stress, when asset values and the firm's capital surplus may become strained. This is quantified via any PRA buffer requirement the PRA may consider necessary. The assessment of this is informed by stress tests and a rounded judgement of a firm's business model, also taking into account the PRA's view of a firm's options and capacity to protect its capital position under stress; for instance, through capital generation. Where the PRA assesses that a firm's risk management and governance are significantly weak, it may also increase the PRA buffer to cover the risks posed by those weaknesses until they are addressed. The PRA buffer is intended to be drawn upon in times of stress, and its use is not of itself a breach of capital requirements that would trigger automatic restrictions on distributions. In specific circumstances, the PRA should agree a plan with a firm for its restoration over an agreed timescale.

Internal capital adequacy assessment

The Board manages the Group ICAAP and, together with RMM and GRC, it examines the Group's risk profile from both a regulatory and economic capital viewpoint. They aim to ensure that capital resources:

- remain sufficient to support our risk profile and outstanding commitments;
- meet current regulatory requirements, and that HSBC is well placed to meet those expected in the future;
- allow the group to remain adequately capitalised in the event of a severe economic downturn stress scenario; and
- remain consistent with our strategic and operational goals, and our shareholder and investor expectations.

The minimum regulatory capital that we are required to hold is determined by the rules and guidance established by the PRA for the consolidated Group and by local regulators for individual

Group companies. These capital requirements are a primary factor in influencing and shaping the business planning process, in which RWA targets are established for our global businesses in accordance with the Group's strategic direction and risk appetite.

Economic capital is the internally calculated capital requirement that we deem necessary to support the risks to which we are exposed. The economic capital assessment is a more risk-sensitive measure than the regulatory minimum, and takes account of the substantial diversification of risk accruing from our operations. Both the regulatory and the economic capital assessments rely upon the use of models that are integrated into our risk management processes. Our economic capital models are calibrated to quantify the level of capital that is sufficient to absorb potential losses over a one-year time horizon to a 99.95% level of confidence for our banking and trading activities, to a 99.5% level of confidence for our insurance activities and pension risks, and to a 99.9% level of confidence for our operational risks.

Preserving our strong capital position remains a priority, and the level of integration of our risk and capital management helps to optimise our response to business demand for regulatory and economic capital. Risks that are explicitly assessed through economic capital are credit risk (including CCR), market risk, operational risk, interest rate risk in the banking book ('IRRBB'), insurance risk, pension risk and structural foreign exchange risk.

Credit risk

Overview and responsibilities

Credit risk represents our largest regulatory capital requirement.

The principal objectives of our credit risk management function are:

- to maintain across HSBC a strong culture of responsible lending and a robust credit risk policy and control framework;
- to both partner and challenge our businesses in defining, implementing and continually re-evaluating our credit risk appetite under actual and stress scenario conditions; and
- to ensure there is independent, expert scrutiny of credit risks, their costs and their mitigation.

The credit risk functions within Wholesale Credit and Market Risk and Wealth and Personal Banking ('WPB') are the constituent parts of Global Risk that support the Group CRO in overseeing credit risks. Their major duties comprise undertaking independent reviews of large and high-risk credit proposals, overseeing large exposure policy and reporting on our wholesale and retail credit risk management disciplines. They also own our credit policy and credit systems programmes, oversee portfolio management and report on risk matters to senior executive management and regulators.

These credit risk functions work closely with other parts of Global Risk; for example, with Operational Risk on the internal control framework and with Risk Strategy on the risk appetite process. In addition, they work jointly with Risk Strategy and Global Finance on stress testing.

The credit responsibilities of Global Risk are described on page 109 of the Annual Report and Accounts 2020.

Group wide the credit risk functions comprise a network of credit risk management offices reporting within regional risk functions. They fulfil an essential role as independent risk control units distinct from business line management providing objective scrutiny of risk rating assessments, credit proposals for approval and other risk matters.

Our credit risk procedures operate through a hierarchy of personal credit limit approval authorities. Operating company chief executives, acting under authorities delegated by their boards and Group standards, are accountable for credit risk and other risks in their business. In turn, chief executives delegate authority to operating company chief risk officers and management teams on an individual basis. Each operating company is responsible for the quality and performance of its credit portfolios in accordance with Group standards. Above these thresholds of delegated personal credit limited approval authorities, approval must be sought from the regional and, as appropriate, the global credit risk function.

Credit risk management

Credit risk

During 1Q20, a number of relief programmes were initiated across the Group in response to the Covid-19 outbreak.

At 31 December 2020, whilst the majority of customers had exited relief, we continued to help and extend support to customers where required. Enhanced model monitoring was established throughout 2020 to detect any trends, shifts in key risk drivers or early performance indicators that could signal that our IRB models were no longer performing as expected.

Using the latest available data for our retail models, some model performance deterioration was observed, largely due to operational issues with processing payment holidays and minor increases in defaults in some markets. Model performance continues to be closely monitored and the need for any overlays to mitigate model performance issues is assessed on a monthly basis.

Within wholesale, the most recent financial data received from customers does not always reflect current business performance

during the outbreak, so we apply appropriate levels of judgemental overrides to the model outputs.

As better information emerges on the outbreak's impact on the credit quality of loan portfolios and the creditworthiness of groups of borrowers, credit risk evaluations will be modified accordingly.

We will continue to monitor the credit risk within our business and take the appropriate mitigating actions to help support our customers and our franchise, as customers return to contractual payments during 2021.

Our exposure to credit risk arises from a wide range of customer and products, and the risk rating systems in place to measure and monitor these risks are correspondingly diverse. Senior management receives a variety of reports on our credit risk exposures, including expected credit losses, total exposures and RWAs, as well as updates on specific portfolios that are considered to have heightened credit risk.

Credit risk exposures are generally measured and managed in portfolios of either customer types or product categories. Risk rating systems are designed to assess the default propensity of, and loss severity associated with, distinct customers who are typically managed as individual relationships or, in the case of retail business exposures, on a product portfolio basis.

Risk rating systems for retail exposures are generally quantitative in nature, applying techniques such as behavioural analysis across product portfolios comprising large numbers of homogeneous transactions. Rating systems for individually managed relationships typically use customer financial statements and market data analysis, but also qualitative elements and a final subjective overlay to better reflect any idiosyncratic elements of the customer's risk profile.

See 'Application of the IRB Approach' on page 50 for more information.

A fundamental principle of our policy and approach is that analytical risk rating systems and scorecards are all valuable tools at the disposal of management.

The credit process provides for at least an annual review of facility limits granted. Review may be more frequent, as required by circumstances such as the emergence of adverse risk factors.

We constantly seek to improve the quality of our risk management. Group IT systems that process credit risk data continue to be enhanced in order to deliver both comprehensive management information in support of business strategy and solutions to evolving regulatory reporting requirements.

Group standards govern the process through which risk rating systems are initially developed, judged fit for purpose, approved and implemented. They also govern the conditions under which analytical risk model outcomes can be overridden by decision takers and the process of model performance monitoring and reporting. The emphasis is on an effective dialogue between business line and risk management, suitable independence of decision takers, and a good understanding and robust challenge on the part of senior management.

Like other facets of risk management, analytical risk rating systems are not static. They are subject to review and modification in light of the changing environment, the greater availability and quality of data, and any deficiencies identified through internal and external regulatory review. Structured processes and metrics are in place to capture relevant data and feed this into continuous model improvement.

See 'Model performance' on page 57 for more information.

Credit risk models governance

All new or materially changed IRB capital models require the PRA's approval, as set out in more detail on page 50. Throughout HSBC, such models fall directly under the remit of the Global Functional Model Oversight Forum ('GMOF'), operating in line with HSBC's model risk policy, and under the oversight of the Global Model Risk Committee.

Pillar 3 Disclosures at 31 December 2020

Global Risk sets internal standards for the development, validation, independent review, approval, implementation and performance monitoring of credit risk rating models. Independent reviews of our models are performed by our Independent Model Review function which is separate from our Risk Analytics functions that are responsible for the development of models.

Further information is available on page 188 of the Annual Report and Accounts 2020.

Compliance with Group standards is subject to examination by Risk oversight and review from within the Risk function itself, and by Global Internal Audit.

The table below provides a summary of credit risk exposure by exposure class and approach. Further information on credit risk exposure by industry and geography can be found in the Concentration risk section on page 40.

Table 23: Credit risk exposure – summary (CRB-B)

Footnotes	At 31 Dec 2020					At 31 Dec 2019				
	Net carrying values	Average net carrying values ³	RWAs [^]	Capital required [^]	RWA density [^]	Net carrying values	Average net carrying values ³	RWAs [^]	Capital required [^]	RWA density [^]
	\$bn	\$bn	\$bn	\$bn	%	\$bn	\$bn	\$bn	\$bn	%
IRB advanced approach	1,902.4	1,865.0	403.6	32.3	27	1,935.3	1,892.4	452.6	36.2	29
– central governments and central banks	433.2	393.7	44.4	3.6	10	346.3	343.9	36.3	2.9	11
– institutions	78.6	81.9	11.6	0.9	17	74.7	82.4	10.8	0.9	16
– corporates ¹	791.0	824.8	264.0	21.1	52	959.9	958.1	327.7	26.2	50
– total retail	599.6	564.6	83.6	6.7	17	554.4	508.0	77.8	6.2	16
Secured by mortgages on immovable property SME	1.5	1.9	0.6	–	37	3.6	3.6	1.5	0.1	45
Secured by mortgages on immovable property non-SME	368.0	336.5	49.8	4.0	14	314.5	298.9	40.4	3.2	13
Qualifying revolving retail	143.1	139.6	17.5	1.4	21	140.3	135.1	18.8	1.5	23
Other SME	14.8	10.9	3.7	0.3	70	7.9	7.8	4.7	0.4	76
Other non-SME	72.2	75.7	12.0	1.0	25	88.1	62.6	12.4	1.0	18
IRB securitisation positions	6.3	9.0	2.0	0.2	33	20.2	25.0	3.7	0.3	19
IRB non-credit obligation assets	65.9	63.2	15.4	1.2	23	62.4	60.1	13.3	1.1	21
IRB foundation approach	265.9	222.8	103.5	8.3	56	88.3	82.1	32.3	2.6	59
– central governments and central banks	–	–	0.1	–	29	–	–	–	–	20
– institutions	0.9	0.8	0.2	–	30	0.7	0.6	0.2	–	26
– corporates	265.0	222.0	103.2	8.3	56	87.6	81.5	32.1	2.6	59
Standardised approach	633.7	585.6	167.4	13.4	32	525.3	518.3	174.7	14.0	45
– central governments and central banks	293.1	239.9	11.1	0.9	4	176.9	164.5	11.2	0.9	6
– regional governments or local authorities	10.5	9.5	1.9	0.2	18	8.9	7.9	1.6	0.1	18
– public sector entities	18.0	16.5	0.1	–	–	16.6	14.1	–	–	–
– multilateral development banks	0.0	0.0	–	–	–	0.1	0.1	–	–	–
– international organisations	2.3	1.7	–	–	–	1.6	1.5	–	–	–
– institutions	0.8	1.5	0.6	0.0	65	2.4	2.8	0.9	0.1	58
– corporates	132.6	143.5	60.2	4.8	93	159.8	181.4	72.5	5.8	94
– retail	74.4	74.7	13.5	1.1	73	70.7	67.0	14.4	1.2	74
– secured by mortgages on immovable property	34.2	32.9	12.3	1.0	37	33.4	32.1	12.0	1.0	37
– exposures in default	3.7	3.2	4.5	0.4	115	3.4	3.1	4.1	0.3	114
– items associated with particularly high risk	5.1	5.4	5.9	0.5	150	5.5	5.3	7.9	0.6	150
– securitisation positions	28.2	25.8	8.2	0.7	29	16.3	8.1	4.6	0.4	28
– collective investment undertakings ('CIU')	0.4	0.4	0.4	–	100	0.4	0.5	0.4	–	100
– equity exposures ²	17.8	17.1	39.5	3.2	221	16.4	16.2	36.3	2.9	220
– other items	12.6	13.5	9.2	0.7	73	12.9	13.7	8.8	0.7	68
Total	2,874.2	2,745.6	691.9	55.4	30	2,631.5	2,577.9	676.6	54.2	33

[^] Figures have been prepared on an IFRS 9 transitional basis.

¹ Corporates includes specialised lending exposures which are reported in more detail in Table 78: Specialised lending on slotting approach (CR10).

² Equity exposures include investments that are risk weighted at 250%.

³ Average net carrying values are calculated by aggregating net carrying values of the last five quarters and dividing by five.

Dilution risk

Dilution risk is the risk that an amount receivable is reduced through cash or non-cash credit to the obligor, and arises mainly from factoring and invoice discounting transactions.

Where there is recourse to the seller, we treat these transactions as loans secured by the collateral of the debts purchased and do not report dilution risk for them. For our non-recourse portfolio we obtain an indemnity from the seller that indemnifies us against this risk. Moreover, factoring transactions involve lending at a discount to the face-value of the receivables, which provides protection against dilution risk.

Credit quality

We are a universal bank with a conservative approach to credit risk. This is reflected in our credit risk profile being diversified across a number of asset classes and geographies with a credit quality profile mainly concentrated in the higher quality bands.

The following tables present information on the credit quality of exposures by exposure class, industry and geography. For further detail on the credit quality of STD exposures, refer to Tables 44 and 77. Information on the credit quality of IRB exposures can be found in Table 79.

Table 24: Credit quality of exposures by exposure classes and instruments¹ (CR1-A)

		Gross carrying values of					Net carrying values \$bn
		Defaulted exposures	Non-defaulted exposures	Specific credit risk adjustments	Write-offs in the year ²	Credit risk adjustment charges of the period ²	
		\$bn	\$bn	\$bn	\$bn	\$bn	
1	Central governments and central banks	0.2	433.1	0.1	–	–	433.2
2	Institutions	–	79.6	0.1	–	0.1	79.5
3	Corporates	13.3	1,050.9	8.2	1.2	4.6	1,056.0
4	– of which: specialised lending	1.2	48.7	0.5	–	–	49.4
6	Retail	4.0	599.0	3.4	0.8	2.3	599.6
7	– Secured by real estate property	2.8	367.1	0.4	–	0.3	369.5
8	SMEs	0.1	1.4	–	–	–	1.5
9	Non-SMEs	2.7	365.7	0.4	–	0.3	368.0
10	– Qualifying revolving retail	0.4	144.2	1.5	0.4	1.0	143.1
11	– Other retail	0.8	87.7	1.5	0.4	1.0	87.0
12	SMEs	0.4	15.0	0.6	0.1	0.3	14.8
13	Non-SMEs	0.4	72.7	0.9	0.3	0.7	72.2
15	Total IRB approach	17.5	2,162.6	11.8	2.0	7.0	2,168.3
16	Central governments and central banks	–	293.1	–	–	–	293.1
17	Regional governments or local authorities	–	10.5	–	–	–	10.5
18	Public sector entities	–	18.0	–	–	–	18.0
19	Multilateral development banks	–	–	–	–	–	–
20	International organisations	–	2.3	–	–	–	2.3
21	Institutions	–	0.8	–	–	–	0.8
22	Corporates	4.0	133.4	2.5	0.3	0.7	134.9
24	Retail	1.1	75.9	1.9	0.7	1.3	75.1
25	– of which: SMEs	0.1	2.6	0.2	–	–	2.5
26	Secured by mortgages on immovable property	0.8	34.3	0.2	–	0.1	34.9
27	– of which: SMEs	–	0.3	–	–	–	0.3
28	Exposures in default	6.0	–	2.3	1.1	2.0	3.7
29	Items associated with particularly high risk	0.1	5.1	0.1	–	–	5.1
32	Collective investment undertakings ('CIU')	–	0.4	–	–	–	0.4
33	Equity exposures	–	17.8	–	–	–	17.8
34	Other exposures	–	12.6	–	–	–	12.6
35	Total standardised approach	6.0	604.2	4.7	1.0	2.1	605.5
36	Total at 31 Dec 2020	23.5	2,766.8	16.5	3.0	9.1	2,773.8
	– of which: loans	20.6	1,438.9	15.2	3.0	8.3	1,444.3
	– of which: debt securities	0.3	417.0	0.1	–	0.1	417.2
	– of which: off-balance sheet exposures	2.6	872.5	1.2	–	0.7	873.9

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Table 24: Credit quality of exposures by exposure classes and instruments¹ (CR1-A) (continued)

		Gross carrying values of				Credit risk adjustment charges of the period ²	Net carrying values
		Defaulted exposures	Non-defaulted exposures	Specific credit risk adjustments	Write-offs in the year ²		
		\$bn	\$bn	\$bn	\$bn		
1	Central governments and central banks	—	346.4	0.1	—	—	346.3
2	Institutions	—	75.4	—	—	—	75.4
3	Corporates	6.9	1,044.9	4.3	0.9	1.0	1,047.5
4	– of which: specialised lending	1.1	50.8	0.5	—	—	51.4
6	Retail	3.4	553.0	2.0	0.8	1.1	554.4
7	– Secured by real estate property	2.4	316.0	0.3	—	—	318.1
8	SMEs	0.1	3.6	0.1	—	—	3.6
9	Non-SMEs	2.3	312.4	0.2	—	—	314.5
10	– Qualifying revolving retail	0.3	141.0	1.0	0.4	0.6	140.3
11	– Other retail	0.7	96.0	0.7	0.4	0.5	96.0
12	SMEs	0.4	7.8	0.3	0.2	0.2	7.9
13	Non-SMEs	0.3	88.2	0.4	0.2	0.3	88.1
15	Total IRB approach	10.3	2,019.7	6.4	1.7	2.1	2,023.6
16	Central governments and central banks	—	176.9	—	—	—	176.9
17	Regional governments or local authorities	—	8.9	—	—	—	8.9
18	Public sector entities	—	16.6	—	—	—	16.6
19	Multilateral development banks	—	0.1	—	—	—	0.1
20	International organisations	—	1.6	—	—	—	1.6
21	Institutions	—	2.4	—	—	—	2.4
22	Corporates	3.7	160.3	2.0	0.5	0.2	162.0
24	Retail	1.0	71.7	1.4	0.7	0.8	71.3
25	– of which: SMEs	—	1.3	0.1	—	—	1.2
26	Secured by mortgages on immovable property	0.7	33.5	0.2	—	—	34.0
27	– of which: SMEs	—	0.1	—	—	—	0.1
28	Exposures in default	5.4	—	2.0	1.2	1.0	3.4
29	Items associated with particularly high risk	0.1	5.4	—	—	—	5.5
32	Collective investment undertakings ('CIU')	—	0.4	—	—	—	0.4
33	Equity exposures	—	16.4	—	—	—	16.4
34	Other exposures	—	12.9	—	—	—	12.9
35	Total standardised approach	5.5	507.1	3.6	1.2	1.0	509.0
36	Total at 31 Dec 2019	15.8	2,526.8	10.0	2.9	3.1	2,532.6
	– of which: loans	14.6	1,274.0	9.4	2.9	3.1	1,279.2
	– of which: debt securities	—	377.4	0.1	—	—	377.3
	– of which: off-balance sheet exposures	1.2	837.5	0.5	—	—	838.2

¹ Securitisation positions and non-credit obligation assets are not included in this table.

² Presented on a year-to-date basis.

Table 25: Credit quality of exposures by industry or counterparty types¹ (CR1-B)

		Gross carrying values of					
		Defaulted exposures	Non-defaulted exposures	Specific credit risk adjustments	Write-offs in the year ²	Credit risk adjustment charges of the period ²	Net carrying values
		\$bn	\$bn	\$bn	\$bn	\$bn	\$bn
1	Agriculture	0.4	10.1	0.2	–	–	10.3
2	Mining & oil extraction	0.9	38.8	0.5	0.1	0.4	39.2
3	Manufacturing	3.0	250.2	2.2	0.8	1.2	251.0
4	Utilities	0.1	35.6	0.1	–	–	35.6
5	Water supply	–	3.2	–	–	–	3.2
6	Construction	1.3	44.4	0.6	–	–	45.1
7	Wholesale & retail trade	3.9	195.8	2.6	0.2	1.6	197.1
8	Transportation & storage	0.8	49.7	0.5	–	0.2	50.0
9	Accommodation & food services	0.6	31.3	0.4	–	0.3	31.5
10	Information & communication	0.7	18.4	0.2	–	–	18.9
11	Financial & insurance	0.3	716.3	0.4	0.1	0.2	716.2
12	Real estate	1.9	188.3	1.2	–	0.3	189.0
13	Professional activities	0.3	31.7	0.2	–	0.1	31.8
14	Administrative service	2.6	165.1	1.7	0.2	0.7	166.0
15	Public admin & defence	0.4	241.4	0.3	–	0.1	241.5
16	Education	–	4.1	–	–	0.1	4.1
17	Human health & social work	0.3	8.7	0.2	–	0.2	8.8
18	Arts & entertainment	0.3	8.9	0.2	0.1	0.3	9.0
19	Other services	0.3	14.6	0.1	–	–	14.8
20	Personal	5.4	665.0	4.9	1.5	3.4	665.5
21	Extra-territorial bodies	–	45.2	–	–	–	45.2
22	Total at 31 Dec 2020	23.5	2,766.8	16.5	3.0	9.1	2,773.8
1	Agriculture	0.3	9.7	0.2	–	–	9.8
2	Mining & oil extraction	0.4	41.1	0.3	–	–	41.2
3	Manufacturing	1.8	261.3	1.4	0.6	0.8	261.7
4	Utilities	0.2	32.2	0.1	0.1	–	32.3
5	Water supply	–	3.4	–	–	–	3.4
6	Construction	1.2	46.1	0.6	0.2	0.1	46.7
7	Wholesale & retail trade	2.1	204.3	1.3	0.3	0.3	205.1
8	Transportation & storage	0.4	44.6	0.2	–	–	44.8
9	Accommodation & food services	0.3	29.0	0.1	0.1	0.1	29.2
10	Information & communication	–	16.8	0.1	–	–	16.7
11	Financial & insurance	0.4	535.0	0.3	–	0.1	535.1
12	Real estate	1.2	196.0	0.7	–	0.1	196.5
13	Professional activities	0.1	28.0	0.1	–	–	28.0
14	Administrative service	2.0	154.9	0.9	–	0.1	156.0
15	Public admin & defence	0.2	214.1	0.2	–	(0.2)	214.1
16	Education	–	3.6	–	–	–	3.6
17	Human health & social work	0.2	7.1	0.1	–	–	7.2
18	Arts & entertainment	–	7.0	–	0.1	–	7.0
19	Other services	0.2	17.6	0.1	–	0.1	17.7
20	Personal	4.8	631.6	3.3	1.5	1.6	633.1
21	Extra-territorial bodies	–	43.4	–	–	–	43.4
22	Total at 31 Dec 2019	15.8	2,526.8	10.0	2.9	3.1	2,532.6

¹ Securitisation positions and non-credit obligation assets are not included in this table.

² Presented on a year-to-date basis.

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Table 26: Credit quality of exposures by geography¹ (CR1-C)

		Gross carrying values of					Net carrying values \$bn
		Defaulted exposures	Non-defaulted exposures	Specific credit risk adjustments	Write-offs in the year ²	Credit risk adjustment charges of the period ²	
		\$bn	\$bn	\$bn	\$bn	\$bn	
1	Europe	10.0	980.6	6.9	1.1	3.6	983.7
2	– United Kingdom	6.2	611.7	5.3	0.8	2.9	612.6
3	– France	1.4	172.4	0.7	0.3	0.3	173.1
4	– Other countries	2.4	196.5	0.9	–	0.4	198.0
5	Asia	5.2	1,118.6	3.9	0.7	2.4	1,119.9
6	– Hong Kong	1.9	556.4	1.4	0.3	0.8	556.9
7	– China	0.3	176.5	0.4	0.1	0.1	176.4
8	– Singapore	1.0	88.9	0.9	–	0.8	89.0
9	– Australia	0.5	70.0	0.2	–	0.1	70.3
10	– Other countries	1.5	226.8	1.0	0.3	0.6	227.3
11	MENA	4.2	146.6	2.7	0.2	0.8	148.1
12	North America	2.6	448.3	1.4	0.4	1.2	449.5
13	– United States of America	1.6	306.8	0.8	0.3	0.7	307.6
14	– Canada	0.5	128.3	0.4	0.1	0.3	128.4
15	– Other countries	0.5	13.2	0.2	–	0.2	13.5
16	Latin America	1.5	53.6	1.6	0.6	1.1	53.5
17	Other geographical areas	–	19.1	–	–	–	19.1
18	Total at 31 Dec 2020	23.5	2,766.8	16.5	3.0	9.1	2,773.8
1	Europe	7.1	811.5	3.8	1.1	1.2	814.8
2	– United Kingdom	4.6	505.5	2.7	0.8	1.0	507.4
3	– France	1.2	136.5	0.6	0.1	0.2	137.1
4	– Other countries	1.3	169.5	0.5	0.2	–	170.3
5	Asia	2.5	1,056.3	2.3	0.6	0.8	1,056.5
6	– Hong Kong	0.7	531.7	0.9	0.2	0.4	531.5
7	– China	0.3	163.3	0.4	0.1	0.2	163.2
8	– Singapore	0.2	76.5	0.2	–	0.1	76.5
9	– Australia	0.2	59.4	0.1	–	–	59.5
10	– Other countries	1.1	225.4	0.7	0.3	0.1	225.8
11	MENA	3.5	145.2	2.1	0.4	0.1	146.6
12	North America	1.9	439.8	0.7	0.2	0.3	441.0
13	– United States of America	1.2	311.0	0.4	0.2	0.2	311.8
14	– Canada	0.3	112.5	0.2	–	0.1	112.6
15	– Other countries	0.4	16.3	0.1	–	–	16.6
16	Latin America	0.8	60.3	1.1	0.6	0.7	60.0
17	Other geographical areas	–	13.7	–	–	–	13.7
18	Total at 31 Dec 2019	15.8	2,526.8	10.0	2.9	3.1	2,532.6

1 Amounts shown by geographical region and country/territory in this table are based on the country/territory of residence of the counterparty. Securitisation positions and non-credit obligation assets are not included in this table.

2 Presented on a year-to-date basis.

Table 27: Changes in stock of general and specific credit risk adjustments (CR2-A)

		Twelve months to 31 Dec			
		2020		2019	
		Accumulated specific credit risk adjustments	Accumulated general credit risk adjustments	Accumulated specific credit risk adjustments	Accumulated general credit risk adjustments
	Footnotes	\$bn	\$bn	\$bn	\$bn
1	Opening balance at the beginning of the period	10.0	–	9.8	–
2	Increases due to amounts set aside for estimated loan losses during the period	9.1	–	3.1	–
4	Decreases due to amounts taken against accumulated credit risk adjustments	(3.0)	–	(2.9)	–
6	Impact of exchange rate differences	0.4	–	–	–
9	Closing balance at the end of the period	16.5	–	10.0	–
10	Recoveries on credit risk adjustments recorded directly to the statement of profit or loss	0.3	–	0.4	–

1 Following adoption of IFRS 9 'Financial Instruments', the movement due to amounts set aside for estimated loan losses during the period is reported on a net basis.

Table 28: Changes in stock of defaulted loans and debt securities (CR2-B)

	Twelve months to 31 Dec	
	2020	2019
	Gross carrying value	Gross carrying value
	\$bn	\$bn
1 Defaulted loans and debt securities at the beginning of the period	14.6	13.7
2 Loans and debt securities that have defaulted since the last reporting period	12.6	6.5
3 Returned to non-defaulted status	(2.3)	(1.0)
4 Amounts written off	(3.0)	(2.9)
5 Other changes	1.4	(0.1)
7 Repayments	(2.4)	(1.6)
6 Defaulted loans and debt securities at the end of the period	20.9	14.6

1 Other changes include foreign exchange movements and changes in assets held for sale in default.

Non-performing and forborne exposures

Tables 29 to 32 are presented in accordance with the EBA's 'Guidelines on disclosure of non-performing and forborne exposures'.

The EBA defines non-performing exposures as exposures with material amounts that are more than 90 days past due or exposures where the debtor is assessed as unlikely to pay its credit obligations in full without the realisation of collateral, regardless of the existence of any past due amounts or number days past due. Any debtors that are in default for regulatory purposes or impaired under the applicable accounting framework are always considered as non-performing exposures. The *Annual Report and Accounts 2020* does not define non-performing exposures. However, the definition of credit-impaired (stage 3) is aligned to the EBA's definition of non-performing exposures.

Forborne exposures are defined by the EBA as exposures where the bank has made concessions toward a debtor that is experiencing or about to experience financial difficulties in meeting its financial commitments. In the *Annual Report and Accounts 2020*, forborne exposures are reported as 'renegotiated loans'. HSBC classes loans as 'renegotiated'/EBA forborne when we modify the contractual payment terms because we have

significant concerns about the borrowers' ability to meet contractual payments when due. Non-payment-related concessions (e.g covenant waivers), while potential indicators of impairment, do not trigger identification as 'renegotiated'/EBA forborne loans.

Under the EBA definition, exposures cease to be reported as forborne if they pass three tests:

- the forborne exposure must have been considered to be performing for a 'probation period' of at least two years;
- regular payments of more than an insignificant aggregate amount of principal or interest have been made during at least half of the probation period; and
- no exposure to the debtor is more than 30 days past due at the end of the probation period.

In the *Annual Report and Accounts 2020*, renegotiated loans retain this classification until maturity or de-recognition.

Under EBA and PRA guidelines, the use of support measures introduced as a result of the Covid-19 outbreak does not in itself trigger identification as non-performing or forborne. Borrower-specific support measures are assessed under the existing rules to determine whether forbearance has been granted.

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Table 29: Credit quality of forborne exposures

	Gross carrying amount/nominal amount				Accumulated impairment, accumulated negative changes in fair value due to credit risk and provisions		Collateral received and financial guarantees received on forborne exposures		
	Performing forborne \$bn	Non-performing forborne			On performing forborne exposures \$bn	On non-performing forborne exposures \$bn	Total \$bn	Of which forborne non-performing exposures \$bn	
		Total \$bn	Of which defaulted \$bn	Of which impaired \$bn					
At 31 Dec 2020									
1	Loans and advances	0.8	6.6	6.6	6.6	–	(1.8)	3.0	2.8
2	Central banks	–	–	–	–	–	–	–	–
3	General governments	–	–	–	–	–	–	–	–
4	Credit institutions	–	–	–	–	–	–	–	–
5	Other financial corporations	–	–	–	–	–	–	–	–
6	Non-financial corporations	0.8	4.2	4.2	4.2	–	(1.4)	1.5	1.3
7	Households	–	2.4	2.4	2.4	–	(0.4)	1.5	1.5
8	Debt securities	–	–	–	–	–	–	–	–
9	Loan commitments given	–	0.2	0.2	0.2	–	–	0.2	0.2
10	Total	0.8	6.8	6.8	6.8	–	(1.8)	3.2	3.0
At 31 Dec 2019									
1	Loans and advances	1.7	5.7	5.7	5.7	–	(1.8)	3.2	2.4
2	Central banks	–	–	–	–	–	–	–	–
3	General governments	–	–	–	–	–	–	–	–
4	Credit institutions	–	–	–	–	–	–	–	–
5	Other financial corporations	–	–	–	–	–	–	–	–
6	Non-financial corporations	1.7	3.5	3.5	3.5	–	(1.4)	1.8	1.0
7	Households	–	2.2	2.2	2.2	–	(0.4)	1.4	1.4
8	Debt securities	–	–	–	–	–	–	–	–
9	Loan commitments given	–	0.1	0.1	0.1	–	–	0.1	0.1
10	Total	1.7	5.8	5.8	5.8	–	(1.8)	3.3	2.5

Table 30 presents an analysis of performing and non-performing exposures by days past due. The gross non-performing loan ('NPL') ratio at 31 Dec 2020 was 1.47% calculated in line with the EBA guidelines.

Table 30: Credit quality of performing and non-performing exposures by past due days

	Gross carrying amount/nominal amount ¹												
	Performing exposures			Non-performing exposures									
	Total \$bn	Not past due or past due ≤ 30 days \$bn	Past due > 30 days ≤ 90 days \$bn	Total \$bn	Unlikely to pay but not past due or past due ≤ 90 days \$bn	Past due > 90 days ≤ 180 days \$bn	Past due > 180 days ≤ 1 year \$bn	Past due > 1 year ≤ 2 years \$bn	Past due > 2 years ≤ 5 years \$bn	Past due > 5 years ≤ 7 years \$bn	Past due > 7 years \$bn	of which: defaulted \$bn	
At 31 Dec 2020													
1	Loans and advances	1,691.9	1,689.9	2.0	20.3	12.0	2.7	2.2	0.7	1.9	0.3	0.5	20.3
2	Central banks	352.9	352.9	—	—	—	—	—	—	—	—	—	—
3	General governments	10.2	10.2	—	—	—	—	—	—	—	—	—	—
4	Credit institutions	131.1	131.1	—	—	—	—	—	—	—	—	—	—
5	Other financial corporations	216.7	216.7	—	0.5	0.5	—	—	—	—	—	—	0.5
6	Non-financial corporations	523.3	522.6	0.7	14.0	8.9	1.5	1.4	0.4	1.2	0.2	0.4	14.0
8	Households	457.7	456.4	1.3	5.8	2.6	1.2	0.8	0.3	0.7	0.1	0.1	5.8
9	Debt securities	422.7	422.7	—	0.3	0.3	—	—	—	—	—	—	0.3
10	Central banks	84.5	84.5	—	0.1	0.1	—	—	—	—	—	—	0.1
11	General governments	255.5	255.5	—	0.2	0.2	—	—	—	—	—	—	0.2
12	Credit institutions	40.5	40.5	—	—	—	—	—	—	—	—	—	—
13	Other financial corporations	37.7	37.7	—	—	—	—	—	—	—	—	—	—
14	Non-financial corporations	4.5	4.5	—	—	—	—	—	—	—	—	—	—
15	Off-balance-sheet exposures	765.3			2.4								2.4
16	Central banks	1.7			—								—
17	General governments	3.9			—								—
18	Credit institutions	63.7			—								—
19	Other financial corporations	68.1			—								—
20	Non-financial corporations	392.9			2.2								2.2
21	Households	235.0			0.2								0.2
22	Total	2,879.9	2,112.6	2.0	23.0	12.3	2.7	2.2	0.7	1.9	0.3	0.5	23.0
At 31 Dec 2019													
1	Loans and advances	1,535.0	1,533.2	1.8	14.6	7.4	2.8	0.8	1.1	1.7	0.3	0.5	14.6
2	Central banks	191.7	191.7	—	—	—	—	—	—	—	—	—	—
3	General governments	9.9	9.9	—	—	—	—	—	—	—	—	—	—
4	Credit institutions	126.0	126.0	—	—	—	—	—	—	—	—	—	—
5	Other financial corporations	238.5	238.4	0.1	0.3	0.3	—	—	—	—	—	—	0.3
6	Non-financial corporations	537.6	537.2	0.4	9.5	4.8	1.9	0.3	0.8	1.1	0.2	0.4	9.5
8	Households	431.3	430.0	1.3	4.8	2.3	0.9	0.5	0.3	0.6	0.1	0.1	4.8
9	Debt securities	381.2	381.2	—	—	—	—	—	—	—	—	—	—
10	Central banks	66.9	66.9	—	—	—	—	—	—	—	—	—	—
11	General governments	229.9	229.9	—	—	—	—	—	—	—	—	—	—
12	Credit institutions	36.8	36.8	—	—	—	—	—	—	—	—	—	—
13	Other financial corporations	41.0	41.0	—	—	—	—	—	—	—	—	—	—
14	Non-financial corporations	6.6	6.6	—	—	—	—	—	—	—	—	—	—
15	Off-balance-sheet exposures	709.5			1.2								1.2
16	Central banks	0.1			—								—
17	General governments	2.7			—								—
18	Credit institutions	56.3			—								—
19	Other financial corporations	54.9			—								—
20	Non-financial corporations	373.1			1.0								1.0
21	Households	222.4			0.2								0.2
22	Total	2,625.7	1,914.4	1.8	15.8	7.4	2.8	0.8	1.1	1.7	0.3	0.5	15.8

1 Includes reverse repos and settlement accounts.

Pillar 3 Disclosures at 31 December 2020

The table below provides information on the instruments that were cancelled in exchange for collateral obtained by taking possession and on the value of the collateral obtained by taking possession. The value at initial recognition represents the gross carrying amount of the collateral obtained by taking possession at initial recognition on the balance sheet, whilst the accumulated negative

changes is the accumulated impairment or negative change on the initial recognition value of the collateral obtained by taking possession including amortisation in the case of PP&E and investment properties.

Table 31: Collateral obtained by taking possession and execution processes

		At 31 Dec 2020		At 31 Dec 2019	
		Collateral obtained by taking possession		Collateral obtained by taking possession	
		Value at initial recognition	Accumulated negative changes	Value at initial recognition	Accumulated negative changes
		\$bn	\$bn	\$bn	\$bn
1	Property, plant and equipment (PP&E)	–	–	–	–
2	Other than PP&E	0.1	–	0.1	–
3	Residential immovable property	0.1	–	0.1	–
8	Total	0.1	–	0.1	–

The following table provides information on the gross carrying amount of exposures and related impairment with further detail on the IFRS 9 stage, accumulated partial write off and collateral. The IFRS 9 stages have the following characteristics:

- Stage 1: These financial assets are unimpaired and without a significant increase in credit risk. A 12-month allowance for ECL is recognised;
- Stage 2: A significant increase in credit risk has been experienced on these financial assets since initial recognition. A lifetime ECL is recognised;
- Stage 3: There is objective evidence of impairment and the financial assets are therefore considered to be in default or otherwise credit impaired. A lifetime ECL is recognised.

- Purchased or originated credit-impaired ('POCI'): Financial assets purchased or originated at a deep discount are seen to reflect incurred credit losses. A lifetime ECL is recognised. These exposures are included in stage 3 in Table 32 below.

Refer to the section 'EL and credit risk adjustments' on page 50 for further information on IFRS 9.

Credit-impaired (stage 3) exposures are disclosed on page 145 and 159 of the Annual Report and Accounts 2020.

Table 32: Performing and non-performing exposures and related provisions

	Gross carrying amount/nominal amount ¹												Accumulated impairment, accumulated negative changes in fair value due to credit risk and provisions		Collateral and financial guarantees received	
	Performing exposures			Non-performing exposures			Performing exposures			Non-performing exposures			Accumulated partial write-off	On performing exposures	On non-performing exposures	
		of which stage 1	of which stage 2		of which stage 2	of which stage 3		of which stage 1	of which stage 2		of which stage 2	of which stage 3				
	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	
1	Loans and advances	1,691.9	1,519.1	169.4	20.3	–	20.3	(7.3)	(2.1)	(5.2)	(7.9)	–	(7.9)	(0.8)	966.8	7.1
2	Central banks	352.9	351.0	1.9	–	–	–	–	–	–	–	–	–	–	7.8	–
3	General governments	10.2	9.1	1.1	–	–	–	–	–	–	–	–	–	–	3.8	–
4	Credit institutions	131.1	130.3	0.8	–	–	–	–	–	–	–	–	–	–	90.0	–
5	Other financial corporations	216.7	202.4	11.6	0.5	–	0.5	(0.2)	(0.1)	(0.1)	(0.1)	–	(0.1)	–	155.3	–
6	Non-financial corporations	523.3	394.0	128.8	14.0	–	14.0	(3.8)	(1.1)	(2.7)	(6.2)	–	(6.2)	(0.5)	304.2	3.8
8	Households	457.7	432.3	25.2	5.8	–	5.8	(3.3)	(0.9)	(2.4)	(1.6)	–	(1.6)	(0.3)	405.7	3.3
9	Debt securities	422.7	420.1	1.2	0.3	–	0.3	(0.1)	(0.1)	–	–	–	–	–	15.6	–
10	Central banks	84.5	83.9	0.6	0.1	–	0.1	–	–	–	–	–	–	–	–	–
11	General governments	255.5	254.7	0.1	0.2	–	0.2	(0.1)	(0.1)	–	–	–	–	–	6.7	–
12	Credit institutions	40.5	40.4	0.1	–	–	–	–	–	–	–	–	–	–	–	–
13	Other financial corporations	37.7	36.9	0.4	–	–	–	–	–	–	–	–	–	–	8.9	–
14	Non-financial corporations	4.5	4.2	–	–	–	–	–	–	–	–	–	–	–	–	–
15	Off-balance-sheet exposures	765.3	627.8	58.9	2.4	–	1.7	(0.9)	(0.3)	(0.4)	(0.3)	–	(0.1)	–	122.5	0.3
16	Central banks	1.7	1.7	–	–	–	–	–	–	–	–	–	–	–	–	–
17	General governments	3.9	3.0	0.1	–	–	–	–	–	–	–	–	–	–	0.2	–
18	Credit institutions	63.7	59.2	0.7	–	–	–	–	–	–	–	–	–	–	–	–
19	Other financial corporations	68.1	60.3	6.5	–	–	–	–	–	–	–	–	–	–	8.4	–
20	Non-financial corporations	392.9	270.3	49.9	2.2	–	1.5	(0.9)	(0.3)	(0.4)	(0.3)	–	(0.1)	–	63.9	0.3
21	Households	235.0	233.3	1.7	0.2	–	0.2	–	–	–	–	–	–	–	50.0	–
22	At 31 Dec 2020	2,879.9	2,567.0	229.5	23.0	–	22.3	(8.3)	(2.5)	(5.6)	(8.2)	–	(8.0)	(0.8)	1,104.9	7.4
1	Loans and advances	1,535.0	1,448.0	82.0	14.6	–	14.6	(3.8)	(1.4)	(2.5)	(5.5)	–	(5.5)	(0.5)	931.4	5.6
2	Central banks	191.7	190.4	1.3	–	–	–	–	–	–	–	–	–	–	8.3	–
3	General governments	9.9	9.3	0.6	–	–	–	–	–	–	–	–	–	–	2.1	–
4	Credit institutions	126.0	125.8	0.1	–	–	–	–	–	–	–	–	–	–	83.9	–
5	Other financial corporations	238.5	229.4	5.2	0.3	–	0.3	(0.1)	(0.1)	(0.1)	(0.2)	–	(0.2)	–	169.3	–
6	Non-financial corporations	537.6	477.7	59.2	9.5	–	9.5	(1.7)	(0.7)	(1.0)	(4.1)	–	(4.1)	(0.2)	295.0	2.7
8	Households	431.3	415.4	15.6	4.8	–	4.8	(2.0)	(0.6)	(1.4)	(1.2)	–	(1.2)	(0.3)	372.8	2.9
9	Debt securities	381.2	379.6	0.4	–	–	–	(0.1)	–	(0.1)	–	–	–	–	19.3	–
10	Central banks	66.9	66.8	0.1	–	–	–	–	–	–	–	–	–	–	–	–
11	General governments	229.9	229.0	0.2	–	–	–	(0.1)	–	(0.1)	–	–	–	–	6.3	–
12	Credit institutions	36.8	36.8	0.1	–	–	–	–	–	–	–	–	–	–	–	–
13	Other financial corporations	41.0	40.6	–	–	–	–	–	–	–	–	–	–	–	13.0	–
14	Non-financial corporations	6.6	6.4	–	–	–	–	–	–	–	–	–	–	–	–	–
15	Off-balance-sheet exposures	709.5	614.6	24.0	1.2	–	1.2	(0.4)	(0.1)	(0.2)	(0.2)	–	(0.1)	–	117.5	0.1
16	Central banks	0.1	0.1	–	–	–	–	–	–	–	–	–	–	–	–	–
17	General governments	2.7	1.7	0.1	–	–	–	–	–	–	–	–	–	–	0.3	–
18	Credit institutions	56.3	52.6	–	–	–	–	–	–	–	–	–	–	–	0.4	–
19	Other financial corporations	54.9	51.2	1.4	–	–	–	(0.1)	–	–	–	–	–	–	6.9	–
20	Non-financial corporations	373.1	288.2	20.9	1.0	–	1.0	(0.3)	(0.1)	(0.2)	(0.2)	–	(0.1)	–	60.6	0.1
21	Households	222.4	220.8	1.6	0.2	–	0.2	–	–	–	–	–	–	–	49.3	–
22	At 31 Dec 2019	2,625.7	2,442.2	106.4	15.8	–	15.8	(4.3)	(1.5)	(2.8)	(5.7)	–	(5.6)	(0.5)	1,068.2	5.7

¹ Includes reverse repos and settlement accounts.

Pillar 3 Disclosures at 31 December 2020

Table 33 analyses past due unimpaired and credit-impaired exposures on a regulatory consolidation basis using accounting values. There are no material differences between the regulatory and accounting scope of consolidation.

All amounts past due more than 90 days are considered credit impaired even where regulatory rules deem default as 180 days past due.

Table 33: Amount of past due unimpaired and credit-impaired exposures by geographical region

At 31 Dec 2020	Europe	Asia	MENA	North America	Latin America	Total
	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn
Past due	3.4	5.9	3.7	2.3	1.2	16.5
– personal	2.4	2.7	0.7	1.5	0.6	7.9
– corporate and commercial	1.0	2.8	3.0	0.6	0.5	7.9
– financial	–	0.4	–	0.2	0.1	0.7
At 31 Dec 2019						
Past due	4.2	5.0	3.2	2.1	1.2	15.7
– personal	2.1	2.7	0.7	1.5	0.6	7.6
– corporate and commercial	2.1	1.7	2.5	0.5	0.5	7.3
– financial	–	0.6	–	0.1	0.1	0.8

Additional disclosures on measures applied in response to the Covid-19 outbreak

The following EBA tables provide information on payment moratoria and forbearance measures to existing loans and public guarantees to new lending in the context of Covid-19.

These temporary additional disclosures follow the PRA's guidelines on the application of the EBA's instructions and definitions to reflect the UK approach to payment deferrals.

Table 34: Loans and advances subject to legislative and non-legislative moratoria

At 31 Dec 2020	Gross carrying amount							Accumulated impairment, accumulated negative changes in fair value due to credit risk							Gross carrying amount
	Total	Performing exposures		Non-performing exposures			Total	Performing exposures		Non-performing exposures					
		of which forborne	of which stage 2	of which forborne	of which or past due ≤ 90 days	Unlikely to pay but not past due		of which forborne	of which stage 2	of which forborne	of which or past due ≤ 90 days	Unlikely to pay but not past due	Inflows to non-performing exposures		
	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn		
1 Loans and advances	19.9	19.3	–	13.3	0.6	0.2	0.5	(0.3)	(0.2)	–	(0.2)	(0.1)	–	(0.1)	0.4
2 of which: households	5.6	5.2	–	2.5	0.4	0.1	0.4	(0.1)	(0.1)	–	(0.1)	–	–	–	0.2
3 of which: collateralised by residential immovable property	4.8	4.5	–	2.1	0.3	–	0.3	–	–	–	–	–	–	–	0.1
4 of which: non-financial corporations	14.3	14.1	–	10.7	0.2	0.1	0.1	(0.2)	(0.1)	–	(0.1)	(0.1)	–	(0.1)	0.2
6 of which: collateralised by commercial immovable property	7.6	7.6	–	6.1	–	–	–	(0.1)	(0.1)	–	–	–	–	–	–

Table 35: Loans and advances subject to legislative and non-legislative moratoria by residual maturity

At 31 Dec 2020	Number of obligors	Gross carrying amount/nominal amount										
		of which: legislative moratoria			of which: expired			Residual maturity of moratoria				
		000s	\$bn	\$bn	\$bn	\$bn	≤3 months	>3 months ≤6 months	>6 months ≤9 months	>9 months ≤12 months	>1 year	
1 Loans and advances for which moratorium was offered	531	73.2										
2 Loans and advances subject to moratorium (granted)	529	72.2	40.0	52.3		5.5	12.6	0.9	0.3	0.6		
3 of which: households		29.8	21.3	24.2		4.1	1.2	0.1	0.1	0.1		
4 of which: collateralised by residential immovable property		24.8	17.5	20.0		3.8	0.8	0.1	0.1	–		
5 of which: non-financial corporations		42.2	18.5	27.9		1.4	11.4	0.8	0.2	0.5		
7 of which: collateralised by commercial immovable property		19.7	12.0	12.1		0.7	6.7	0.1	–	0.1		

Table 36: Newly originated loans and advances provided under newly applicable public guarantee schemes

		Gross carrying amount		Public guarantees received	Inflows to non-performing exposures
		\$bn	of which forborne \$bn	Maximum amount that can be considered \$bn	Gross carrying amount \$bn
At 31 Dec 2020					
1	Newly originated loans and advances subject to public guarantee schemes	20.3	—	18.7	0.2
2	of which: households	0.1	—	—	—
3	of which: Collateralised by residential immovable property	—	—	—	—
4	of which: Non-financial corporations	20.1	—	18.5	0.2
6	of which: Collateralised by commercial immovable property	1.1	—	—	—

Concentration risk

Concentrations of credit risk arise when a number of counterparties or exposures have comparable economic characteristics, are engaged in similar activities or operate in the same geographical areas or industry sectors so that their collective ability to meet contractual obligations is uniformly affected by changes in economic, political or other conditions.

We have a number of global businesses with a broad range of products. We operate in a number of geographical markets with

the majority of our exposures in Asia and Europe. We use a number of controls and measures to minimise undue concentration of exposure in our portfolios across industries, countries and global businesses. These include portfolio and counterparty limits, approval and review controls, and stress testing. The following tables present information on the concentration of exposures by geography and industry.

Table 37: Geographical breakdown of exposures (CRB-C)

		Net carrying values ^{1,2}									
		Of which:				Of which:					
		Europe	United Kingdom	France	Other countries	Asia	Hong Kong	China	Singapore	Australia	Other countries
		\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn
IRB approach exposure classes											
1	Central governments and central banks	8.1	0.3	—	7.8	229.1	77.4	36.3	28.5	14.9	72.0
2	Institutions	22.6	11.6	1.7	9.3	39.7	4.6	17.2	2.6	3.4	11.9
3	Corporates	337.5	176.9	55.4	105.2	449.3	210.7	84.9	30.2	26.6	96.9
4	Retail	268.5	231.8	30.1	6.6	267.3	210.6	6.2	14.5	21.2	14.8
6	Total IRB approach	636.7	420.6	87.2	128.9	985.4	503.3	144.6	75.8	66.1	195.6
Standardised approach exposure classes											
7	Central governments and central banks	287.0	179.1	73.6	34.3	0.8	0.2	0.1	—	0.1	0.4
8	Regional governments or local authorities	3.7	—	—	3.7	—	—	—	—	—	—
9	Public sector entities	17.9	—	5.5	12.4	—	—	—	—	—	—
10	Multilateral development banks	—	—	—	—	—	—	—	—	—	—
11	International organisations	—	—	—	—	—	—	—	—	—	—
12	Institutions	0.2	0.1	—	0.1	—	—	—	—	—	—
13	Corporates	16.2	2.6	3.7	9.9	44.6	27.6	4.1	4.6	2.3	6.0
14	Retail	4.7	2.8	0.4	1.5	49.4	14.9	5.3	7.9	1.7	19.6
15	Secured by mortgages on immovable property	7.8	1.6	1.1	5.1	17.2	3.5	8.8	0.6	0.1	4.2
16	Exposures in default	0.6	0.1	0.1	0.4	0.4	0.2	—	—	—	0.2
17	Items associated with particularly high risk	3.4	1.4	0.7	1.3	—	—	—	—	—	—
20	Collective investment undertakings ('CIU')	0.4	0.4	—	—	—	—	—	—	—	—
21	Equity exposures	1.5	0.8	0.5	0.2	14.9	2.1	12.6	0.1	—	0.1
22	Other exposures	3.6	3.1	0.3	0.2	7.2	5.1	0.9	—	—	1.2
23	Total standardised approach	347.0	192.0	85.9	69.1	134.5	53.6	31.8	13.2	4.2	31.7
24	Total at 31 Dec 2020	983.7	612.6	173.1	198.0	1,119.9	556.9	176.4	89.0	70.3	227.3

Pillar 3 Disclosures at 31 December 2020

Table 37: Geographical breakdown of exposures (CRB-C)

		Net carrying values ^{1,2}							Total \$bn
		Of which:							
		MENA \$bn	North America \$bn	United States of America \$bn	Canada \$bn	Other countries \$bn	Latin America \$bn	Other \$bn	
IRB approach exposure classes									
1	Central governments and central banks	23.7	146.3	111.3	35.0	—	9.2	16.8	433.2
2	Institutions	5.4	11.2	3.0	8.2	—	0.6	—	79.5
3	Corporates	50.3	212.3	151.9	54.5	5.9	6.6	—	1,056.0
4	Retail	4.2	59.4	28.3	27.5	3.6	0.2	—	599.6
6	Total IRB approach	83.6	429.2	294.5	125.2	9.5	16.6	16.8	2,168.3
Standardised approach exposure classes									
7	Central governments and central banks	2.3	1.7	1.6	0.1	—	1.3	—	293.1
8	Regional governments or local authorities	6.1	—	—	—	—	0.7	—	10.5
9	Public sector entities	—	—	—	—	—	0.1	—	18.0
10	Multilateral development banks	—	—	—	—	—	—	—	—
11	International organisations	—	—	—	—	—	—	2.3	2.3
12	Institutions	0.6	—	—	—	—	—	—	0.8
13	Corporates	41.2	8.7	6.3	0.8	1.6	21.9	—	132.6
14	Retail	7.8	4.7	2.2	2.1	0.4	7.8	—	74.4
15	Secured by mortgages on immovable property	3.9	1.5	0.4	0.1	1.0	3.8	—	34.2
16	Exposures in default	1.6	0.5	0.2	—	0.3	0.6	—	3.7
17	Items associated with particularly high risk	0.1	1.5	0.8	—	0.7	0.1	—	5.1
20	Collective investment undertakings ('CIU')	—	—	—	—	—	—	—	0.4
21	Equity exposures	0.1	1.1	1.1	—	—	0.2	—	17.8
22	Other exposures	0.8	0.6	0.5	0.1	—	0.4	—	12.6
23	Total standardised approach	64.5	20.3	13.1	3.2	4.0	36.9	2.3	605.5
24	Total at 31 Dec 2020	148.1	449.5	307.6	128.4	13.5	53.5	19.1	2,773.8

Table 37: Geographical breakdown of exposures (CRB-C) (continued)

		Net carrying values ^{1,2}									
		Of which:				Of which:					
		Europe \$bn	United Kingdom \$bn	France \$bn	Other countries \$bn	Asia \$bn	Hong Kong \$bn	China \$bn	Singapore \$bn	Australia \$bn	Other countries \$bn
IRB approach exposure classes											
1	Central governments and central banks	3.7	0.1	—	3.6	172.0	54.1	28.7	15.8	8.9	64.5
2	Institutions	23.4	12.5	1.6	9.3	34.7	4.1	12.2	2.5	4.1	11.8
3	Corporates	308.1	169.0	47.4	91.7	461.0	216.3	85.6	32.8	24.6	101.7
4	Retail	243.3	214.1	26.6	2.6	251.6	202.2	5.9	12.3	17.3	13.9
6	Total IRB approach	578.5	395.7	75.6	107.2	919.3	476.7	132.4	63.4	54.9	191.9
Standardised approach exposure classes											
7	Central governments and central banks	172.1	99.4	50.5	22.2	0.9	0.4	—	—	0.1	0.4
8	Regional governments or local authorities	2.8	—	—	2.8	—	—	—	—	—	—
9	Public sector entities	16.6	—	2.9	13.7	—	—	—	—	—	—
10	Multilateral development banks	—	—	—	—	—	—	—	—	—	—
11	International organisations	—	—	—	—	—	—	—	—	—	—
12	Institutions	1.0	0.1	0.8	0.1	0.1	—	0.1	—	—	—
13	Corporates	23.0	2.8	3.6	16.6	53.7	32.3	5.7	4.9	2.6	8.2
14	Retail	3.1	1.3	0.3	1.5	45.0	11.7	4.8	7.5	1.8	19.2
15	Secured by mortgages on immovable property	7.6	2.4	1.0	4.2	16.7	3.6	8.0	0.6	0.1	4.4
16	Exposures in default	0.6	0.1	0.1	0.4	0.4	0.1	—	—	—	0.3
17	Items associated with particularly high risk	3.4	1.1	0.9	1.4	—	—	—	—	—	—
20	Collective investment undertakings ('CIU')	0.4	0.4	—	—	—	—	—	—	—	—
21	Equity exposures	1.7	1.1	0.5	0.1	13.4	1.8	11.4	0.1	—	0.1
22	Other exposures	4.0	3.0	0.9	0.1	7.0	4.9	0.8	—	—	1.3
23	Total standardised approach	236.3	111.7	61.5	63.1	137.2	54.8	30.8	13.1	4.6	33.9
24	Total at 31 Dec 2019	814.8	507.4	137.1	170.3	1,056.5	531.5	163.2	76.5	59.5	225.8

Table 37: Geographical breakdown of exposures (CRB-C) (continued)

		Net carrying values ^{1,2}							
		Of which:							
		MENA	North America	United States of America	Canada	Other countries	Latin America	Other	Total
		\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn
IRB approach exposure classes									
1	Central governments and central banks	20.4	129.3	108.4	20.8	0.1	8.9	12.0	346.3
2	Institutions	6.2	10.3	2.1	8.2	—	0.8	—	75.4
3	Corporates	48.5	223.1	159.3	55.6	8.2	6.8	—	1,047.5
4	Retail	3.5	55.8	27.4	25.1	3.3	0.2	—	554.4
6	Total IRB approach	78.6	418.5	297.2	109.7	11.6	16.7	12.0	2,023.6
Standardised approach exposure classes									
7	Central governments and central banks	1.7	1.7	1.6	0.1	—	0.5	—	176.9
8	Regional governments or local authorities	5.0	—	—	—	—	1.1	—	8.9
9	Public sector entities	—	—	—	—	—	—	—	16.6
10	Multilateral development banks	—	—	—	—	—	—	0.1	0.1
11	International organisations	—	—	—	—	—	—	1.6	1.6
12	Institutions	1.3	—	—	—	—	—	—	2.4
13	Corporates	44.8	10.6	7.6	0.7	2.3	27.7	—	159.8
14	Retail	8.7	4.6	2.3	1.9	0.4	9.3	—	70.7
15	Secured by mortgages on immovable property	3.9	1.8	0.6	0.1	1.1	3.4	—	33.4
16	Exposures in default	1.6	0.3	—	—	0.3	0.5	—	3.4
17	Items associated with particularly high risk	0.2	1.8	0.9	—	0.9	0.1	—	5.5
20	Collective investment undertakings ('CIU')	—	—	—	—	—	—	—	0.4
21	Equity exposures	0.2	1.0	1.0	—	—	0.1	—	16.4
22	Other exposures	0.6	0.7	0.6	0.1	—	0.6	—	12.9
23	Total standardised approach	68.0	22.5	14.6	2.9	5.0	43.3	1.7	509.0
24	Total at 31 Dec 2019	146.6	441.0	311.8	112.6	16.6	60.0	13.7	2,532.6

1 Amounts shown by geographical region and country/territory in this table are based on the country/territory of residence of the counterparty.

2 Securitisation positions and non-credit obligation assets are not included in this table.

Pillar 3 Disclosures at 31 December 2020

Table 38: Concentration of exposures by industry or counterparty types¹ (CRB-D)

	Agriculture	Mining/oil extraction	Manufacturing	Utilities	Water supply	Construction	Wholesale & retail trade	Transportation & storage	Accommodation & food services	Information & communication	Financial & insurance
Net carrying values ¹	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn
1 Central governments and central banks	–	–	0.1	0.5	–	–	0.2	–	–	–	220.8
2 Institutions	–	0.5	0.3	0.3	–	0.2	–	0.8	–	–	74.6
3 Corporates	8.3	34.7	229.0	31.8	3.0	37.2	172.7	45.9	27.3	17.3	114.0
4 Retail	0.6	–	1.8	–	–	2.8	5.2	0.7	1.0	0.2	7.0
6 Total IRB approach	8.9	35.2	231.2	32.6	3.0	40.2	178.1	47.4	28.3	17.5	416.4
7 Central governments and central banks	–	–	–	–	–	–	–	–	–	–	237.9
8 Regional governments or local authorities	–	–	–	–	–	–	–	–	–	–	0.1
9 Public sector entities	–	–	0.1	–	–	–	–	–	–	–	13.7
10 Multilateral development banks	–	–	–	–	–	–	–	–	–	–	–
11 International organisations	–	–	–	–	–	–	–	–	–	–	0.5
12 Institutions	–	–	–	–	–	–	–	–	–	–	0.8
13 Corporates	0.8	4.0	18.5	3.0	0.2	4.4	18.2	2.4	2.6	1.3	11.8
14 Retail	0.6	–	0.8	–	–	0.1	0.6	0.1	0.1	–	0.1
15 Secured by mortgages on immovable property	–	–	–	–	–	0.2	0.1	–	0.4	–	0.1
16 Exposures in default	–	–	0.3	–	–	0.2	0.1	0.1	0.1	0.1	0.1
17 Items associated with particularly high risk	–	–	0.1	–	–	–	–	–	–	–	4.6
20 Collective investment undertakings ('CIU')	–	–	–	–	–	–	–	–	–	–	0.4
21 Equity exposures	–	–	–	–	–	–	–	–	–	–	17.7
22 Other exposures	–	–	–	–	–	–	–	–	–	–	12.0
23 Total STD approach	1.4	4.0	19.8	3.0	0.2	4.9	19.0	2.6	3.2	1.4	299.8
24 Total at 31 Dec 2020	10.3	39.2	251.0	35.6	3.2	45.1	197.1	50.0	31.5	18.9	716.2

	Real estate	Professional activities	Administrative services	Public admin & defence	Education	Human health & social work	Arts & entertainment	Other services	Personal	Extra-territorial bodies	Total
Net carrying values ¹	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn
1 Central governments and central banks	–	–	–	182.8	–	0.4	–	–	–	28.4	433.2
2 Institutions	–	0.1	0.1	2.3	0.2	0.1	–	–	–	–	79.5
3 Corporates	175.6	30.0	96.8	1.5	3.5	6.8	7.7	12.4	0.5	–	1,056.0
4 Retail	0.9	–	19.4	–	0.2	0.6	0.5	0.8	557.9	–	599.6
6 Total IRB approach	176.5	30.1	116.3	186.6	3.9	7.9	8.2	13.2	558.4	28.4	2,168.3
7 Central governments and central banks ³	–	–	–	40.1	–	–	–	0.2	–	14.9	293.1
8 Regional governments or local authorities	–	–	–	10.4	–	–	–	–	–	–	10.5
9 Public sector entities	–	–	–	3.5	–	–	0.4	–	–	0.3	18.0
10 Multilateral development banks	–	–	–	–	–	–	–	–	–	–	–
11 International organisations	–	–	–	0.2	–	–	–	–	–	1.6	2.3
12 Institutions	–	–	–	–	–	–	–	–	–	–	0.8
13 Corporates	10.3	1.6	47.7	0.7	0.2	0.8	0.3	1.2	2.6	–	132.6
14 Retail	0.1	0.1	0.3	–	–	0.1	–	0.1	71.3	–	74.4
15 Secured by mortgages on immovable property	1.4	–	0.1	–	–	–	–	–	31.9	–	34.2
16 Exposures in default	0.3	–	0.9	–	–	–	0.1	0.1	1.3	–	3.7
17 Items associated with particularly high risk	0.4	–	–	–	–	–	–	–	–	–	5.1
20 Collective investment undertakings	–	–	–	–	–	–	–	–	–	–	0.4
21 Equity exposures	–	–	0.1	–	–	–	–	–	–	–	17.8
22 Other exposures	–	–	0.6	–	–	–	–	–	–	–	12.6
23 Total STD approach	12.5	1.7	49.7	54.9	0.2	0.9	0.8	1.6	107.1	16.8	605.5
24 Total at 31 Dec 2020	189.0	31.8	166.0	241.5	4.1	8.8	9.0	14.8	665.5	45.2	2,773.8

Table 38: Concentration of exposures by industry or counterparty types¹ (CRB-D) (continued)

	Agriculture	Mining/oil extraction	Manufacturing	Utilities	Water supply	Construction	Wholesale & retail trade	Transportation & storage	Accommodation & food services	Information & communication	Financial & insurance
Net carrying values ¹	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn
1 Central governments and central banks	—	—	0.1	0.5	—	—	0.1	0.1	—	—	150.2
2 Institutions	—	0.5	0.3	0.4	—	0.1	0.1	0.2	—	0.1	69.9
3 Corporates	7.7	35.3	234.6	27.7	3.1	38.0	181.8	41.1	25.5	14.3	111.9
4 Retail	1.0	—	0.8	—	—	0.3	1.4	0.2	0.4	0.1	4.8
6 Total IRB approach	8.7	35.8	235.8	28.6	3.1	38.4	183.4	41.6	25.9	14.5	336.8
7 Central governments and central banks	—	—	—	—	—	—	—	—	—	0.1	132.0
8 Regional governments or local authorities	—	—	—	—	—	—	—	—	—	—	0.3
9 Public sector entities	—	—	0.1	—	—	—	—	—	—	—	13.6
10 Multilateral development	—	—	—	—	—	—	—	—	—	—	0.1
11 International	—	—	—	—	—	—	—	—	—	—	—
12 Institutions	—	—	—	—	—	—	—	—	—	—	2.4
13 Corporates	1.0	5.4	25.0	3.7	0.3	7.8	21.3	3.0	3.1	2.1	15.6
14 Retail	0.1	—	0.4	—	—	—	0.2	0.2	—	—	—
15 Secured by mortgages on immovable property	—	—	—	—	—	0.3	—	—	0.1	—	0.1
16 Exposures in default	—	—	0.4	—	—	0.2	0.2	—	0.1	—	0.1
17 Items associated with particularly high risk	—	—	—	—	—	—	—	—	—	—	4.8
20 Collective investment undertakings	—	—	—	—	—	—	—	—	—	—	0.4
21 Equity exposures	—	—	—	—	—	—	—	—	—	—	16.2
22 Other exposures	—	—	—	—	—	—	—	—	—	—	12.7
23 Total STD approach	1.1	5.4	25.9	3.7	0.3	8.3	21.7	3.2	3.3	2.2	198.3
24 Total at 31 Dec 2019	9.8	41.2	261.7	32.3	3.4	46.7	205.1	44.8	29.2	16.7	535.1

	Real estate	Professional activities	Administrative services	Public admin & defence	Education	Human health & social work	Arts & entertainment	Other services	Personal	Extra-territorial bodies	Total
Net carrying values ¹	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn
1 Central governments and central banks	—	—	—	164.8	—	0.2	—	0.3	—	30.0	346.3
2 Institutions	0.2	—	—	1.9	0.1	0.2	—	—	—	1.4	75.4
3 Corporates	180.7	26.4	87.3	2.6	3.1	5.7	6.3	14.0	0.4	—	1,047.5
4 Retail	0.8	—	15.9	—	0.3	0.2	0.1	0.2	527.9	—	554.4
6 Total IRB approach	181.7	26.4	103.2	169.3	3.5	6.3	6.4	14.5	528.3	31.4	2,023.6
7 Central governments and central banks	—	—	—	33.5	—	—	—	1.5	—	9.8	176.9
8 Regional governments or local authorities	—	—	—	8.6	—	—	—	—	—	—	8.9
9 Public sector entities	—	—	—	2.2	—	—	—	0.1	—	0.6	16.6
10 Multilateral development banks	—	—	—	—	—	—	—	—	—	—	0.1
11 International	—	—	—	—	—	—	—	—	—	1.6	1.6
12 Institutions	—	—	—	—	—	—	—	—	—	—	2.4
13 Corporates	13.0	1.5	51.0	0.5	0.1	0.8	0.6	1.6	2.4	—	159.8
14 Retail	—	—	0.2	—	—	—	—	—	69.6	—	70.7
15 Secured by mortgages on immovable property	1.1	—	0.2	—	—	—	—	—	31.6	—	33.4
16 Exposures in default	0.1	0.1	1.0	—	—	—	—	—	1.2	—	3.4
17 Items associated with particularly high risk	0.6	—	0.1	—	—	—	—	—	—	—	5.5
20 Collective investment undertakings	—	—	—	—	—	—	—	—	—	—	0.4
21 Equity exposures	—	—	0.1	—	—	0.1	—	—	—	—	16.4
22 Other exposures	—	—	0.2	—	—	—	—	—	—	—	12.9
23 Total STD approach	14.8	1.6	52.8	44.8	0.1	0.9	0.6	3.2	104.8	12.0	509.0
24 Total at 31 Dec 2019	196.5	28.0	156.0	214.1	3.6	7.2	7.0	17.7	633.1	43.4	2,532.6

¹ Securitisation positions and non-credit obligation assets are not included in this table.

Table 39: Maturity of on-balance sheet exposures (CRB-E)

		Net carrying values ¹					
		On demand	Less than	Between	More than	Undated	Total
		\$bn	1 year	1 and 5 years	5 years	\$bn	\$bn
			\$bn	\$bn	\$bn		
IRB approach exposure classes							
1	Central governments and central banks	55.1	201.2	122.1	51.7	–	430.1
2	Institutions	13.1	32.0	18.4	1.5	–	65.0
3	Corporates	46.0	181.2	223.8	56.3	–	507.3
4	Retail	19.0	33.5	41.1	328.6	–	422.2
6	Total IRB approach	133.2	447.9	405.4	438.1	–	1,424.6
Standardised approach exposure classes							
7	Central governments and central banks	188.9	59.3	16.4	22.3	4.4	291.3
8	Regional governments or local authorities	0.7	0.7	6.5	2.0	–	9.9
9	Public sector entities	–	3.3	9.2	4.1	–	16.6
10	Multilateral development banks	–	–	–	–	–	–
11	International organisations	–	0.4	1.4	0.5	–	2.3
12	Institutions	0.2	0.5	0.1	–	–	0.8
13	Corporates	3.1	26.2	28.6	6.7	–	64.6
14	Retail	6.2	1.2	6.4	4.6	–	18.4
15	Secured by mortgages on immovable property	–	1.6	7.1	24.2	–	32.9
16	Exposures in default	0.3	0.7	1.2	0.9	–	3.1
17	Items associated with particularly high risk	–	0.2	0.7	0.1	1.8	2.8
20	Collective investment undertakings ('CIU')	–	–	–	–	0.4	0.4
21	Equity exposures	–	–	–	–	17.8	17.8
22	Other exposures	–	1.5	–	0.5	9.8	11.8
23	Total standardised approach	199.4	95.6	77.6	65.9	34.2	472.7
24	Total at 31 Dec 2020	332.6	543.5	483.0	504.0	34.2	1,897.3

IRB approach exposure classes							
1	Central governments and central banks	39.3	136.2	105.5	61.8	–	342.8
2	Institutions	11.8	27.9	22.2	1.3	–	63.2
3	Corporates	51.7	191.2	232.7	56.1	–	531.7
4	Retail	23.6	32.8	33.4	297.4	–	387.2
6	Total IRB approach	126.4	388.1	393.8	416.6	–	1,324.9
Standardised approach exposure classes							
7	Central governments and central banks	90.9	46.0	15.9	18.6	4.6	176.0
8	Regional governments or local authorities	0.8	0.9	5.3	1.5	–	8.5
9	Public sector entities	–	2.5	9.7	4.3	–	16.5
10	Multilateral development banks	–	–	0.1	–	–	0.1
11	International organisations	–	–	0.7	0.9	–	1.6
12	Institutions	0.3	1.4	0.5	–	–	2.2
13	Corporates	4.3	30.7	32.1	7.8	–	74.9
14	Retail	7.3	1.2	7.0	4.1	–	19.6
15	Secured by mortgages on immovable property	–	2.1	5.9	24.3	–	32.3
16	Exposures in default	0.3	0.7	1.4	0.8	–	3.2
17	Items associated with particularly high risk	–	0.2	0.6	0.1	2.2	3.1
20	Collective investment undertakings ('CIU')	–	–	–	–	0.4	0.4
21	Equity exposures	–	–	–	–	16.4	16.4
22	Other exposures	–	2.7	–	0.4	9.1	12.2
23	Total standardised approach	103.9	88.4	79.2	62.8	32.7	367.0
24	Total at 31 Dec 2019	230.3	476.5	473.0	479.4	32.7	1,691.9

¹ Securitisation positions and non-credit obligation assets are not included in this table.

Risk mitigation

Our approach when granting credit facilities is to do so on the basis of capacity to repay, rather than placing primary reliance on credit risk mitigants. Depending on a customer's standing and the type of product, facilities may be provided unsecured.

Mitigation of credit risk is a key aspect of effective risk management and takes many forms. Our general policy is to promote the use of credit risk mitigation, justified by commercial prudence and capital efficiency. Detailed policies cover the acceptability, structuring and terms with regard to the availability of credit risk mitigation such as in the form of collateral security. These policies, together with the setting of suitable valuation parameters, are subject to regular review to ensure that they are supported by empirical evidence and continue to fulfil their intended purpose.

Collateral

The most common method of mitigating credit risk is to take collateral. In our retail residential and commercial real estate ('CRE') businesses, a mortgage over the property is usually taken to help secure claims. Physical collateral is also taken in various forms of specialised lending and leasing transactions where income from the physical assets that are financed is also the principal source of facility repayment. In the commercial and industrial sectors, charges are created over business assets such as premises, stock and debtors. Loans to private banking clients may be made against a pledge of eligible marketable securities, cash or real estate. Facilities to small- and medium-sized enterprises ('SMEs') are commonly granted against guarantees given by their owners and/or directors.

For credit risk mitigants in the form of immovable property, the key determinant of concentration at Group level is geographic. Use of immovable property mitigants for risk management purposes is predominantly in Asia and Europe.

Further information regarding collateral held over CRE and residential property is provided on pages 150 and 162, respectively, of the Annual Report and Accounts 2020.

Financial collateral

In the institutional sector, trading facilities are supported by charges over financial instruments, such as cash, debt securities and equities. Financial collateral in the form of marketable securities is used in much of the Group's derivatives activities and in securities financing transactions, such as repos, reverse repos, securities lending and borrowing. Netting is used extensively and is a prominent feature of market standard documentation.

Further information regarding collateral held for trading exposures is on page 157 of the Annual Report and Accounts 2020.

In the non-trading book, we provide customers with working capital management products. In some cases, these products combine loans and advances to customers with customer accounts over which we have right of offset which comply with the regulatory requirements for on-balance sheet netting. Where this applies, the customer accounts are treated as cash collateral and are reflected in our LGD estimates.

Under on-balance sheet netting, the customer accounts are treated as cash collateral and the effects of this collateral are incorporated in our LGD estimates. For risk management purposes, the net amounts of such exposures are subject to limits and the relevant customer agreements are subject to review to ensure the legal right of offset remains appropriate.

At 31 December 2020, \$31bn of customer accounts were treated as cash collateral, mainly in the UK.

Other forms of credit risk mitigation

Our Global Banking and Markets ('GBM') business utilises credit risk mitigation to manage the credit risk of its portfolios, with the goal of reducing concentrations in individual names, sectors or portfolios. The techniques in use include credit default swap ('CDS') purchases, structured credit notes and securitisation structures. Buying credit protection creates credit exposure against the protection provider, which is monitored as part of the overall credit exposure to them. Where applicable, the transaction is entered into directly with a central clearing house counterparty; otherwise our exposure to CDS protection providers is diversified among mainly banking counterparties with strong credit ratings. In our corporate lending, we also take guarantees from corporates and export credit agencies ('ECA'). Corporates would normally provide guarantees as part of a parent/subsidiary or common parent relationship and would span a number of credit grades. The ECAs will normally be investment grade.

Policy and procedures

Policies and procedures govern the protection of our position from the outset of a customer relationship; for instance, in requiring standard terms and conditions or specifically agreed documentation permitting the offset of credit balances against debt obligations, and through controls over the integrity, current valuation and, if necessary, realisation of collateral security.

Valuing collateral

Valuation strategies are established to monitor collateral mitigants to ensure that they will continue to provide the anticipated secure secondary repayment source. The frequency of valuation increases with the volatility of the collateral. For market trading activities such as collateralised over-the-counter ('OTC') derivatives and securities financing transactions ('SFTs'), we typically carry out daily valuations. In the residential mortgage business, Group policy prescribes revaluation at intervals of up to three years, or more frequently as the need arises; for example, where market conditions are subject to significant change. Residential property collateral values are determined through a combination of professional appraisals, house price indices or statistical analysis.

Local market conditions determine the frequency of valuation for CRE. Revaluations are sought where, for example, material concerns arise in relation to the performance of the collateral. CRE revaluation also occurs commonly in circumstances where an obligor's credit quality has declined sufficiently to cause concern that the principal payment source may not fully meet the obligation.

Recognition of risk mitigation under the IRB approach

Within an IRB approach, risk mitigants are considered in two broad categories:

- those which reduce the intrinsic PD of an obligor and therefore operate as determinants of PD; and
- those which affect the estimated recoverability of obligations and require adjustment of LGD or, in certain limited circumstances, EAD.

The first category typically includes full parental guarantees where one obligor within a group guarantees another. In these circumstances, the parent guarantor materially influences the PD of the guaranteed obligor. PD estimates are also subject to a 'sovereign ceiling', constraining the risk ratings assigned to obligors in countries of higher risk, and where only partial parental support exists. In certain jurisdictions, certain types of third-party guarantee are recognised by substituting the obligor's PD with that of the guarantor.

In the second category, LGD estimates are affected by a wider range of collateral, including cash, charges over real estate property, fixed assets, trade goods, receivables and floating charges such as mortgage debentures. Unfunded mitigants, such as third-party guarantees, are also considered in LGD estimates where there is evidence that they reduce loss expectation.

The main types of provider of guarantees are banks, other financial institutions and corporates. The creditworthiness of providers of unfunded credit risk mitigation is taken into consideration as part of the guarantor's risk profile. Internal limits for such contingent exposure are approved in the same way as direct exposures.

EAD and LGD values, in the case of individually assessed exposures, are determined by reference to regionally approved internal risk parameters based on the nature of the exposure. For retail portfolios, credit risk mitigation data is incorporated into the internal risk parameters for exposures and feeds into the calculation of the expected loss ('EL') band value summarising both customer delinquency and product or facility risk. Credit and credit risk mitigation data form inputs submitted by all Group offices to centralised databases. A range of collateral recognition approaches are applied to IRB capital treatments:

- Unfunded protection, which includes credit derivatives and guarantees, is reflected through adjustment or determination of PD or LGD. Under the IRB advanced approach, recognition may be through PD or LGD.
- Eligible financial collateral under the IRB advanced approach is recognised in LGD models. Under the IRB foundation approach, regulatory LGD values are adjusted. The adjustment to LGD is based on the degree to which the exposure value would be adjusted notionally if the financial collateral comprehensive method were applied.
- For all other types of collateral, including real estate, the LGD for exposures under the IRB advanced approach is calculated by models. For IRB foundation, base regulatory LGDs are adjusted depending on the value and type of the asset taken as collateral relative to the exposure. The types of eligible mitigant recognised under the IRB foundation approach are more limited.

Table 42 sets out, for IRB exposures, the exposure value and the effective value of credit risk mitigation expressed as the exposure value covered by the credit risk mitigant. IRB credit risk mitigation reductions of EAD were immaterial at 31 December 2020.

Recognition of risk mitigation under the standardised approach

Where credit risk mitigation is available in the form of an eligible guarantee, non-financial collateral or a credit derivative, the exposure is divided into covered and uncovered portions. The covered portion is determined after applying an appropriate 'haircut' for currency and maturity mismatches (and for omission of restructuring clauses in credit derivatives, where appropriate) to the amount of the protection provided and attracts the risk weight

of the protection provider. The uncovered portion attracts the risk weight of the obligor.

The value of exposure fully or partially covered by eligible financial collateral is adjusted under the financial collateral comprehensive method using supervisory volatility adjustments (including those for currency mismatch) which are determined by the specific type of collateral (and its credit quality, in the case of eligible debt securities) and its liquidation period. The adjusted exposure value is subject to the risk weight of the obligor.

Table 40: Credit risk mitigation techniques – overview (CR3)

		Exposures unsecured: carrying amount ¹	Exposures secured: carrying amount	Exposures secured by collateral ¹	Exposures secured by financial guarantees	Exposures secured by credit derivatives
		\$bn	\$bn	\$bn	\$bn	\$bn
1	Loans	719.3	725.0	593.4	131.4	0.2
2	Debt securities	380.2	37.0	29.7	7.3	–
3	Total at 31 Dec 2020	1,099.5	762.0	623.1	138.7	0.2
4	<i>of which: defaulted</i>	<i>7.6</i>	<i>6.4</i>	<i>5.5</i>	<i>0.9</i>	<i>–</i>
1	Loans	593.6	685.6	578.5	106.6	0.5
2	Debt securities	335.8	41.5	35.6	5.9	–
3	Total at 31 Dec 2019	929.4	727.1	614.1	112.5	0.5
4	<i>of which: defaulted</i>	<i>5.0</i>	<i>4.5</i>	<i>4.0</i>	<i>0.5</i>	<i>–</i>

¹ The secured and unsecured classifications has been revised. 31 December 2019 data has been restated to be on a consistent basis with the current year.

Table 41: Standardised approach – credit conversion factor ('CCF') and credit risk mitigation ('CRM') effects (CR4)

		Exposures before CCF and CRM		Exposures post-CCF and CRM		RWAs and RWA density	
		On-balance sheet amount	Off-balance sheet amount	On-balance sheet amount	Off-balance sheet amount	RWAs	RWA density
		\$bn	\$bn	\$bn	\$bn	\$bn	%
Asset classes¹							
1	Central governments or central banks	291.1	1.9	312.0	2.2	11.1	4
2	Regional governments or local authorities	9.9	0.6	10.3	0.2	1.9	18
3	Public sector entities	16.6	1.4	16.5	0.6	0.1	–
4	Multilateral development banks	–	–	–	–	–	–
5	International organisations	2.3	–	2.3	–	–	–
6	Institutions	0.8	–	0.9	–	0.6	65
7	Corporates	64.9	68.0	56.7	8.1	60.2	93
8	Retail	18.8	56.0	17.9	0.5	13.5	73
9	Secured by mortgage on immovable property	32.9	1.3	32.9	0.4	12.3	37
10	Exposures in default	3.7	0.6	3.7	0.2	4.5	115
11	Higher-risk categories	2.8	2.3	2.7	1.2	5.9	150
14	Collective investment undertakings	0.4	–	0.4	–	0.4	100
15	Equity	17.8	–	17.8	–	39.5	221
16	Other items	11.8	0.8	11.8	0.8	9.2	73
17	31 Dec 2020	473.8	132.9	485.9	14.2	159.2	32
1	Central governments or central banks	175.8	0.9	183.9	1.6	11.2	6
2	Regional governments or local authorities	8.5	0.4	8.8	0.1	1.6	18
3	Public sector entities	16.5	0.1	16.4	–	–	–
4	Multilateral development banks	0.1	–	0.1	–	–	–
5	International organisations	1.6	–	1.6	–	–	–
6	Institutions	2.2	0.2	1.5	0.1	0.9	58
7	Corporates	75.0	84.9	66.3	10.5	72.5	94
8	Retail	19.8	51.1	19.1	0.4	14.4	74
9	Secured by mortgage on immovable property	32.3	1.1	32.2	0.3	12.0	37
10	Exposures in default	3.6	0.2	3.6	–	4.1	114
11	Higher-risk categories	3.1	2.4	3.1	2.2	7.9	150
14	Collective investment undertakings	0.4	–	0.4	–	0.4	100
15	Equity	16.5	–	16.5	–	36.3	220
16	Other items	12.2	0.7	12.2	0.7	8.8	68
17	Total at 31 Dec 2019	367.6	142.0	365.7	15.9	170.1	45

¹ Securitisation positions are not included in this table.

Table 42: Credit risk mitigation techniques – IRB and Standardised

	Footnotes	At 31 Dec 2020					At 31 Dec 2019				
		Exposures unsecured: carrying amount	Exposures secured: carrying amount	Secured by:			Exposures unsecured: carrying amount	Exposures secured: carrying amount	Secured by:		
				collateral	financial guarantees	credit derivatives			collateral	financial guarantees	credit derivatives
		\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn
Exposures under the IRB approach	1										
Central governments and central banks		401.0	32.2	30.1	2.1	–	309.4	36.9	35.2	1.7	–
Institutions		73.0	6.5	4.4	2.0	0.1	69.9	5.5	4.7	0.8	–
Corporates		600.0	456.0	300.2	133.2	22.6	612.6	434.9	305.3	116.5	13.1
Retail	4	174.7	424.9	381.7	43.2	–	180.2	374.2	347.4	26.8	–
Securitisation positions		6.3	–	–	–	–	20.2	–	–	–	–
Total		1,255.0	919.6	716.4	180.5	22.7	1,192.3	851.5	692.6	145.8	13.1
Exposures under the STD approach	1										
Central governments and central banks	2	285.7	2.9	0.5	2.4	–	171.7	0.6	0.1	0.5	–
Institutions		0.8	–	–	0.0	–	1.6	0.8	–	0.8	–
Corporates		96.1	36.5	26.2	10.3	–	117.5	42.3	32.0	10.3	–
Retail		72.7	1.7	1.0	0.7	–	69.5	1.2	1.0	0.2	–
Secured by mortgages on immovable property	4	–	34.2	34.2	–	–	–	33.4	33.3	0.1	–
Exposures in default		3.2	0.5	0.4	0.1	–	2.7	0.7	0.6	0.1	–
Items associated with particularly high risk	3	1.8	0.1	–	0.1	–	2.0	0.1	–	0.1	–
Regional governments or local authorities		10.4	0.1	0.1	–	–	8.9	–	–	–	–
Public sector entities		13.6	4.4	–	4.4	–	11.7	4.9	0.1	4.8	–
Securitisation		28.2	–	–	–	–	15.8	0.5	–	–	0.5
Total		512.5	80.4	62.4	18.0	–	401.4	84.5	67.1	16.9	0.5

1 This table includes both on- and off-balance sheet exposures.

2 Deferred tax assets are excluded from the exposure.

3 Equities are excluded from the exposure.

4 The secured and unsecured classifications have been revised. 31 December 2019 data has been restated to be on a consistent basis with the current year.

Table 43: IRB – Effect on RWA of credit derivatives used as CRM techniques (CR7)

	At 31 Dec			
	2020		2019	
	Pre-credit derivatives RWAs \$bn	Actual RWAs \$bn	Pre-credit derivatives RWAs \$bn	Actual RWAs \$bn
1 Exposures under FIRB	104.3	103.5	32.3	32.3
2 Central governments and central banks	0.1	0.1	–	–
3 Institutions	0.2	0.2	0.2	0.2
6 Corporates – other	104.0	103.2	32.1	32.1
7 Exposures under AIRB	420.0	419.0	467.1	465.9
8 Central governments and central banks	44.4	44.4	36.3	36.3
9 Institutions	11.6	11.6	10.8	10.8
11 Corporates – specialised lending	25.1	25.1	26.8	26.8
12 Corporates – other	239.9	238.9	302.1	300.9
13 Retail – Secured by real estate SMEs	0.6	0.6	1.5	1.5
14 Retail – Secured by real estate non-SMEs	49.8	49.8	40.4	40.4
15 Retail – Qualifying revolving	17.5	17.5	18.8	18.8
16 Retail – Other SMEs	3.7	3.7	4.7	4.7
17 Retail – Other non-SMEs	12.0	12.0	12.4	12.4
19 Other non-credit obligation assets	15.4	15.4	13.3	13.3
20 Total	524.3	522.5	499.4	498.2

Global risk

Qualitative disclosures on banks' use of external credit ratings under the standardised approach for credit risk

The standardised approach is applied where exposures do not qualify for use of an IRB approach and/or where an exemption from IRB has been granted. The standardised approach requires banks to use risk assessments prepared by external credit assessment institutions ('ECAIs') or ECAs to determine the risk weightings applied to rated counterparties.

ECAI risk assessments are used within the Group as part of the determination of risk weightings for the following classes of exposure:

- central governments and central banks;
- regional governments and local authorities;
- institutions;
- corporates;
- securitisation positions; and
- short-term claims on institutions and corporates.

We have nominated three ECAs for this purpose – Moody's Investor Service ('Moody's'), Standard and Poor's rating agency ('S&P') and Fitch Ratings ('Fitch'). In addition to this, we use DBRS ratings specifically for securitisation positions. We have not nominated any ECAs.

Data files of external ratings from the nominated ECAs are matched with customer records in our centralised credit database.

When calculating the risk-weighted value of an exposure using ECAI risk assessments, risk systems identify the customer in question and look up the available ratings in the central database according to the rating selection rules. The systems then apply the prescribed credit quality step mapping to derive from the rating the relevant risk weight.

All other exposure classes are assigned risk weightings as prescribed in the PRA's Rulebook.

Credit quality step	Moody's assessment	S&P's assessment	Fitch's assessment	DBRS assessment
1	Aaa to Aa3	AAA to AA-	AAA to AA-	AAA to AAL
2	A1 to A3	A+ to A-	A+ to A-	AH to AL
3	Baa1 to Baa3	BBB+ to BBB-	BBB+ to BBB-	BBBH to BBBL
4	Ba1 to Ba3	BB+ to BB-	BB+ to BB-	BBH to BBL
5	B1 to B3	B+ to B-	B+ to B-	BH to BL
6	Caa1 and below	CCC+ and below	CCC+ and below	CCCH and below

Exposures to, or guaranteed by, central governments and central banks of the European Economic Area ('EEA') states are risk-weighted at 0% provided that they are denominated and funded in local currency or qualify for that weight by virtue of their external rating.

The following table provides further detail on the risk weighting of our standardised non-counterparty credit exposures. For further detail on the risk weighting of our standardised counterparty credit risk exposures, refer to Table 53.

Table 44: Standardised approach – exposures by asset class and risk weight (CR5)

Risk weight ('RW%')	Asset classes ¹	0%	2%	20%	35%	50%	70%	75%	100%	150%	250%	Deducted	Exposure amount (post-CCF and CRM)	Of which unrated
		\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn			
1	Central governments or central banks	309.7	–	–	–	–	–	–	0.1	–	4.4	–	314.2	4.4
2	Regional governments or local authorities	3.8	–	5.9	–	0.3	–	–	0.5	–	–	–	10.5	0.5
3	Public sector entities	16.9	–	0.2	–	–	–	–	–	–	–	–	17.1	–
4	Multilateral development banks	–	–	–	–	–	–	–	–	–	–	–	–	–
5	International organisations	2.3	–	–	–	–	–	–	–	–	–	–	2.3	–
6	Institutions	–	–	0.1	–	0.5	–	–	0.3	–	–	–	0.9	0.3
7	Corporates	–	–	4.1	0.2	1.6	0.4	–	57.1	1.4	–	–	64.8	55.4
8	Retail	–	–	–	–	–	–	18.4	–	–	–	–	18.4	18.4
9	Secured by mortgage on immovable property	–	–	–	31.0	1.4	–	–	0.9	–	–	–	33.3	33.3
10	Exposures in default	–	–	–	–	–	–	–	2.7	1.2	–	–	3.9	3.9
11	Higher-risk categories	–	–	–	–	–	–	–	–	3.9	–	–	3.9	3.9
14	Collective investment undertakings	–	–	–	–	–	–	–	0.4	–	–	–	0.4	0.4
15	Equity	–	–	–	–	–	–	–	3.4	–	14.4	–	17.8	17.8
16	Other items	0.1	–	4.2	–	–	–	–	8.3	–	–	–	12.6	12.6
17	31 Dec 2020	332.8	–	14.5	31.2	3.8	0.4	18.4	73.7	6.5	18.8	–	500.1	150.9
1	Central governments or central banks	180.9	–	0.1	–	–	–	–	0.1	–	4.4	–	185.5	4.4
2	Regional governments or local authorities	3.8	–	3.9	–	0.9	–	–	0.3	–	–	–	8.9	0.3
3	Public sector entities	16.4	–	–	–	–	–	–	–	–	–	–	16.4	–
4	Multilateral development banks	0.1	–	–	–	–	–	–	–	–	–	–	0.1	–
5	International organisations	1.6	–	–	–	–	–	–	–	–	–	–	1.6	–
6	Institutions	–	–	0.3	–	0.8	–	–	0.5	–	–	–	1.6	0.3
7	Corporates	–	–	3.9	0.3	2.5	0.5	–	68.0	1.6	–	–	76.8	65.9
8	Retail	–	–	–	–	–	–	19.5	–	–	–	–	19.5	19.5
9	Secured by mortgage on immovable property	–	–	–	30.7	1.0	–	–	0.8	–	–	–	32.5	32.5
10	Exposures in default	–	–	–	–	–	–	–	2.6	1.0	–	–	3.6	3.6
11	Higher-risk categories	–	–	–	–	–	–	–	–	5.3	–	–	5.3	5.3
14	Collective investment undertakings	–	–	–	–	–	–	–	0.4	–	–	–	0.4	0.4
15	Equity	–	–	–	–	–	–	–	3.3	–	13.2	–	16.5	16.5
16	Other items	0.1	–	5.0	–	–	–	–	7.8	–	–	–	12.9	12.9
17	Total at 31 Dec 2019	202.9	–	13.2	31.0	5.2	0.5	19.5	83.8	7.9	17.6	–	381.6	161.6

¹ Securitisation positions are not included in this table.

Application of the IRB approach

Our Group IRB credit risk rating framework incorporates obligor propensity to default expressed in PD, and loss severity in the event of default expressed in EAD and LGD. These measures are used to calculate regulatory EL and capital requirements. They are also used with other inputs to inform rating assessments for the purposes of credit approval and many other purposes, for example:

- credit approval and monitoring: IRB models are used in the assessment of customer and portfolio risk in lending decisions;
- risk appetite: IRB measures are an important element in identifying risk exposure at customer, sector and portfolio level;
- pricing: IRB parameters are used in pricing tools for new transactions and reviews; and
- economic capital and portfolio management: IRB parameters are used in the economic capital model that has been implemented across HSBC.

Refer to Tables 72 and 74 in Appendix I for further information on our wholesale and retail IRB models.

Roll-out of the IRB approach

With the PRA's permission, we have adopted the advanced IRB approach for the majority of our business. At the end of 2020, portfolios in much of Europe, Asia and North America were on advanced IRB approaches. Others remain on the standardised or foundation approaches pending the development of models for the PRA's approval in line with our IRB roll-out plans where the primary focus is on corporate and retail exposures.

At 31 December 2020, 69%% of the Group's exposures were treated under AIRB, 9%% under FIRB and 22%% under the standardised approach.

Refer to Table 73 in Appendix I for further detail on our IRB models including PD, LGD, RWA and exposure by country/territory.

EL and credit risk adjustments

We analyse credit loss experience in order to assess the performance of our risk measurement and control processes, and to inform our understanding of the implications for risk and capital management of dynamic changes occurring in the risk profile of our exposures.

When comparing regulatory EL with measures of ECL under IFRS 9, differences in the definition and scope of each should be considered. These can give rise to material differences in the way economic, business and methodological drivers are reflected quantitatively in the accounting and regulatory measures of loss.

In general, HSBC calculates ECL using three main components namely probability of default, loss given default, and exposure at default.

ECLs include impairment allowances (or provisions, against commitments and guarantees) calculated for a 12-month period ('12-month ECL'), for the remaining life of an exposure ('lifetime ECL'), and on financial assets that are considered to be in default or otherwise credit impaired. ECLs resulting from default events that are possible:

- within the next 12 months are recognised for financial instruments in stage 1; and
- beyond 12 months are recognised for financial instruments in stages 2 and 3.

An assessment of whether credit risk has increased significantly since initial recognition is performed at each reporting period by considering the change in the risk of default occurring over the remaining life of the financial instrument.

Unless identified at an earlier stage, all financial assets are deemed to have suffered a significant increase in credit risk when 30 days past due.

Change in ECL and other credit impairment charges represents the movement in the ECL during the year including write-offs, recoveries and foreign exchange. EL represents the one-year regulatory expected loss accumulated in the book at the balance sheet date.

Credit risk adjustments ('CRAs') encompass the impairment allowances or provisions balances, and changes in ECL and other credit impairment charges.

Table 75 in Appendix I sets out for IRB credit exposures the EL, CRA balances and actual loss experience reflected in the charges for CRAs.

HSBC leverages the Basel IRB framework where possible, with recalibration to meet the differing IFRS 9 requirements as follows:

Model	Regulatory capital	IFRS 9
PD	<ul style="list-style-type: none"> • Through the cycle (represents long-run average PD throughout a full economic cycle) • The definition of default includes a backstop of 90+ days past due, although this has been modified to 180+ days past due for some portfolios, particularly UK and US mortgages 	<ul style="list-style-type: none"> • Point in time (based on current conditions, adjusted to take into account estimates of future conditions that will impact PD) • Default backstop of 90+ days past due for all portfolios
EAD	<ul style="list-style-type: none"> • Cannot be lower than current balance 	<ul style="list-style-type: none"> • Amortisation captured for term products
LGD	<ul style="list-style-type: none"> • Downturn LGD (consistent with losses we would expect to suffer during a severe but plausible economic downturn) • Regulatory floors may apply to mitigate risk of underestimating downturn LGD due to lack of historical data • Discounted using cost of capital • All collection costs included 	<ul style="list-style-type: none"> • Expected LGD (based on estimate of loss given default including the expected impact of future economic conditions such as changes in value of collateral) • No floors • Discounted using the original effective interest rate of the loan • Only costs associated with obtaining/selling collateral included
Other		<ul style="list-style-type: none"> • Discounted back from point of default to balance sheet date

Wholesale risk

The wholesale risk rating system

This section describes how we operate our credit risk analytical models and use IRB metrics in the wholesale customer business.

PDs for wholesale customer segments (that is central governments and central banks, financial institutions and corporate customers) and for certain individually assessed personal customers are derived from a customer risk rating ('CRR') master scale of 23 grades. Of these, 21 are non-default grades representing varying degrees of strength of financial condition, and two are default grades. Each CRR has a PD range associated with it as well as a mid-point PD.

The score generated by a credit risk rating model for the obligor is mapped to a corresponding PD and master-scale CRR. The CRR is then reviewed by a credit approver who, taking into account information such as the most recent events and market data, makes the final decision on the rating. The rating assigned reflects the approver's overall view of the obligor's credit standing.

The mid-point PD associated with the finally assigned CRR is then used in the regulatory capital calculation.

Relationship managers may propose a different CRR from that indicated through an override process which must be approved by the Credit function. Overrides for each model are recorded and monitored as part of the model management process.

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The CRR is assigned at an obligor level, which means that separate exposures to the same obligor are generally subject to a single, consistent rating. Unfunded credit risk mitigants, such as guarantees, may also influence the final assignment of a CRR to an obligor. The effect of unfunded risk mitigants is considered for IRB and standardised approaches in Table 42.

If an obligor is in default on any material credit obligation to the Group, all of the obligor's facilities from the Group are considered to be in default.

Under the IRB approach, obligors are grouped into grades that have similar PD or anticipated default frequency. The anticipated default frequency may be estimated using all relevant information at the relevant date (PIT rating system) or be free of the effects of the credit cycle (TTC rating system).

We generally utilise a hybrid approach of PIT and through the cycle ('TTC'). That is, while models are calibrated to long-run default rates, obligor ratings are reviewed annually, or more frequently if necessary, to reflect changes in their circumstances and/or their economic operating environment.

Our policy requires approvers to downgrade ratings on expectations, but to upgrade them only on performance. This leads to expected defaults typically exceeding actual defaults.

For EAD and LGD estimation, operating entities are permitted, subject to overview by Group Risk, to use their own modelling approaches to suit conditions in their jurisdictions. Group Risk provides co-ordination, benchmarks, and promotion of best practice on EAD and LGD estimation.

EAD is estimated to a 12-month forward time horizon and represents the current exposure, plus an estimate for future increases in exposure and the realisation of contingent exposures post-default.

LGD is based on the effects of facility and collateral structure on outcomes post-default. This includes such factors as the type of client, the facility seniority, the type and value of collateral, past recovery experience and priority under law. It is expressed as a percentage of EAD.

Wholesale models

To determine credit ratings for the different types of wholesale obligor, multiple models and scorecards are used for PD, LGD, and EAD. These models may be differentiated by region, customer segment and/or customer size. For example, we have separate PD models for all of our key customer segments, including sovereigns, financial institutions, and large, medium and small-sized corporates.

Global PD models have been developed for asset classes, or clearly identifiable segments of asset classes, where the customer relationship is managed globally; for example, sovereigns, financial institutions and the largest corporate clients that typically operate internationally.

Local PD models, specific to a particular country, region, or sector, are developed for other obligors. These include corporate clients when they show distinct characteristics in common in a particular geography.

The two major drivers of model methodology are the nature of the portfolio and the availability of internal or external data on historical defaults and risk factors. For some historically low-default portfolios, e.g. sovereign and financial institutions, a model will rely more heavily on external data and/or the input of an expert panel. Where sufficient data is available, models are built on a statistical basis, although the input of expert judgement may still form an important part of the overall model development methodology.

Most LGD and EAD models are developed according to local circumstances, considering legal and procedural differences in the recovery and workout processes. Our approach to EAD and LGD also encompasses global models for central governments and central banks, and for institutions, as exposures to these customer types are managed centrally by Global Risk. The PRA requires all firms to apply an LGD floor of 45% for senior unsecured exposure

to sovereign entities. This floor was applied to reflect the relatively few loss observations across all firms in relation to these obligors. This floor is applied for the purposes of regulatory capital reporting.

The PRA has published guidance on the appropriateness of LGD models for low default portfolios. It states there should be at least 20 defaults per country per collateral type for LGD models to be approved. Where there are insufficient defaults, an LGD floor will be applied. As a result, in 2020, we continued to apply LGD floors for our banks portfolio and some Asian corporate portfolios where there were insufficient loss observations.

The PRA has also indicated that it considers income-producing real estate to be an asset class that would be difficult to model. As a result, RWAs for our UK CRE portfolio and US income-producing CRE portfolio are calculated using the supervisory slotting approach. Under the supervisory slotting approach the bank allocates exposures to one of five categories. Each category then receives a fixed pre-determined RWA and EL percentage.

Local models for the corporate exposure class are developed using various data inputs, including collateral information and geography (for LGD) and product type (for EAD). The most material corporate models are the UK and Asian models, all of which are developed using more than 10 years' data. The LGD models are calibrated to a period of credit stress or downturn in economic conditions.

None of our EAD models is calibrated for a downturn, as analysis shows that utilisation decreases during a downturn because credit stress is accompanied by more intensive limit monitoring and facility reduction.

Table 45 sets out the key characteristics of the significant wholesale credit risk models that drive the capital calculation split by regulatory wholesale asset class, with their associated RWAs, including the number of models for each component, the model method or approach and the number of years of loss data used.

See page 28 for information on our response to the Covid-19 outbreak.

Table 45: Wholesale IRB credit risk models

Portfolio	IRB exposure class	RWA \$bn	Component model	Number of material component models	Model description and methodology	Number of years loss data	Regulatory Floors
Sovereign	Central government and central banks, Institutions, Corporates – Others	44.5	PD	1	A shadow rating approach that includes macroeconomic and political factors, constrained with expert judgement.	>10	No
			LGD	1	An unsecured model built on assessment of structural factors that influence the country's long-term economic performance. For senior unsecured LGD, a floor of 45% is applied.	8	Floored at Foundation IRB
			EAD	1	A cross-classification model that uses both internal data and expert judgement, as well as information on similar exposure types from other asset classes.	8	EAD must be at least equal to the current utilisation of the balance at account level
Banking institutions	Institutions	11.8	PD	1	A statistical model that combines quantitative analysis on financial information with expert inputs and macroeconomic factors.	10	PD >0.03%
			LGD	1	A quantitative model that produces both downturn and expected LGD. Several securities types are included in the model to recognise collateral in the LGD calculation. For senior unsecured LGD, a floor of 45% is applied.	10	Floored at Foundation IRB
			EAD	1	A quantitative model that assigns credit conversion factors ('CCF') taking into account product types and committed/uncommitted indicator to calculate EAD using current utilisation and available headroom.	10	EAD must be at least equal to the current utilisation of the balance at account level
Corporates ¹ Large corporates		345.8	PD	1	A statistical model built on 15 years of data. The model uses financial information, macroeconomic information and market-driven data, and is complemented by a qualitative assessment.	15	PD >0.03%
			PD	10	Corporates that fall below the global large corporate threshold are rated through regional/local PD models, which reflect regional/local circumstances. These models use financial information, behavioural data and qualitative information to derive a statistically built PD.	>10	
			PD	10	Predominantly statistical models that combine quantitative analysis on financial information with expert inputs.	10	PD >0.03%
Non-banks financial institutions	Corporates – Other, institutions		LGD	6	Regional/local statistical models covering all corporates, including global large corporates, developed using historical loss/recovery data and various data inputs, including collateral information, customer type and geography.	>7	UK corporate LGD moved to Foundation IRB
All corporates			EAD	5	Regional/local statistical models covering all corporates, including global large corporates, developed using historical utilisation information and various data inputs, including product type and geography.	>7	EAD must be at least equal to the current utilisation of the balance at account level

¹ Excludes specialised lending exposures subject to supervisory slotting approach (see Table 78).

Table 46: IRB models – estimated and actual values (wholesale)¹

	Footnotes	PD ²		LGD ³		EAD ⁴	
		Estimated %	Actuals %	Estimated ⁵ %	Actuals ⁵ %	Estimated %	Actuals %
2020							
– Sovereigns model	5	1.99	0.92	45.00		0.06	0.06
– Banks model		1.30	0.33	82.88			
– Corporates models	6	1.49	1.11	26.66	24.49	0.71	0.61
2019							
– Sovereigns model	5	2.01	–	–	–	–	–
– Banks model		1.09	–	–	–	–	–
– Corporates models	6	1.53	1.05	33.23	25.37	0.42	0.31
2018							
– Sovereigns model	5	2.37	–	–	–	–	–
– Banks model		1.31	–	–	–	–	–
– Corporates models	6	1.61	0.87	30.47	16.60	0.38	0.33

1 Data represents an annual view, analysed at 30 September.

2 Estimated PD for all models in each asset class, calculated on the total number of obligors covered by the models. Actual numbers are the observed default rate in each asset class for the specified period.

3 Estimated and actual LGD represent defaulted populations. Average LGD values are EAD-weighted.

4 Expressed as a percentage of total EAD, which includes all defaulted and non-defaulted exposures for the relevant population.

5 The estimated PD excludes inactive sovereign obligors.

6 Covers the combined populations of the global large corporates model, all regional IRB models for large, medium and small corporates, and non-bank financial institutions. The estimated and observed PDs were calculated only for unique obligors.

Retail risk

Retail risk rating systems

Due to the different country-level portfolio performance characteristics and loss history, there are no global models for our retail portfolios. Across the Group, over 100 models are used with the PRA's approval under our IRB permission.

Table 44 sets out the key characteristics of significant retail credit risk models that drive the capital calculation, consistent with those shown in the previous year. The table presents regulatory retail asset class, the associated RWAs, the number of models for each component, the model method or approach and the number of years of loss data used. The RWAs of \$51.3bn represent 61% of the total retail IRB RWA.

PD models are developed using statistical estimation based on a minimum of five years of historical data. The modelling approach is typically inherently TTC. Where models are developed based on a PIT approach (as in the UK), the model outputs become effectively TTC through the application of buffer or model adjustments as agreed with the PRA.

EAD models are also developed using at least five years of historical observations and typically adopt one of two approaches:

- For closed-end products without the facility for additional drawdowns, EAD is estimated as the outstanding balance of accounts at the time of observation.
- For products with the facility for additional drawdowns, EAD is estimated as the outstanding balance of accounts at the time of observation plus a credit conversion factor applied to the undrawn portion of the facility.

LGD estimates have more variation, particularly in respect of the time period that is used to quantify economic downturn assumptions.

Table 47: Retail IRB risk rating systems

Portfolio	Exposure class	RWA \$bn	Component model	Number of material component models	Model description and methodology	Number of years loss data ¹	Applicable Pillar 1 regulatory thresholds and overlays
UK HSBC residential mortgages	Retail – secured by mortgages on immovable property non-SME	7.23	PD	1	Statistical model built on internal behavioural data and bureau information. Underlying PIT model is calibrated to the latest observed PD. An adjustment is then applied to generate the long-run PD based on a combination of historical misalignment of the underlying model and expert judgement.	7–10	PD floor of 0.03%
			LGD	1	Component based model incorporating, 'possession given default', 'predicted shortfall' and 'time to possession'. A downturn adjustment is applied to each component including a 30% reduction from peak house valuation and a 10% adjustment to forced sale haircut.	>10	LGD floor of 10% at portfolio level
			EAD	1	EAD is equal to the sum of balance at observation plus further unpaid interest that could accrue before default.	7–10	EAD must at least be equal to current balance
UK First Direct residential mortgages	Retail – secured by mortgages on immovable property non-SME	0.83	PD	1	Underlying PIT PD model is a segmented scorecard. An adjustment is then applied based on observed misalignment in the underlying model (with some additional conservatism applied).	7–10	PD floor of 0.03%
			LGD	1	Component based model incorporating, 'possession given default', 'predicted shortfall' and 'time to possession'. A downturn adjustment is applied to each component including a 30% reduction from peak house valuation and a 10% adjustment to forced sale haircut.	>10	LGD floor of 10% at portfolio level
			EAD	2	There are two separate EAD models – one for standard capital repayment mortgages and one for offset mortgages which offer a revolving loan facility.	7–10	EAD must at least be equal to current balance
UK HSBC credit cards	Retail – qualifying revolving	2.83	PD	1	Statistical model built on internal behavioural data and bureau information. Underlying PIT model is calibrated to the latest observed PD. An adjustment is then applied to generate the long-run PD based on historical observed misalignment of the underlying model.	7–10	PD floor of 0.03%
			LGD	1	Statistical model based on forecasting the amount of expected future recoveries, segmented by default status.	7–10	
			EAD	1	Statistical model that directly estimates EAD for different segments of the portfolio using either balance or limit as the key input.	7–10	EAD must at least be equal to current balance
UK HSBC personal loans	Retail – other non-SME	5.16	PD	1	Statistical model built on internal behavioural data and bureau information. Underlying PIT model is calibrated to the latest observed PD. An adjustment is then applied to generate the long-run PD based on historical observed misalignment of the underlying model.	7–10	PD floor of 0.03%
			LGD	1	Statistical model based on forecasting the amount of expected future recoveries, segmented by default status.	7–10	
			EAD	1	EAD is equal to current balance as this provides a conservative estimate.	7–10	EAD must at least be equal to current balance

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Table 47: Retail IRB risk rating systems (continued)

Portfolio	Exposure class	RWA \$bn	Component model	Number of material component models	Model description and methodology	Number of years loss data ¹	Applicable Pillar 1 regulatory thresholds and overlays
UK business banking	Retail – other SME	3.02	PD	1	Statistical model built on internal behavioural data and bureau information. Underlying PIT model is calibrated to the latest observed PD. An adjustment is then applied to generate the long run PD based on historical observed misalignment of the underlying model.	7–10	PD floor of 0.03%
			LGD	2	Two sets of models – one for secured exposures and another for unsecured exposures. The secured model uses the value to loan as a key component for estimation and the unsecured model estimates the amount of future recoveries and undrawn portion.	7–10	
			EAD	1	Statistical model using segmentation according to limit and utilisation and estimation of the undrawn exposure.	7–10	EAD must at least be equal to current balance
Hong Kong HSBC personal residential mortgages ²	Retail – secured by mortgages on immovable property non-SME	13.63	PD	2	Statistical model built on internal behavioural data and bureau information, and calibrated to a long-run default rate.	>10	PD floor of 0.03%
			LGD	2	Statistical model based on estimate of loss incurred over a recovery period derived from historical data with downturn LGD based on the worst observed default rate.	>10	LGD floor of 10% at portfolio level
			EAD	2	Rule-based calculation based on current balance, which provides a conservative estimate of EAD.	>10	EAD must at least be equal to current balance
Hong Kong Hang Seng personal residential mortgages	Retail – secured by mortgages on immovable property non-SME	8.41	PD	2	Statistical model built on internal behavioural data, and calibrated to a long-run default rate.	>10	PD floor of 0.03%
			LGD	2	Two statistical models and one historical average model based on estimates of loss incurred over a recovery period derived from historical data with a downturn adjustment.	>10	LGD floor of 10% at portfolio level
			EAD	2	Rule-based calculation based on current balance, which provides a conservative estimate of EAD.	>10	EAD must at least be equal to current balance
Hong Kong HSBC credit cards	Retail – qualifying revolving	3.94	PD	1	Statistical model built on internal behavioural data and bureau information, and calibrated to a long-run default rate.	>10	PD floor of 0.03%
			LGD	1	Statistical model based on forecasting the amount of expected losses. Downturn LGD derived using data from the period with the highest default rate.	>10	
			EAD	1	Statistical model that derives a credit utilisation which is used to estimate EAD.	>10	EAD must at least be equal to current balance
Hong Kong HSBC personal instalment loans	Retail – other non-SME	1.04	PD	1	Statistical model built on internal behavioural data and bureau information, and calibrated to a long-run default rate.	>10	PD floor of 0.03%
			LGD	1	Statistical model based on forecasting the amount of expected future losses. Downturn LGD derived using data from the period with the highest default rate.	>10	
			EAD	1	Statistical model that derives a credit conversion factor to determine the proportion of undrawn limit to be added to the balance at observation.	>10	EAD must at least be equal to current balance
US HSBC personal first lien residential mortgages ³	Retail – secured by mortgages on immovable property non-SME	5.18	PD	1	Statistical model built on internal behavioural data and bureau information, and calibrated to a long-run default rate.	>10	PD floor of 0.03%
			LGD	1	Statistical model based on identifying the main risk drivers of loss and recovery and grouping them into homogeneous pools. Downturn LGD is derived based on the peak default rate observed. Additional assumptions and estimations are made on incomplete workouts.	>10	LGD floor of 10% at portfolio level
			EAD	1	Rule-based calculation based on current balance which provides a conservative estimate of EAD.	>10	EAD must at least be equal to current balance

1 Defined as the number of years of historical data used in model development and estimation.

2 The Hong Kong Monetary Authority ('HKMA') applies a risk weight floor of 25% to all residential mortgages booked after 19 May 2017 (previously 15%).

3 In US mortgage business, first lien is a primary claim on a property that takes precedence over all subsequent claims and will be paid first from the proceeds in case of the property's foreclosure sale.

Retail credit models

Given the large number of retail IRB models globally, we disclose information on our significant local models. The actual and estimated values are derived from local model monitoring and calibration processes. Within the discipline of our global modelling policies, our analytics teams adopt back-testing criteria specific to local conditions in order to assess the accuracy of their models.

Table 48 presents estimated and actual values from the back-testing of significant IRB models covering portfolios in the UK, Hong Kong, and the residential mortgage portfolio in the US. The most recent three years have been included for comparative purposes. In the table:

- PD presented is expressed on an obligor count basis consisting of non-defaulted obligors at the time of observation and
- LGD and EAD refer to observations for the defaulted population.

The LGD values represent the amount of loss as a percentage of EAD, and are calculated based on defaulted accounts that were fully resolved or have completed the modelled recovery outcome period at the reporting date. The EAD values of the defaulted exposures are presented as a percentage of the total EAD, which includes all defaulted and non-defaulted exposures for the relevant population. The regulatory PD and LGD floors (0.03% and 10%

respectively) are only applied during final capital calculation and are not reflected in the estimates below.

For our UK residential mortgage portfolios, the estimates include required regulatory downturn adjustments. In conducting the back-testing, our UK residential mortgage LGD models consider repossession rates over a 36-month period starting at the date of default. For both our HSBC and First Direct branded residential mortgages, estimates and actual values for PD remained low and stable in 2020, LGD estimates have decreased since previous year, due to accounts moving to lower LGD bands. HSBC Personal loans LGD actuals have increased from previous year as accounts are in later collection bands due to the pause in write off during 2020.

The Hong Kong estimated LGD values in Table 48 include required stressed factors to reflect downturn conditions. The LGD models for our Hong Kong HSBC and Hang Seng residential mortgage portfolios use a recovery outcome period of 24 months starting at the date of default. For both portfolios, LGD estimates remain higher than the calculated actual values but below the 10% regulatory floor.

The US estimates in Table 48 include downturn adjustments and model overlays agreed with the PRA. The LGD models use a recovery outcome period of 36 months, reflecting the recovery process due to foreclosure moratoria. LGD estimates and actual values remained stable in 2020.

Table 48: IRB models – estimated and actual values (retail)¹

	PD		LGD		EAD	
	Estimated %	Actuals %	Estimated %	Actuals %	Estimated %	Actuals %
2020						
UK						
– HSBC residential mortgage	0.32	0.31	7.94	0.32	0.25	0.24
– FD residential mortgages	0.39	0.29	5.94	1.74	0.83	0.64
– HSBC credit card	1.08	1.25	91.30	88.71	1.77	1.69
– HSBC personal loans	2.99	2.67	84.31	71.14	2.89	2.70
– Business Banking (Retail SME)	2.86	2.45	78.06	58.03	2.26	1.93
Hong Kong						
– HSBC personal residential mortgage	0.59	0.04	2.89	1.32	0.05	0.05
– Hang Seng personal residential mortgage	0.38	0.12	1.98	0.73	0.12	0.12
– HSBC credit card	0.51	0.24	87.05	75.52	0.45	0.48
– HSBC personal instalment loans	2.07	1.59	88.77	81.97	1.37	1.15
US						
US – HSBC personal first lien residential mortgage	1.27	0.46	49.62	21.62	0.38	0.37
2019						
UK						
– HSBC residential mortgage	0.33	0.29	9.17	0.32	0.29	0.28
– FD residential mortgages	0.42	0.34	7.42	1.85	0.93	0.74
– HSBC credit card	1.06	1.05	91.29	88.58	1.51	1.48
– HSBC personal loans	2.54	2.19	83.61	61.79	2.26	2.10
– Business Banking (Retail SME)	2.95	2.92	78.23	55.48	2.54	2.31
Hong Kong						
– HSBC personal residential mortgage	0.60	0.03	1.58	1.21	0.02	0.02
– Hang Seng personal residential mortgage	0.37	0.10	4.52	1.03	0.07	0.07
– HSBC credit card	0.53	0.20	89.06	78.37	0.38	0.40
– HSBC personal instalment loans	2.13	1.31	88.92	84.70	1.06	0.92
US						
US – HSBC personal first lien residential mortgage	1.54	0.54	51.01	18.24	0.30	0.29
2018						
UK						
– HSBC residential mortgage	0.40	0.27	9.60	0.38	0.27	0.25
– FD residential mortgages	0.45	0.38	8.19	2.07	1.05	0.86
– HSBC credit card	1.01	0.97	88.75	85.15	1.42	1.40
– HSBC personal loans	2.13	1.88	84.84	87.97	1.83	1.75
– Business Banking (Retail SME)	2.83	2.86	78.56	71.56	2.30	2.09
Hong Kong						
– HSBC personal residential mortgage	0.70	0.02	2.87	1.70	0.02	0.02
– Hang Seng personal residential mortgage	0.39	0.09	5.99	0.84	0.08	0.08
– HSBC credit card	0.57	0.24	87.92	75.98	0.40	0.42
– HSBC personal instalment loans	2.27	1.47	89.01	83.73	1.24	1.10
US						
US – HSBC personal first lien residential mortgage	1.71	0.69	52.06	21.69	0.43	0.42

¹ Data represents an annual view, analysed at 30 September.

Model performance

Model validation is subject to global internal standards designed to support a comprehensive quantitative and qualitative process within a cycle of model monitoring and validation that includes:

- investigation of model stability;
- measuring model performance by comparing the model's outputs against actual outcomes; and
- reviewing model use within the business, e.g. user input data quality, override activity and the assessment of results from key controls around the usage of the rating system as a whole within the overall credit process.

Models are monitored against a series of metrics and triggers are approved by relevant parties. Model performance metrics, and any material remedial actions in the event of a trigger breach, are

reported at the Wholesale and WPB Global MOFs. We also disclose model performance reports for our IRB models to our lead regulator, the PRA, quarterly.

Further information is available on page 188 of the Annual Report and Accounts 2020.

A large number of models are used within the Group, and data at individual model level is, in most cases, immaterial in the context of the overall Group. We therefore disclose data covering most wholesale models, including corporate models on an aggregated basis, and on the significant retail models.

Tables 49 and 50 below validate the reliability of PD calculations by comparing the PD used in IRB calculations with actual default experience. In Table 50, a customer's PD is observed at a PIT and their default or non-default status in the following one-year period is recorded against that PD grade.

See page 28 for information on our response to the Covid-19 outbreak.

Table 49: Wholesale IRB exposure – back-testing of probability of default (PD) per portfolio¹ (CR9)

PD range	External rating equivalent (S&P)	External rating equivalent (Moody's)	External rating equivalent (Fitch)	Weighted average PD %	Arithmetic average PD by obligors %	Number of obligors		Defaulted obligors in the year	of which: new defaulted obligors in the year	Average historical annual default rate %
						End of previous year ²	End of the year			
2020										
Sovereigns²										
0.00 to <0.15	AAA to A-	Aaa to Baa1	AAA to BBB+	0.02	0.03	55	55	–	–	–
0.15 to <0.25	BBB+	Baa2	BBB	0.22	0.22	6	4	–	–	–
0.25 to <0.50	BBB	Baa3	BBB-	0.37	0.37	12	11	–	–	–
0.50 to <0.75	BBB-	Baa3	BBB-	0.63	0.63	3	4	–	–	–
0.75 to <2.50	BB+ to BB-	Ba1 to B1	BB+ to B+	1.41	1.25	15	18	–	–	–
2.5 to <10.00	B+ to B-	B2 to Caa1	B to CCC+	7.51	4.65	13	10	–	–	–
10.00 to <100.00	CCC+ to C	Caa1 to C	CCC to C	25.87	25.60	5	3	1	–	6.43
Banks										
0.00 to <0.15	AAA to A-	Aaa to Baa1	AAA to BBB+	0.04	0.07	287	278	–	–	–
0.15 to <0.25	BBB+	Baa2	BBB	0.22	0.22	71	66	–	–	–
0.25 to <0.50	BBB	Baa3	BBB-	0.37	0.37	49	45	–	–	–
0.50 to <0.75	BBB-	Baa3	BBB-	0.63	0.63	50	50	–	–	–
0.75 to <2.50	BB+ to BB-	Ba1 to B1	BB+ to B+	1.08	1.25	91	91	–	–	–
2.5 to <10.00	B+ to B-	B2 to Caa1	B to CCC+	3.58	4.73	42	42	1	–	0.43
10.00 to <100.00	CCC+ to C	Caa1 to C	CCC to C	13.53	16.63	24	21	1	–	4.46
Corporates										
0.00 to <0.15	AAA to A-	Aaa to Baa1	AAA to BBB+	0.08	0.11	13,636	12,531	24	4	0.05
0.15 to <0.25	BBB+	Baa2	BBB	0.22	0.22	12,946	11,752	17	2	0.12
0.25 to <0.50	BBB	Baa3	BBB-	0.37	0.37	13,247	11,202	49	7	0.25
0.50 to <0.75	BBB-	Baa3	BBB-	0.63	0.63	12,377	11,945	49	12	0.35
0.75 to <2.50	BB+ to BB-	Ba1 to B1	BB+ to B+	1.31	1.41	33,868	35,437	337	37	0.86
2.5 to <10.00	B+ to B-	B2 to Caa1	B to CCC+	4.21	4.26	13,109	15,699	481	36	3.14
10.00 to <100.00	CCC+ to C	Caa1 to C	CCC to C	15.83	16.97	1,734	2,437	292	31	13.53

Table 49: Wholesale IRB exposure – back-testing of probability of default (PD) per portfolio¹ (CR9) (continued)

PD range	External rating equivalent (S&P)	External rating equivalent (Moody's)	External rating equivalent (Fitch)	Weighted average PD %	Arithmetic average PD by obligors %	Number of obligors		Defaulted obligors in the year	of which: new defaulted obligors in the year	Average historical annual default rate %
						End of previous year ³	End of the year			
2019										
Sovereigns ²										
0.00 to <0.15	AAA to A-	Aaa to Baa1	AAA to BBB+	0.02	0.04	53	54	—	—	—
0.15 to <0.25	BBB+	Baa2	BBB	0.22	0.22	6	7	—	—	—
0.25 to <0.50	BBB	Baa3	BBB-	0.37	0.37	8	8	—	—	—
0.50 to <0.75	BBB-	Baa3	BBB-	0.63	0.63	7	6	—	—	—
0.75 to <2.50	BB+ to BB-	Ba1 to B1	BB+ to B+	2.05	1.38	21	16	—	—	—
2.5 to <10.00	B+ to B-	B2 to Caa1	B to CCC+	5.65	4.81	21	22	—	—	—
10.00 to <100.00	CCC+ to C	Caa1 to C	CCC to C	36.00	17.33	6	7	—	—	1.79
Banks										
0.00 to <0.15	AAA to A-	Aaa to Baa1	AAA to BBB+	0.05	0.08	268	287	—	—	—
0.15 to <0.25	BBB+	Baa2	BBB	0.22	0.22	62	71	—	—	—
0.25 to <0.50	BBB	Baa3	BBB-	0.37	0.37	61	49	—	—	—
0.50 to <0.75	BBB-	Baa3	BBB-	0.63	0.63	47	50	—	—	—
0.75 to <2.50	BB+ to BB-	Ba1 to B1	BB+ to B+	1.11	1.31	102	91	—	—	—
2.5 to <10.00	B+ to B-	B2 to Caa1	B to CCC+	4.17	4.59	54	42	—	—	0.09
10.00 to <100.00	CCC+ to C	Caa1 to C	CCC to C	12.67	11.77	17	24	—	—	1.40
Corporates										
0.00 to <0.15	AAA to A-	Aaa to Baa1	AAA to BBB+	0.08	0.11	12,916	13,575	12	—	0.03
0.15 to <0.25	BBB+	Baa2	BBB	0.22	0.22	12,147	12,808	19	—	0.11
0.25 to <0.50	BBB	Baa3	BBB-	0.37	0.37	11,998	12,911	24	—	0.23
0.50 to <0.75	BBB-	Baa3	BBB-	0.63	0.63	10,844	11,926	29	3	0.41
0.75 to <2.50	BB+ to BB-	Ba1 to B1	BB+ to B+	1.38	1.42	33,473	32,750	262	36	0.86
2.5 to <10.00	B+ to B-	B2 to Caa1	B to CCC+	4.15	4.25	12,978	12,999	556	77	3.05
10.00 to <100.00	CCC+ to C	Caa1 to C	CCC to C	21.94	18.42	1,571	1,723	234	16	13.29

¹ Data represents an annual view, analysed at 30 September.

² The CRR to external ratings mapping has been updated for Sovereign portfolios to reflect the current CRR master scale.

³ Back-testing is conducted on the basis of the opening count of obligors not in default in each year. Obligor who default during the year are excluded from the opening count for the following year.

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Table 50: Retail IRB exposure – back-testing of probability of default (PD) per portfolio¹ (CR9)

PD range	Weighted average PD	Arithmetic average PD by obligors	Number of obligors		Defaulted obligors in the year	of which: new defaulted obligors in the year	Average historical annual default rate
			End of previous year ²	End of the year			
2020							
Retail – Secured by real estate non-SME							
0.00 to <0.15	0.06	0.06	745,923	780,799	329	4	0.04
0.15 to <0.25	0.19	0.19	85,507	88,969	88	4	0.10
0.25 to <0.50	0.34	0.34	77,798	77,778	158	2	0.17
0.50 to <0.75	0.59	0.59	25,684	24,764	57	–	0.21
0.75 to <2.50	1.31	1.38	57,308	57,710	247	5	0.40
2.50 to <10.00	4.17	4.21	17,100	14,957	382	2	1.94
10.00 to <100.00	25.02	22.33	6,034	4,000	1,215	18	17.58
Retail – qualifying revolving							
0.00 to <0.15	0.06	0.07	3,343,613	3,337,320	2,007	65	0.05
0.15 to <0.25	0.19	0.19	826,150	844,072	997	49	0.10
0.25 to <0.50	0.36	0.36	730,721	754,545	1,815	52	0.20
0.50 to <0.75	0.61	0.62	348,279	350,203	1,630	27	0.36
0.75 to <2.50	1.35	1.32	738,705	781,923	8,278	176	0.84
2.50 to <10.00	4.57	4.40	206,266	199,402	9,182	289	3.44
10.00 to <100.00	33.11	32.31	63,725	36,518	20,994	33	24.57
Retail – other non-SME							
0.00 to <0.15	0.07	0.13	1,070	7,706	9	9	0.15
0.15 to <0.25	0.17	0.17	107,089	79,291	234	33	0.16
0.25 to <0.50	0.43	0.43	52,301	103,703	348	165	0.30
0.50 to <0.75	0.61	0.62	87,990	101,962	683	141	0.58
0.75 to <2.50	1.36	1.36	218,614	184,832	3,195	400	1.24
2.50 to <10.00	4.47	4.60	108,740	72,834	4,820	148	4.11
10.00 to <100.00	36.23	36.69	23,584	11,738	7,171	21	33.60
Retail – other SME							
0.00 to <0.15	0.11	0.10	68,389	66,942	43	1	0.05
0.15 to <0.25	0.21	0.20	44,216	43,367	66	1	0.12
0.25 to <0.50	0.37	0.37	122,285	121,495	476	6	0.32
0.50 to <0.75	0.61	0.61	106,310	106,048	611	7	0.53
0.75 to <2.50	1.53	1.37	244,412	246,669	3,100	57	1.24
2.50 to <10.00	4.77	4.68	145,115	157,113	5,656	137	3.90
10.00 to <100.00	20.55	22.64	47,976	57,117	9,358	30	16.65

Table 50: Retail IRB exposure – back-testing of probability of default (PD) per portfolio¹ (CR9) (continued)

PD range	Weighted average PD	Arithmetic average PD by obligors	Number of obligors		Defaulted obligors in the year	of which: new defaulted obligors in the year	Average historical annual default rate
			End of previous year ²	End of the year			
2019							
Retail – Secured by real estate non-SME							
0.00 to <0.15	0.06	0.06	727,744	762,489	269	2	0.04
0.15 to <0.25	0.19	0.19	65,933	71,284	63	2	0.09
0.25 to <0.50	0.35	0.35	65,548	70,656	99	2	0.13
0.50 to <0.75	0.59	0.59	26,743	27,154	65	–	0.21
0.75 to <2.50	1.31	1.38	54,654	61,885	245	2	0.38
2.50 to <10.00	4.19	4.25	16,580	15,967	358	–	1.80
10.00 to <100.00	26.39	21.52	6,301	3,852	1,196	16	17.19
Retail – qualifying revolving							
0.00 to <0.15	0.06	0.06	3,219,726	3,328,050	1,483	67	0.05
0.15 to <0.25	0.19	0.19	776,922	811,125	796	31	0.10
0.25 to <0.50	0.36	0.36	692,096	737,010	1,365	46	0.20
0.50 to <0.75	0.61	0.62	330,981	349,945	1,174	44	0.35
0.75 to <2.50	1.35	1.33	717,012	755,881	6,253	196	0.81
2.50 to <10.00	4.58	4.35	216,958	228,896	7,665	279	3.25
10.00 to <100.00	29.90	29.24	60,952	47,671	17,756	33	22.75
Retail – other non-SME							
0.00 to <0.15	0.13	0.13	34,493	46,360	57	14	0.15
0.15 to <0.25	0.18	0.17	119,005	108,191	220	25	0.14
0.25 to <0.50	0.39	0.39	70,521	130,566	303	127	0.27
0.50 to <0.75	0.58	0.58	35,026	57,295	301	93	0.52
0.75 to <2.50	1.33	1.34	199,214	185,914	2,631	444	1.18
2.50 to <10.00	4.23	4.54	77,263	61,559	3,563	265	3.70
10.00 to <100.00	37.52	37.19	18,396	8,894	5,864	22	34.92
Retail – other SME							
0.00 to <0.15	0.10	0.10	59,060	57,074	29	–	0.05
0.15 to <0.25	0.21	0.20	49,952	49,148	52	2	0.16
0.25 to <0.50	0.39	0.38	120,086	118,700	414	7	0.34
0.50 to <0.75	0.61	0.61	97,307	99,368	578	6	0.63
0.75 to <2.50	1.51	1.34	269,122	273,060	3,736	96	1.43
2.50 to <10.00	4.79	4.68	159,675	155,791	7,440	212	4.06
10.00 to <100.00	20.75	22.90	50,282	42,171	11,718	94	17.16

¹ Data represents an annual view, analysed at 30 September.

² Back-testing is conducted on the basis of the opening count of obligors not in default in each year. Obligor who default during the year are excluded from the opening count for the following year.

Counterparty credit risk

Counterparty credit risk management

Counterparty credit risk ('CCR') arises for derivatives and SFTs. It is calculated in both the trading and non-trading books, and is the risk that a counterparty may default before settlement of the transaction. CCR is generated primarily in our wholesale global businesses.

Four approaches may be used under CRD IV to calculate exposure values for CCR: mark-to-market, original exposure, standardised and IMM. Exposure values calculated under these approaches are used to determine RWAs. Across the Group, we use the mark-to-market and IMM approaches.

Under the mark-to-market approach, the EAD is calculated as current exposure plus regulatory add-ons. We use this approach for all products not covered by our IMM permission. Under the IMM approach, EAD is calculated by multiplying the effective expected positive exposure with a multiplier called 'alpha'.

Alpha (set to a default value of 1.4) accounts for several portfolio features that increase EL above that indicated by effective expected positive exposure in the event of default, such as:

- co-variance of exposures;
- correlation between exposures and default;
- level of volatility/correlation that might coincide with a downturn;

- concentration risk; and
- model risk.

The effective expected positive exposure is derived from simulation, pricing and aggregation internal models approved by regulators. The IMM model is subject to ongoing model validation including monthly model performance monitoring.

From a risk management perspective, products not covered by IMM are subject to conservative asset class add-ons, in addition to daily monitoring of credit limit utilisation.

The potential future exposure ('PFE') measures used for CCR management are calibrated to the 95th percentile. The measures consider volatility, trade maturity and the counterparty legal documentation covering netting and collateral.

Limits for CCR exposures are assigned within the overall credit process. The credit risk function assigns a limit against each counterparty to cover exposure which may arise as a result of a counterparty default. The magnitude of this limit will depend on the overall risk appetite and type of derivatives and SFT trading undertaken with the counterparty.

The models and methodologies used in the calculation of CCR are overseen and monitored by the Traded Risk Model Oversight Forum. Models are subject to ongoing monitoring and validation. Additionally, they are subject to independent review at inception and annually thereafter.

Table 51: Analysis of counterparty credit risk exposure by approach (excluding centrally cleared exposures)¹ (CCR1)

	Replacement cost	Potential future exposure	Effective expected positive exposure	Multiplier	EAD post-CRM	RWAs
	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn
1 Mark-to-market	11.5	20.3			31.8	13.0
4 Internal Model Method			35.3	1.4	49.4	17.4
6 – of which: derivatives and long settlement transactions ²			35.3	1.4	49.4	17.4
9 Financial collateral comprehensive method (for SFTs)					52.5	8.3
11 Total at 31 Dec 2020	11.5	20.3	35.3	1.4	133.7	38.7
1 Mark to market	7.6	22.5	–	–	30.1	12.4
4 Internal Model Method	–	–	34.8	1.4	48.7	18.7
6 – of which: derivatives and long settlement transactions ²	–	–	34.8	1.4	48.7	18.7
9 Financial collateral comprehensive method (for SFTs)	–	–	–	–	50.4	7.9
11 Total at 31 Dec 2019	7.6	22.5	34.8	1.4	129.2	39.0

1 As the Group does not use the original exposure method, notional values are not reported.

2 Prior to the implementation of SA-CCR, exposures reported in this row will be those under the mark-to-market method.

Credit valuation adjustment

Credit valuation adjustments ('CVA') represent the risk of loss as a result of adverse changes to the credit quality of counterparties in derivative transactions. Where we have both specific risk VaR approval and IMM approval for a product, the CVA VaR approach has been used to calculate the CVA capital charge.

Where we do not hold both approvals, the standardised approach has been applied. Certain counterparty exposures are exempt from CVA, such as non-financial counterparties and sovereigns.

Table 52: Credit valuation adjustment (CVA) capital charge (CCR2)

	At 31 Dec 2020		At 31 Dec 2019	
	EAD post-CRM	RWAs	EAD post-CRM	RWAs
	\$bn	\$bn	\$bn	\$bn
1 Total portfolios subject to the Advanced CVA capital charge	21.3	2.4	22.2	3.1
2 – VaR component (including the 3 × multiplier)		0.4		0.5
3 – stressed VaR component (including the 3 × multiplier)		2.0		2.6
4 All portfolios subject to the Standardised CVA capital charge	13.4	0.7	13.6	0.9
5 Total subject to the CVA capital charge	34.7	3.1	35.8	4.0

The following table presents information on the risk-weighting of CCR exposures under the standardised approach by regulatory portfolio. Further detail on the standardised approach is provided

on page 49. Information on exposures under the IRB approach can be found in Table 81 of Appendix I.

Table 53: Standardised approach – CCR exposures by regulatory portfolio and risk weights (CCR3)

Risk weight	0%	10%	20%	50%	75%	100%	150%	Others	Total credit exposure	of which: unrated
	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn
1 Central governments and central banks	7.9	–	0.1	–	–	–	–	–	8.0	–
2 Regional government or local authorities	2.7	–	–	–	–	–	–	–	2.7	–
6 Institutions	–	–	0.1	–	0.1	–	–	–	0.2	0.1
7 Corporates	–	–	–	–	1.8	–	–	–	1.8	1.6
Total at 31 Dec 2020	10.6	–	0.1	0.1	–	1.9	–	–	12.7	1.7
1 Central governments and central banks	8.8	–	–	–	–	–	–	–	8.8	–
2 Regional government or local authorities	2.5	–	–	–	–	–	–	–	2.5	–
6 Institutions	–	–	–	0.1	–	0.1	–	–	0.2	–
7 Corporates	–	–	–	–	–	2.1	–	–	2.1	1.9
Total at 31 Dec 2019	11.3	–	–	0.1	–	2.2	–	–	13.6	1.9

Collateral arrangements

Our policy is to revalue all traded transactions and associated collateral positions on a daily basis. An independent collateral management function manages the collateral process, including pledging and receiving collateral and investigating disputes and non-receipts.

Eligible collateral types are controlled under a policy to ensure price transparency, price stability, liquidity, enforceability, independence, reusability and eligibility for regulatory purposes.

A valuation 'haircut' policy reflects the fact that collateral may fall in value between the date the collateral was called and the date of liquidation or enforcement. Approximately 99% of collateral held as variation margin under CSAs is either cash or liquid government securities.

Further information on gross fair value exposure and the offset due to legally enforceable netting and collateral is set out on page 352 of the Annual Report and Accounts 2020.

Table 54: Impact of netting and collateral held on exposure values (CCR5-A)

	Gross positive fair value or net carrying amount	Netting benefits	Netted current credit exposure	Collateral held	Net credit exposure
	\$bn	\$bn	\$bn	\$bn	\$bn
1 Derivatives	602.5	442.6	159.9	60.8	99.1
2 SFTs	821.5	–	821.5	771.4	50.1
4 Total at 31 Dec 2020	1,424.0	442.6	981.4	832.2	149.2
1 Derivatives	595.4	442.8	152.6	51.9	100.7
2 SFTs	865.1	–	865.1	814.6	50.5
4 Total at 31 Dec 2019	1,460.5	442.8	1,017.7	866.5	151.2

Table 55: Composition of collateral for CCR exposure (CCR5-B)

	Collateral used in derivative transactions				Collateral used in SFTs	
	Fair value of collateral received		Fair value of posted collateral		Fair value of collateral received	Fair value of posted collateral
	Segregated	Unsegregated	Segregated	Unsegregated		
	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn
1 Cash – domestic currency	–	7.8	–	31.1	66.4	91.9
2 Cash – other currencies	–	58.8	–	76.6	238.5	364.3
3 Domestic sovereign debt	–	7.6	1.2	5.6	84.3	75.4
4 Other sovereign debt	–	7.0	1.8	11.4	330.7	232.2
5 Government agency debt	–	0.2	–	–	2.7	0.2
6 Corporate bonds	–	2.0	0.6	1.1	46.9	13.1
7 Equity securities	–	0.2	–	–	42.5	44.4
8 Other collateral	–	0.3	2.3	0.9	1.7	–
9 Total at 31 Dec 2020	–	83.9	5.9	126.7	813.7	821.5
1 Cash – domestic currency	–	6.8	–	7.8	57.4	98.6
2 Cash – other currencies	–	48.1	–	45.3	287.4	374.1
3 Domestic sovereign debt	–	7.3	0.5	6.4	90.4	64.7
4 Other sovereign debt	–	5.1	2.8	11.3	327.0	275.4
5 Government agency debt	–	0.2	–	0.1	6.5	1.0
6 Corporate bonds	–	1.0	0.7	0.3	47.2	10.5
7 Equity securities	–	0.2	0.2	–	39.1	40.6
8 Other collateral	–	0.2	2.8	1.6	1.7	0.2
9 Total at 31 Dec 2019	–	68.9	7.0	72.8	856.7	865.1

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Table 56 shows the credit derivative exposures that HSBC holds, split between those amounts due to client intermediation and those amounts booked as part of HSBC's own credit portfolio.

Where the credit derivative is used to hedge our own portfolio, no counterparty credit risk capital requirement arises.

For a discussion on hedging risk and monitoring the continuing effectiveness of hedges, refer to Note 1.2(h) of the Annual Report and Accounts 2020.

Table 56: Credit derivatives exposures (CCR6)

	At 31 Dec			
	2020		2019	
	Protection bought \$bn	Protection sold \$bn	Protection bought \$bn	Protection sold \$bn
Notionals				
Credit derivative products used for own credit portfolio				
– Index credit default swaps	6.2	1.8	9.4	7.7
Total notionals used for own credit portfolio	6.2	1.8	9.4	7.7
Credit derivative products used for intermediation				
– Index credit default swaps	129.3	111.8	160.7	142.0
– Total return swaps	6.1	14.0	15.4	9.7
Total notionals used for intermediation	135.4	125.8	176.1	151.7
Total credit derivative notionals	141.6	127.6	185.5	159.4
Fair values				
– Positive fair value (asset)	0.6	2.0	2.4	2.3
– Negative fair value (liability)	(2.3)	(1.4)	(2.8)	(2.8)

1 This is where we act as an intermediary for our clients, enabling them to take a position in the underlying securities. This does not increase risk for HSBC.

Central counterparties

While exchange traded derivatives have been cleared through central counterparties ('CCPs') for many years, recent regulatory initiatives designed to reduce systemic risk in the banking system are directing increasing volumes of OTC derivatives to be cleared through CCPs.

To manage the significant concentration of risk in CCPs that results from this, we have developed a risk appetite framework to manage risk accordingly, at the level of individual CCPs and globally. A dedicated CCP risk team has been established to manage the interface with CCPs and undertake in-depth due diligence of the unique risks associated with these organisations.

Table 57: Exposures to central counterparties (CCR8)

	At 31 Dec 2020		At 31 Dec 2019	
	EAD post-CRM \$bn	RWAs \$bn	EAD post-CRM \$bn	RWAs \$bn
1 Exposures to QCCPs (total)	27.2	1.0	33.4	1.1
2 Exposures for trades at QCCPs (excluding initial margin and default fund contributions)	11.2	0.2	15.2	0.3
3 – OTC derivatives	3.4	0.1	5.1	0.1
4 – exchange-traded derivatives	4.4	0.1	5.4	0.1
5 – securities financing transactions	3.4	0.1	4.7	0.1
7 Segregated initial margin	5.9	–	6.9	–
8 Non-segregated initial margin	10.1	0.2	11.3	0.2
9 Pre-funded default fund contributions	–	0.6	–	0.6

Wrong-way risk

Wrong-way risk occurs when a counterparty's exposures are adversely correlated with its credit quality.

There are two types of wrong-way risk:

- General wrong-way risk occurs when the probability of counterparty default is positively correlated with general risk factors, for example, where a counterparty is resident and/or incorporated in a higher-risk country and seeks to sell a non-domestic currency in exchange for its home currency.
- Specific wrong-way risk occurs in self-referencing transactions. These are transactions in which exposure is driven by capital or financing instruments issued by the counterparty and occurs where exposure from HSBC's perspective materially increases as the value of the counterparty's capital or financing instruments referenced in the contract decreases. It is HSBC policy that specific wrong-way transactions are approved on a case-by-case basis.

We use a range of tools to monitor and control wrong-way risk, including requiring the business to obtain prior approval before undertaking wrong-way risk transactions outside pre-agreed guidelines.

The regional Traded Risk functions are responsible for the control and monitoring process within an overarching Group framework and limit framework.

Credit rating downgrade

A credit rating downgrade clause in a Master Agreement or a credit rating downgrade threshold clause in a credit support annex ('CSA') is designed to trigger an action if the credit rating of the affected party falls below a specified level. These actions may include the requirement to pay or increase collateral, the termination of transactions by the non-affected party or the assignment of transactions by the affected party.

At 31 December 2020, the value of the additional collateral pertaining to International Swaps and Derivatives Association CSA downgrade thresholds that we would potentially need to post with counterparties in the event of a one-notch downgrade of our rating was \$0.4bn (2019: \$0.2bn) and for a two-notch downgrade was \$0.6bn (2019: \$0.4bn).

Securitisation

Securitisation strategy

HSBC acts as originator, sponsor, and investor to securitisation positions. Our strategy is to use securitisation to meet our needs for aggregate funding or capital management, to the extent that market conditions, regulatory treatments and other conditions are suitable, and for customer facilitation.

Securitisations on the banking book follow a detailed due diligence framework in accordance with the new securitisation framework. Wholesale Credit Risk conducts the credit approval process in line with HSBC policies and procedures.

Securitisations on the trading book also follow the due diligence framework, which accords with the requirements of the

securitisation regulation. Detailed risk limits and criteria are provided by the Traded Risk function and monitored in line with HSBC policies and procedures.

HSBC does not provide support to its originated or sponsored securitisation transactions as a policy.

Securitisation activity

Our roles in the securitisation process are as follows:

- originator: where we originate the assets being securitised, either directly or indirectly;
- sponsor: where we establish and manage a securitisation programme that purchases exposures from third parties; and
- investor: where we invest in a securitisation transaction directly or provide derivatives or liquidity facilities to a securitisation.

Region	SPE	Underlying assets	Start date	Maturity date	Exposure at default (\$m)	Capital requirement before securitisation (\$m)	Capital requirement after securitisation (\$m)
HBEU	Metrix Portfolio Distribution Plc	Corporate loans	Dec-15	Dec-22	802	46	13
HBEU	Metrix Portfolio Distribution Plc	Corporate loans	Dec-19	Dec-26	2,273	62	49
HBUK	Neon Portfolio Distribution DAC	Corporate loans	Dec-19	Dec-26	3,108	107	75

HSBC as originator

We are originator of three securitisation programmes, details of which are given in the table above.

We use SPEs to securitise customer loans and advances and other debt that we have originated in order to diversify our sources of funding for asset origination and for capital efficiency purposes.

In such cases, we transfer the loans and advances to the SPEs for cash, and the SPEs issue debt securities to investors to fund the cash purchases.

In addition, we use SPEs to mitigate the capital absorbed by some of the customer loans and advances we have originated. Credit derivatives and financial guarantees are used to transfer the credit risk associated with such customer loans and advances, using an approach commonly known as synthetic securitisation.

Securitisation entity	Description and nature of exposure	Accounting consolidation	Regulatory consolidation	Regulatory treatment
Solitaire	Asset-backed commercial paper ('ABCP') conduit to which a first-loss letter of credit and transaction-specific liquidity facilities are provided	✓	✓	Consolidated for regulatory capital purposes
Regency	Multi-seller conduit to which senior liquidity facilities and programme-wide credit enhancement are provided	✓	✗	Exposures (including derivatives and liquidity facilities) are risk-weighted as securitisation positions

HSBC as sponsor

We are sponsor to two securitisation entities which manage a securitisation programme that purchases exposures from third parties, details of which can be found in the table above.

We hold all of the commercial paper issued by Solitaire Funding Limited which is HSBC's sponsored securitisation entity. These are considered legacy businesses, and exposures are being repaid as the securities they hold amortise or are sold.

Further details are available in Note 20 of the Financial Statements in the Annual Report and Accounts 2020.

HSBC as investor

We have exposure to third-party securitisations across a wide range of sectors in the form of investments, liquidity facilities and as a derivative counterparty.

Monitoring of securitisation positions

Securitisation positions are managed by a dedicated team that uses a combination of market standard systems and third-party data providers to monitor performance data and manage market and credit risks.

In the case of re-securitisation positions, similar processes are conducted in respect of the underlying securitisations.

Liquidity risk of securitised assets is consistently managed as part of the Group's liquidity and funding risk management framework.

Securitisation accounting treatment

For accounting purposes, we consolidate structured entities (including SPEs) when the substance of the relationship indicates that we control them; that is, we are exposed, or have rights, to variable returns from our involvement with the structured entity and have the ability to affect those returns through our power over the entity.

Full details of these assessments and our accounting policy on structured entities may be found in Note 1.2(a) and Note 20 on the Financial Statements respectively of the Annual Report and Accounts 2020.

We reassess the need to consolidate whenever there is a change in the substance of the relationship between HSBC and a structured entity.

HSBC enters into transactions in the normal course of business by which it transfers financial assets to structured entities. Depending on the circumstances, these transfers may either result in these financial assets being fully or partly derecognised, or continuing to be recognised in their entirety.

Full derecognition occurs when we transfer our contractual right to receive cash flows from the financial assets, or assume an obligation to pass on the cash flows from the assets, and transfer substantially all the risks and rewards of ownership. Only in the event that derecognition is achieved are sales and any resultant gains recognised in the financial statements.

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Partial derecognition occurs when we sell or otherwise transfer financial assets in such a way that some but not substantially all of the risks and rewards of ownership are transferred and control is retained. These financial assets are recognised on the balance sheet to the extent of our continuing involvement and an associated liability is also recognised. The net carrying amount of the financial asset and associated liability will be based on either the amortised cost or the fair value of the rights and obligations retained by the entity, depending upon the measurement basis of the financial asset.

Further disclosure of such transfers may be found in Note 17 on the Financial Statements of the Annual Report and Accounts 2020.

Valuation of securitisation positions

The process of valuing our investments in securitisation exposures primarily focuses on quotations from third parties, observed trade levels and calibrated valuations from market standard models.

Our hedging and credit risk mitigation strategy, with regards to retained securitisation and re-securitisation exposures, is to continually review our positions.

Securitisation regulatory treatment

For regulatory purposes, any reduction in RWAs that would be achieved by our own originated securitisations must receive the PRA's permission and be justified by a commensurate transfer of credit risk to third parties. If achieved, the underlying assets are de-recognised for regulatory purposes and any retained exposures to the securitisation, including derivatives or liquidity facilities, are risk weighted as securitisation positions.

For both non-trading book and trading book securitisation positions we follow the hierarchy of RWA calculation approaches as described in the securitisation framework. Our originated positions are all reported under the internal ratings-based approach ('SEC-IRBA').

Our positions in the sponsored Solitaire programme and our investment in third-party positions are spread across the standardised approach ('SEC-SA') and the external ratings-based approach ('SEC-ERBA'). The new securitisation framework came into force in the EU for new transactions from 1 January 2019. Existing positions were subject to 'grandfathering' provisions and

were reported under the old approach at 31 December 2019. These exposures were transferred to the new framework on 1 January 2020. Our exposures subject to the approaches under the old framework at 31 December 2019 included \$9.2bn under the rating-based method ('RBM'), \$5.8bn under the internal assessment approach ('IAA'), and \$1.8bn under the standardised approach ('SA').

For our sponsored positions in Regency we use IAA. An eligible rating agency methodology, which includes stress factors, is applied to each asset class in order to derive the equivalent rating level for each transaction. This methodology is verified by the Credit Risk function as part of the approval process for each new transaction. The performance of each underlying asset portfolio is monitored to confirm that the applicable equivalent rating level still applies and is independently verified. Our IAA approach is audited annually by Internal Model Review and is subject to review by the PRA.

Further details of our securitisation regulatory treatment may be found on page 18 of this document.

Analysis of securitisation exposures

Our involvement in securitisation activities reflects the following:

- \$6.2bn positions held as synthetic transactions (2019: \$7.2bn);
- no assets awaiting securitisation and no material realised losses on securitisation asset disposals during the year;
- unrealised losses on asset-backed securities ('ABS') in the year amounted to \$0.1bn (2019: \$0.2bn), which relates to assets within SPEs that are consolidated for regulatory purposes; and
- total exposures include off-balance sheet exposure of \$11.4bn (2019: \$11.1bn), mainly related to contingent liquidity lines provided to securitisation vehicles where we act as sponsor, with a small amount from derivative exposures where we are an investor. The off-balance sheet exposures are held in the non-trading book and the exposure types are spread across multiple products and re-securitisations.

Further details of our securitisation exposures may be found on page 336 of the Annual Report and Accounts 2020.

Table 58: Securitisation exposure – movement in the year

	Total at 1 Jan \$bn	Movement in year			Total at 31 Dec \$bn
		As originator \$bn	As sponsor \$bn	As investor \$bn	
Aggregate amount of securitisation exposures					
Residential mortgages	9.7	–	(1.2)	0.0	8.5
Commercial mortgages	2.9	–	–	1.2	4.1
Credit Cards	1.6	–	–	0.6	2.2
Leasing	5.9	–	(1.1)	(1.4)	3.4
Loans to corporates or SMEs	7.3	(1.0)	0.1	1.9	8.3
Consumer loans	7.1	–	(0.8)	1.1	7.4
Trade receivables	4.9	–	(1.1)	0.3	4.1
Other assets	0.8	–	(0.1)	(0.4)	0.3
Re-securitisations	0.0	–	0.0	–	–
2020	40.2	(1.0)	(4.2)	3.3	38.3

Table 59: Securitisation – asset values and impairments

	2020			2019		
	Underlying assets ¹		Securitisation exposures impairment	Underlying assets ¹		Securitisation exposures impairment
	Total ³	Impaired and past due		Total ³	Impaired and past due	
Footnotes	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn
As originator	10.8	–	–	10.7	–	–
– loans to corporates and SMEs	10.8	–	–	10.7	–	–
– trade receivables	–	–	–	–	–	–
– re-securitisations	–	–	–	–	–	–
As sponsor	11.4	0.1	–	15.6	0.2	–
– residential mortgages	2.6	–	–	3.7	–	–
– commercial mortgages	0.1	–	–	0.1	–	–
– credit cards	–	–	–	–	–	–
– leasing	3.2	–	–	4.3	–	–
– loans to corporates and SMEs	–	–	–	–	–	–
– consumer loans	2.3	0.1	–	3.1	0.2	–
– trade receivables	3.0	–	–	4.2	–	–
– re-securitisations	–	–	–	–	–	–
– other assets	0.2	–	–	0.2	–	–
At 31 Dec	22.2	0.1	–	26.3	0.2	–

1 Securitisation exposures may exceed the underlying asset values when HSBC provides liquidity facilities while also acting as derivative counterparty and a note holder in the SPE.

2 The amount of underlying assets reported for re-securitisations denotes the value of collateral within the re-securitisation vehicles.

3 As originator and sponsor, all associated underlying assets are held in the non-trading book. These assets are all underlying to traditional securitisations with the exception of 'loans to corporates and SMEs', which is underlying to a synthetic securitisation.

Table 60: Securitisation exposures in the non-trading book (SEC1)

	Bank acts as originator			Bank acts as sponsor			Bank acts as investor		
	Traditional	Synthetic	Sub-total	Traditional	Synthetic	Sub-total	Traditional	Synthetic	Sub-total
	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn
1 Retail (total)	–	–	–	7.9	–	7.9	11.9	–	11.9
2 – residential mortgage	–	–	–	2.6	–	2.6	4.2	–	4.2
3 – credit card	–	–	–	–	–	–	2.1	–	2.1
4 – other retail exposures	–	–	–	5.3	–	5.3	5.6	–	5.6
6 Wholesale (total)	–	6.2	6.2	3.5	–	3.5	5.1	–	5.1
7 – loans to corporates	–	6.2	6.2	0.1	–	0.1	1.9	–	1.9
8 – commercial mortgage	–	–	–	0.1	–	0.1	2.9	–	2.9
9 – lease and receivables	–	–	–	3.2	–	3.2	0.2	–	0.2
10 – other wholesale	–	–	–	0.1	–	0.1	0.1	–	0.1
Total at 31 Dec 2020	–	6.2	6.2	11.4	–	11.4	17.0	–	17.0
1 Retail (total)	–	–	–	11.0	–	11.0	10.0	–	10.0
2 – residential mortgage	–	–	–	3.7	–	3.7	4.5	–	4.5
3 – credit card	–	–	–	–	–	–	1.5	–	1.5
4 – other retail exposures	–	–	–	7.3	–	7.3	4.0	–	4.0
6 Wholesale (total)	–	7.2	7.2	4.6	–	4.6	3.7	–	3.7
7 – loans to corporates	–	7.2	7.2	–	–	–	0.1	–	0.1
8 – commercial mortgage	–	–	–	0.1	–	0.1	1.9	–	1.9
9 – lease and receivables	–	–	–	4.3	–	4.3	1.6	–	1.6
10 – other wholesale	–	–	–	0.2	–	0.2	0.1	–	0.1
Total at 31 Dec 2019	–	7.2	7.2	15.6	–	15.6	13.7	–	13.7

Table 61: Securitisation exposures in the trading book (SEC2)

	At					
	31 Dec 2020			31 Dec 2019		
	Bank acts as investor ¹			Bank acts as investor ¹		
	Traditional	Synthetic	Sub-total	Traditional	Synthetic	Sub-total
	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn
1 Retail (total)	2.5	–	2.5	2.3	–	2.3
2 – residential mortgage	1.8	–	1.8	1.5	–	1.5
3 – credit card	0.1	–	0.1	0.1	–	0.1
4 – other retail exposures	0.6	–	0.6	0.7	–	0.7
6 Wholesale (total)	1.2	–	1.2	1.4	–	1.4
7 – loans to corporates	–	–	–	–	–	–
8 – commercial mortgage	1.1	–	1.1	0.9	–	0.9
9 – lease and receivables	–	–	–	–	–	–
10 – other wholesale	0.1	–	0.1	0.5	–	0.5
Total (all portfolios)	3.7	–	3.7	3.7	–	3.7

1 HSBC does not act as originator or sponsor for securitisation exposures in the trading book.

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Table 62 presents the Group's exposure in the non-trading book and associated regulatory capital requirements where the Group acts as originator or as sponsor.

Table 62: Securitisation exposures in the non-trading book and associated capital requirements – bank acting as originator or sponsor (SEC3)

	Exposure values (by risk weight bands)					Exposure values (by regulatory approach)						
	≤20% RW	>20% to 50% RW	>50% to 100% RW	>100% to 1,250% RW	1,250% RW	IRB RBM	SA	SEC-IRBA	SEC-ERBA	SEC IAA	SEC-SA	1,250%
	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn
2 Traditional securitisation	7.3	3.4	0.5	0.2	–	N/A	N/A	–	1.4	9.6	0.4	–
3 Securitisation	7.3	3.4	0.5	0.2	–	N/A	N/A	–	1.4	9.6	0.4	–
4 – retail underlying	4.6	2.7	0.5	0.1	–	N/A	N/A	–	1.3	6.4	0.2	–
5 – wholesale	2.7	0.7	–	0.1	–	N/A	N/A	–	0.1	3.2	0.2	–
9 Synthetic securitisation	3.0	3.2	–	–	–	N/A	N/A	6.2	–	–	–	–
10 Securitisation	3.0	3.2	–	–	–	N/A	N/A	6.2	–	–	–	–
12 – wholesale	3.0	3.2	–	–	–	N/A	N/A	6.2	–	–	–	–
1 Total at 31 Dec 2020	10.3	6.6	0.5	0.2	–	N/A	N/A	6.2	1.4	9.6	0.4	–

	Exposure values (by risk weight bands)					Exposure values (by regulatory approach)						
	≤20% RW	>20% to 50% RW	>50% to 100% RW	>100% to 1,250% RW	1,250% RW	IRB RBM	SA	SEC-IRBA	SEC-ERBA	SEC IAA	SEC-SA	1,250%
	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn
2 Traditional securitisation	11.4	3.4	0.7	0.1	–	7.6	0.8	–	–	7.1	0.1	–
3 Securitisation	11.4	3.4	0.7	0.1	–	7.6	0.8	–	–	7.1	0.1	–
4 – retail underlying	7.2	3.1	0.6	0.1	–	5.5	0.8	–	–	4.6	0.1	–
5 – wholesale	4.2	0.3	0.1	–	–	2.1	–	–	–	2.5	–	–
9 Synthetic securitisation	6.9	–	0.3	–	–	2.0	–	5.2	–	–	–	–
10 Securitisation	6.9	–	0.3	–	–	2.0	–	5.2	–	–	–	–
12 – wholesale	6.9	–	0.3	–	–	2.0	–	5.2	–	–	–	–
1 Total at 31 Dec 2019	18.3	3.4	1.0	0.1	–	9.6	0.8	5.2	–	7.1	0.1	–

	RWAs (by regulatory approach)							Capital charge after cap						
	IRB RBM	SA	SEC-IRBA	SEC-ERBA	SEC IAA	SEC-SA	1,250%	IRB RBM	SA	SEC-IRBA	SEC-ERBA	SEC IAA	SEC-SA	1,250%
	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn
2 Traditional securitisation	N/A	N/A	–	0.8	1.9	0.2	–	N/A	N/A	–	0.1	0.2	–	–
3 Securitisation	N/A	N/A	–	0.8	1.9	0.2	–	N/A	N/A	–	0.1	0.2	–	–
4 – retail underlying	N/A	N/A	–	0.6	1.3	0.1	–	N/A	N/A	–	0.1	0.2	–	–
5 – wholesale	N/A	N/A	–	0.2	0.6	0.1	–	N/A	N/A	–	–	–	–	–
9 Synthetic securitisation	N/A	N/A	1.7	–	–	–	0.3	N/A	N/A	0.2	–	–	–	–
10 Securitisation	N/A	N/A	1.7	–	–	–	0.3	N/A	N/A	0.2	–	–	–	–
12 – wholesale	N/A	N/A	1.7	–	–	–	0.3	N/A	N/A	0.2	–	–	–	–
1 Total at 31 Dec 2020	N/A	N/A	1.7	0.8	1.9	0.2	0.3	N/A	N/A	0.2	0.1	0.2	–	–

	RWAs (by regulatory approach)							Capital charge after cap						
	IRB RBM	SA	SEC-IRBA	SEC-ERBA	SEC IAA	SEC-SA	1,250%	IRB RBM	SA	SEC-IRBA	SEC-ERBA	SEC IAA	SEC-SA	1,250%
	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn
2 Traditional securitisation	1.0	0.6	–	–	1.7	–	–	0.1	–	–	–	0.1	–	–
3 Securitisation	1.0	0.6	–	–	1.7	–	–	0.1	–	–	–	0.1	–	–
4 – retail underlying	0.6	0.6	–	–	1.2	–	–	0.1	–	–	–	0.1	–	–
5 – wholesale	0.4	–	–	–	0.5	–	–	–	–	–	–	–	–	–
9 Synthetic securitisation	0.4	–	0.9	–	–	–	0.5	–	–	0.1	–	–	–	–
10 Securitisation	0.4	–	0.9	–	–	–	0.5	–	–	0.1	–	–	–	–
12 – wholesale	0.4	–	0.9	–	–	–	0.5	–	–	0.1	–	–	–	–
1 Total at 31 Dec 2019	1.4	0.6	0.9	–	1.7	–	0.5	0.1	–	0.1	–	0.1	–	–

Table 63 presents the Group's exposure in the non-trading book and associated regulatory capital requirements where the Group acts as an investor.

Table 63: Securitisation exposures in the non-trading book and associated capital requirements – bank acting as investor (SEC4)

	Exposure values (by risk weight bands)					Exposure values (by regulatory approach)						
	≤20% RW	>20% to 50% RW	>50% to 100% RW	>100% to 1,250% RW	1,250% RW	IRB RBM	SA	SEC-IRBA	SEC-ERBA	SEC IAA	SEC-SA	1,250%
	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn
2 Traditional securitisation	12.8	1.1	2.6	0.5	–	N/A	N/A	0.1	3.3	–	13.6	–
3 Securitisation	12.8	1.1	2.6	0.5	–	N/A	N/A	0.1	3.3	–	13.6	–
4 – retail underlying	9.7	0.9	0.9	0.4	–	N/A	N/A	–	1.4	–	10.5	–
5 – wholesale	3.1	0.2	1.7	0.1	–	N/A	N/A	0.1	1.9	–	3.1	–
1 Total at 31 Dec 2020	12.8	1.1	2.6	0.5	–	N/A	N/A	0.1	3.3	–	13.6	–
2 Traditional securitisation	11.3	1.3	1.0	0.1	–	5.4	1.0	–	1.7	–	5.6	–
3 Securitisation	11.3	1.3	1.0	0.1	–	5.4	1.0	–	1.7	–	5.6	–
4 – retail underlying	7.7	1.3	0.8	0.1	–	3.3	1.0	–	1.4	–	4.2	–
5 – wholesale	3.6	–	0.2	–	–	2.1	–	–	0.3	–	1.4	–
1 Total at 31 Dec 2019	11.3	1.3	1.0	0.1	–	5.4	1.0	–	1.7	–	5.6	–

	RWAs (by regulatory approach)							Capital charge after cap						
	IRB RBM	SA	SEC-IRBA	SEC-ERBA	SEC IAA	SEC-SA	1,250%	IRB RBM	SA	SEC-IRBA	SEC-ERBA	SEC IAA	SEC-SA	1,250%
	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn	\$bn
2 Traditional securitisation	N/A	N/A	–	2.8	–	2.5	–	N/A	N/A	–	0.2	–	0.2	–
3 Securitisation	N/A	N/A	–	2.8	–	2.5	–	N/A	N/A	–	0.2	–	0.2	–
4 – retail underlying	N/A	N/A	–	1.1	–	2.0	–	N/A	N/A	–	0.1	–	0.2	–
5 – wholesale	N/A	N/A	–	1.7	–	0.5	–	N/A	N/A	–	0.1	–	–	–
1 Total at 31 Dec 2020	N/A	N/A	–	2.8	–	2.5	–	N/A	N/A	–	0.2	–	0.2	–
2 Traditional securitisation	0.7	0.7	–	0.5	–	1.1	0.2	0.1	0.1	–	–	–	0.1	–
3 Securitisation	0.7	0.7	–	0.5	–	1.1	0.2	0.1	0.1	–	–	–	0.1	–
4 – retail underlying	0.3	0.7	–	0.4	–	0.9	0.2	–	0.1	–	–	–	0.1	–
5 – wholesale	0.4	–	–	0.1	–	0.2	–	0.1	–	–	–	–	–	–
1 Total at 31 Dec 2019	0.7	0.7	–	0.5	–	1.1	0.2	0.1	0.1	–	–	–	0.1	–

Market risk

Overview of market risk in global businesses

Market risk is the risk that movements in market factors, such as foreign exchange rates, interest rates, credit spreads, equity prices and commodity prices, will reduce our income or the value of our portfolios.

Exposure to market risk

Exposure to market risk is separated into two portfolio types:

- Trading portfolios: these comprise positions held for client servicing and market-making, with the intention of short-term resale and/or to hedge risks resulting from such positions.
- Non-trading portfolios: these comprise positions that primarily arise from the interest rate management of our retail and

commercial banking assets and liabilities, financial investments measured at fair value through other comprehensive income, debt instruments measured at amortised cost, and exposures arising from our insurance operations.

Where appropriate, we apply similar risk management policies and measurement techniques to both trading and non-trading portfolios. Our objective is to manage and control market risk exposures to optimise return on risk while maintaining a market risk profile consistent with our established risk appetite.

For a discussion on hedging risk and monitoring the continuing effectiveness of hedges, refer to page 182 of the Annual Report and Accounts 2020.

The tables below reflect the components of capital requirement under the standardised approach, Table 64 and the internal model approach, Table 65 for market risk.

Table 64: Market risk under standardised approach (MR1)

		At 31 Dec		
		2020	2019	2020
		RWAs \$bn	RWAs \$bn	Capital requirements \$bn
Outright products				
1	Interest rate risk (general and specific)	1.7	2.6	0.1
2	Equity risk (general and specific)	0.1	0.1	—
3	Foreign exchange risk	5.2	3.7	0.5
4	Commodity risk	0.1	0.1	—
Options				
5	Simplified approach	0.1	—	—
6	Delta-plus method	0.1	0.1	—
7	Scenario approach	—	—	—
8	Securitisation	1.3	1.2	0.1
9	Total	8.6	7.8	0.7

Table 65: Market risk under IMA (MR2-A)

		2020		2019	
		RWAs \$bn	Capital required \$bn	RWAs \$bn	Capital required \$bn
1	VaR (higher of values a and b)	5.4	0.4	5.3	0.4
(a)	Previous day's VaR		0.1		0.1
(b)	Average daily VaR ¹		0.4		0.4
2	Stressed VaR (higher of values a and b)	6.3	0.5	8.0	0.7
(a)	Latest SVaR		0.1		0.1
(b)	Average SVaR ¹		0.5		0.7
3	Incremental risk charge (higher of values a and b)	6.1	0.5	6.6	0.5
(a)	Most recent IRC value		0.5		0.5
(b)	Average IRC value ¹		0.5		0.5
5	Other	2.1	0.2	2.2	0.2
6	Total at 31 Dec	19.9	1.6	22.1	1.8

¹ VaR average values are calculated on a 60 business days basis. SVaR and IRC average values are calculated on a 12-week basis.

Under the IMA approach, the decrease in VaR and SVaR is largely due to the increased diversification benefits following regulatory approval to expand the regulatory scope of consolidation and reduced exposure.

Market risk governance

The majority of the trading Value at risk ('VaR'), stressed VaR ('SVaR') and incremental risk charge ('IRC') of HSBC reside in GBM. GBM manages market risk, within overall risk limits set by the Group CRO and limits approved by the GBM CRO.

For a discussion on market risk governance refer to page 182 of the Annual Report and Accounts 2020.

Market risk measures

Monitoring and limiting market risk exposures

We use a range of tools to monitor and limit market risk exposures including sensitivity analysis, VaR and stress testing.

Sensitivity analysis

We use sensitivity measures to monitor the market risk positions within each asset class and risk type. Granular sensitivity limits are set for each trading desk taking into consideration market liquidity, customer demand and capital constraints, amongst other factors.

Value at risk

Value at risk ('VaR') is a technique that estimates the potential mark-to-market losses on derivative, security and money market positions in the trading and non-trading portfolios as a result of movements in market rates and prices over a specified time horizon and to a given level of confidence. The use of VaR is an

integral part of our market risk management framework and is calculated for a scope of trading and non-trading positions which is wider than the set of trading positions which are capitalized under a VaR treatment.

Our models are predominantly based on historical simulation. VaR is calculated at a 99% confidence level for a one-day holding period, although a long period is additionally used for non-trading positions.

Our VaR models use historical series of market rates and prices, implicitly taking into account inter-relationships between different markets and rates such as interest rates and foreign exchange rates.

The primary categories of risk factors driving market risk are summarised below:

Risk factor	Description
Foreign exchange	Risk arising from changes in foreign exchange rates and volatilities.
Interest rate	Risk arising from changes in the level of interest rates that may impact prices of interest rate sensitive assets such as interest rate swaps.
Equity	Risk arising from changes in equity prices, volatilities and dividend yields.
Commodity	Risk arising from changes in commodity prices.
Credit	Risk arising from changes in the level of credit spreads that may impact prices of credit spread sensitive assets.

Our models use a mixed approach when applying changes in market rates and prices:

- For equity, credit and foreign exchange risk factors, VaR scenarios are calculated on a relative return basis.
- For interest rates, a mixed approach is used. The scenarios applied to volatilities are on a relative return basis, whereas the scenarios applied to interest rate curves are calculated using a hybrid of absolute and relative returns. This approach enables the VaR to smoothly adapt to either low or high interest rate environments and to support negative rates.

We use the past two years as the historical data set in our VaR models and the scenarios are updated on a fortnightly basis. These scenarios are then applied to the market baselines and positions on a daily basis. The models incorporate the effect of option features on the underlying exposures. The valuation approach used in our models varies:

- Desks trading non-linear instruments use a full revaluation approach; and
- Desks trading only linear instruments, such as bonds and swaps, use a sensitivity-based approach.

The nature of the VaR models means that an increase in observed market volatility will lead to an increase in VaR even without any changes in the underlying positions.

VaR model limitations

Although a valuable guide to risk, VaR is used with awareness of its limitations, for example:

- The use of historical data as a proxy for estimating future events may not encompass all potential events, particularly those which are extreme in nature.
- The use of a 1-day holding period for risk management purposes of trading and non-trading books assumes that this short period is sufficient to hedge or liquidate all positions.
- The use of a 99% confidence level by definition does not take into account losses that might occur beyond this level of confidence.
- VaR is calculated on the basis of exposures outstanding at close of business and therefore does not necessarily reflect intra-day exposures.

Risk not in VaR framework

The risks not in VaR ('RNIV') framework captures risks from exposures in the HSBC trading book that are not captured well by the VaR model. Our VaR model is designed to capture significant

basis risk such as CDS versus bond, asset swap spreads and cross-currency basis. Other basis risks that are not completely covered in VaR, such as CCP swap basis risks, are complemented by our RNIV calculations and are integrated into our capital framework.

Risk factors are reviewed on a regular basis and are either incorporated directly in the VaR models, where possible, or quantified through the VaR-based RNIV approach or a stress test approach within the RNIV framework. While VaR-based RNIVs are calculated by using historical scenarios, stress-type RNIVs are estimated on the basis of stress scenarios whose severity is calibrated to be in line with the capital adequacy requirements. The outcome of the VaR-based RNIV approach is included in the overall VaR calculation but excluded from the VaR measures used for regulatory back-testing. In addition, stressed VaR also captures risk factors considered in the VaR-based RNIV approach through a corresponding stressed VaR RNIV.

Stress-type RNIVs include a deal contingent derivatives capital charge to capture risk for these transactions and a de-peg risk measure to capture risk to pegged and heavily managed currencies.

Back-testing

We validate daily the accuracy of our VaR model by back-testing the model against both actual and hypothetical profit and loss. Hypothetical profit and loss excludes non-modelled items such as fees, commissions and revenues of intra-day transactions.

The actual number of profits or losses in excess of VaR over this period can therefore be used to gauge how well the models are performing. We consider enhanced internal monitoring of a VaR model if more than five profit exceptions or more than five loss exceptions occur in a 250-day period.

We back-test our VaR at various levels of our Group entity hierarchy. Back-testing using the regulatory hierarchy includes entities which have approval to use VaR in the calculation of market risk regulatory capital requirement. HSBC submits separate back-testing results to regulators, including the PRA and the European Central Bank, based on applicable frequencies ranging from two business days after an exception occurs, to quarterly submissions. In terms of the CRD IV rules, VaR back-testing loss, and not profit, exceptions count towards the multiplier determined by the PRA for the purposes of the capital requirement calculation for market risk. The multiplier is increased if there are five or more loss exceptions in a 250-day period.

During 1H20, the Group experienced three loss back-testing exceptions against actual profit and losses, with no additional back-testing exceptions in 2H20. The Group also experienced ten loss back-testing exceptions against hypothetical profit and losses, including one back-testing exception in 2H20. The high number of hypothetical back-testing exceptions that occurred from March 2020 was primarily due to the extreme market volatility resulting from the economic impact of the Covid-19 outbreak, which was significantly greater than the volatility used in the model calibration.

In recognition of the exceptional market environment in 2020, the PRA granted an exemption from the higher VaR multiplier for market risk RWA purposes arising from six out of ten VaR back testing exceptions that occurred after the onset of the Covid-19 outbreak. These six back testing exemptions were granted on the basis that they were not the result of inherent model weaknesses but were driven by larger than normal market volatility in 1H20 caused by the Covid-19 outbreak.

The hypothetical profit and loss reflects the profit and loss that would be realized if positions were held constant from the end of one trading day to the end of the next. This measure of profit and loss does not align with how risk is dynamically hedged, and is not therefore indicative of the actual performance of the business. Accordingly, of the ten loss back-testing exceptions against hypothetical profit and losses, only the largest exception in March and one exception in April corresponded to a loss exception against actual profit and loss. The two loss exceptions against

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actual profit and loss that occurred in the second half of March and the loss exception against actual profit and loss that occurred in April comprised:

- a loss exception in March due partly to unprecedented widening of the gold exchange-for-physical basis, reflecting Covid-19-related challenges in gold refining and transportation, which affected HSBC's gold leasing and financing business and other gold hedging activity leading to mark-to-market losses. Additional loss drivers on this trading day included a significant reduction in foreign exchange and equity volatilities, and a material tightening of credit spreads;
- a loss exception at the end of March driven mainly by increases to month-end valuation adjustments, which were recalibrated to reflect changes in liquidity and bid-offer market conditions over the course of the month relative to February month-end; and

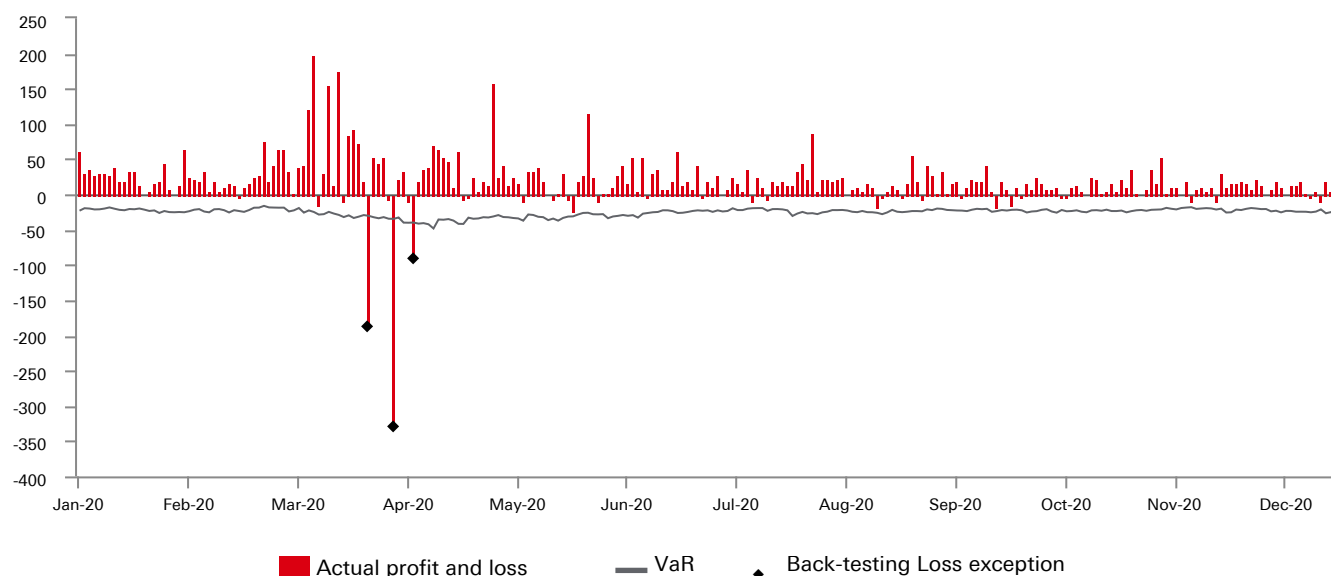
- a loss exception in April due partly to the renewed widening of the gold exchange-for-physical basis. Additional loss drivers included lower equity implied volatilities and a reduction in dividend projections.

Despite the high number of loss exceptions, performance of the VaR model was in line with expectations when considered in the context of the extraordinary market movements observed in March and April 2020. During this period, market risk continued to be managed using a complementary set of exposure measures and limits, including stress and scenario analysis. This ensured that the business was prudently managed and performed well across the period.

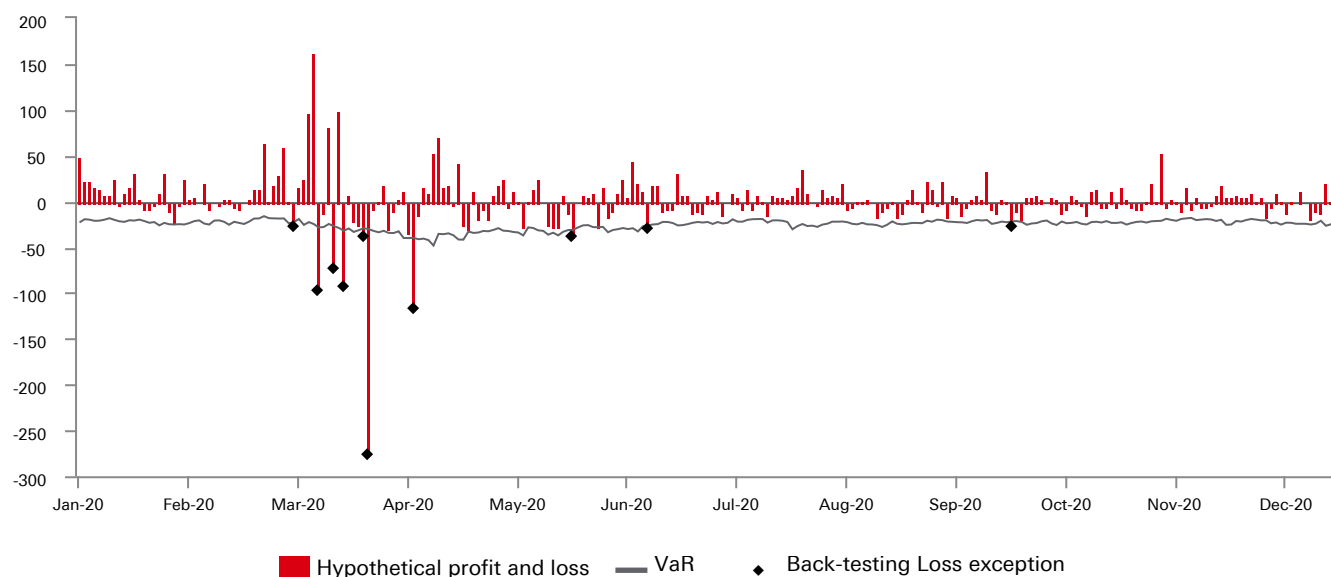
The following graphs show a one-year history for VaR back-testing exceptions against both actual and hypothetical profit and loss.

Comparison of VaR estimates with gains/losses

VaR back-testing exceptions against actual profit and loss (\$m)



VaR back-testing exceptions against hypothetical profit and loss (\$m)



Stress testing

Stress testing is an integral part of our market risk management framework which is used to evaluate the potential impact on portfolio values of more extreme, although plausible, events or movements in a set of financial variables. In such scenarios, losses can be greater than those predicted by VaR modelling.

Stress testing is implemented at legal entity, regional and overall Group levels. A set of scenarios is used consistently across all regions within the Group. The risk appetite around potential stress losses for the Group is set and monitored against referral limits.

Market risk reverse stress tests are designed to identify vulnerabilities in our portfolios by looking for scenarios that lead to loss levels considered severe for the relevant portfolio. These

scenarios may be local or idiosyncratic in nature, and complement the systematic top-down stress testing.

Stressed VaR and stress testing, together with reverse stress testing and the management of gap risk, provide senior management with insights regarding the 'tail risk' beyond VaR, for which HSBC's appetite is limited.

The market risk stress testing incorporates the historical and hypothetical events.

During 2020, we ran stress scenarios focusing on the economic and financial impact of the Covid-19 outbreak, in addition to specific geopolitical and economic events including scenarios for the UK's withdrawal from the EU, and the US elections in Q3 and Q4. These new scenarios were run in addition to existing scenarios that capture potential events of concern.

Model component	Confidence level	Liquidity horizon	Model description and methodology
VaR	99%	10 day	Uses most recent two years' history of daily returns to determine a loss distribution. The result is scaled, using the square root of 10, to provide an equivalent 10-day loss.
Stressed VaR	99%	10 day	Stressed VaR is calibrated to a one-year period of stress observed in history, calculated using 10 day returns.
IRC	99.9%	1 year	Uses a multi-factor Gaussian Monte-Carlo simulation, which includes product basis, concentration, hedge mismatch, recovery rate and liquidity as part of the simulation process. A minimum liquidity horizon of three months is applied and is based on a combination of factors, including issuer type, currency and size of exposure.

Non-proprietary details of these models are available in the Financial Services Register on the PRA website.

Table 66: IMA values for trading portfolios (MR3)

		At 31 Dec	
		2020	2019
		\$m	\$m
VaR (10 day 99%)			
1	Maximum value	195.7	185.2
2	Average value	158.5	149.3
3	Minimum value	137.1	116.8
4	Period end	155.4	128.0
Stressed VaR (10 day 99%)			
5	Maximum value	252.5	222.8
6	Average value	187.2	172.3
7	Minimum value	154.8	133.1
8	Period end	169.1	222.8
Incremental risk charge (99.9%)			
9	Maximum value	576.9	1,076.9
10	Average value	500.5	706.2
11	Minimum value	395.4	448.9
12	Period end	476.8	465.8

VaR

VaR used for regulatory purposes differs from VaR used for management purposes with key differences listed below.

VaR	Regulatory	Management
Scope	Regulatory approval (PRA)	Broader population of trading and non-trading book positions
Confidence interval	99%	99%
Liquidity horizon	10 day	1 day
Data set	Past 2 years	Past 2 years

Market risk capital models

HSBC has permission to use a number of market risk capital models to calculate regulatory capital as listed in the table below. For regulatory purposes, the trading book comprises all positions in financial instruments and commodities held with trading intent and positions where it can be demonstrated that they hedge positions in the trading book. Trading book positions must either be free of any restrictive covenants on their tradability or be capable of being hedged.

A financial instrument is defined as any contract that gives rise to both a financial asset to one party and a financial liability or equity instrument to another party.

HSBC maintains a trading book policy, which defines the minimum requirements for trading book positions and the process for classifying positions as trading or non-trading book. Positions in the trading book are subject to market risk-based rules, i.e. market risk capital, calculated using regulatory approved models. Where we do not have permission to use internal models, market risk capital is calculated using the standardised approach.

If any of the policy criteria are not met, then the position is categorised as a non-trading book exposure.

The trading books that received approval from the regulator to be covered via an internal model are used to calculate VaR for regulatory purposes. Overall regulatory VaR also includes VaR-based RNIVs. Regulatory VaR levels contribute to the calculation of market risk RWAs.

The regulatory VaR table is calculated on consolidated positions according to the regulatory permissions received, plus aggregated sites. This differs from the daily VaR reported in the *Annual Report and Accounts 2020*, which shows a fully diversified view used for internal risk management.

The increase in Trading VaR compared to 2019 was driven primarily by the inclusion in the VaR calibration of the high realized volatility which was observed in March and April 2020. However, market risk was actively managed during the year and VaR remained within the 2019 operating range.

Stressed VaR

Stressed VaR is primarily used for regulatory capital purposes and is integrated into the risk management process to ensure prudent capital management. Stressed VaR complements other risk measures by providing the potential losses under stressed market conditions.

Stressed VaR modelling follows the same approach as our VaR risk measure except that:

- potential market movements employed for stressed VaR calculations are based on a continuous one-year period of stress for the trading portfolio;
- the choice of period is based on the assessment at the Group level of the most volatile period in recent history. This is assessed quarterly and changed during 2020 as follows:

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- to (March 2016 to March 2017) in March 2020;
 - to (April 2019 to March 2020) in June 2020;
 - to (November 2007 to November 2008) in September 2020; and
 - to (April 2017 to April 2018) in December 2020.
- it is calculated to a 99% confidence using a 10-day holding period; and
 - it is based on an actual 10-day holding period, whereas regulatory VaR is based on a one-day holding period scaled to 10 days.

The decrease in stressed VaR was mainly due to lower loss contributions from the fixed income business. Stressed VaR peaked when more volatile market data observed in 1H20 was included in the calibration of the period of stress used for stressed VaR calculation

Incremental risk charge

The incremental risk charge ('IRC') measures the default and migration risk of issuers of traded debt instruments.

IRC risk factors include credit migration, default, product basis, concentration, hedge mismatch, recovery rate and liquidity. The PDs are derived from historical data on defaults and a period of stress is used to calibrate the spread changes for rating migration events. The IRC model is validated quarterly by stressing key model parameters and reviewing the response of the model.

The IRC is a stand-alone charge generating no diversification benefit with other charges. Positions in scope of IRC are assigned liquidity horizons from three months to one year. A wide range of criteria can indicate the liquidity of a position. The liquidity horizon for the IRC measure depends on a set of factors such as issuer features, including rating, sector, geography and size of positions, including product, maturity and concentration.

The IRC transition matrices are calibrated using transition and default data published by three rating agencies (S&P, Moody's and Fitch) as the starting point, in combination with internal estimates used for flooring of PDs.

The IRC correlation matrix is derived quarterly from historical CDS spreads data, covering the latest two-year VaR period. The correlations are calibrated separately for positions with different liquidity. The IRC correlations model utilizes factors related to sector and rating of issuers.

The modest increase in the incremental risk charge was consistent with the normal variability of trading activity and inventory during 2020.

Structural foreign exchange exposures

Structural foreign exchange exposures represent net investments in subsidiaries, branches and associates whose functional currency is not the US dollar. An entity's functional currency is normally that of the primary economic environment in which it operates.

Exchange differences on structural exposures are recognised in 'Other comprehensive income'. We use the US dollar as our presentation currency in our consolidated financial statements because the US dollar and currencies linked to it form the major currency bloc in which we transact and fund our business.

Our consolidated balance sheet is, therefore, affected by exchange differences between the US dollar and all the non-US dollar functional currencies of underlying subsidiaries.

Our structural foreign exchange exposures are managed with the primary objective of ensuring, where practical, that our consolidated capital ratios and the capital ratios of individual banking subsidiaries are largely protected from the effect of changes in exchange rates.

Details of our structural foreign exchange exposures are provided in the Market risk section, on page 172 of the *Annual Report and Accounts 2020*.

Interest rate risk in the banking book

Interest rate risk in the banking book is the risk of an adverse impact to earnings or capital due to changes in market interest rates. It is generated by our non-traded assets and liabilities, specifically loans, deposits and financial instruments that are not held for trading intent or held in order to hedge positions held with trading intent. Interest rate risk that can be economically hedged may be transferred to the Markets Treasury business. Hedging is generally executed through interest rate derivatives or fixed-rate government bonds. Any interest rate risk that Markets Treasury cannot economically hedge is not transferred and will remain within the global business where the risks originate.

The ALCM function uses a number of measures to monitor and control interest rate risk in the banking book including the sensitivity of economic value of equity and projected net interest income under various interest rate scenarios and the stressed value at risk of the portfolio of securities held by Markets Treasury that are accounted for at fair value through other comprehensive income.

More details on our IRRBB and the net interest income sensitivity may be found on page 179 and page 181 of the Annual Report and Accounts 2020.

Prudent valuation adjustment

HSBC has documented policies and maintains systems and controls for the calculation of the prudent valuation adjustment ('PVA'). Prudent value represents a conservative estimate with a 90% degree of certainty of a price that would be received to sell an asset or paid to transfer a liability in orderly transactions occurring between market participants at the balance sheet date. HSBC's methodology addresses fair value uncertainties arising from a number of sources: market price uncertainty, bid-offer uncertainty, model risk, concentration, administrative costs, unearned credit spreads and investing and funding costs.

Table 67: Prudential valuation adjustments (PV1)

	Equity \$m	Interest rates \$m	FX \$m	Credit \$m	Commodities \$m	Total \$m	Of which: in the trading book \$m	Of which: in the banking book \$m
Closeout uncertainty	237	266	69	146	3	721	548	173
– of which:								
Mid-market value	127	92	12	35	2	268	194	74
Closeout cost	21	54	10	6	1	92	84	8
Concentration	89	120	47	105	–	361	270	91
Early termination	–	–	–	3	–	3	3	–
Model risk	25	18	6	4	–	53	53	–
Operational risk	23	48	4	11	–	86	74	12
Investing and funding costs	–	27	–	–	–	27	27	–
Unearned credit spreads	–	204	1	25	–	230	230	–
Future administrative costs	–	7	–	6	–	13	13	–
Other	–	–	–	–	–	–	–	–
Total adjustment at 31 Dec 2020	285	570	80	195	3	1,133	948	185
Closeout uncertainty	260	361	47	137	5	810	606	204
– of which:								
Mid-market value	198	135	19	57	4	413	312	101
Closeout cost	20	91	9	8	1	129	115	14
Concentration	42	135	19	72	–	268	179	89
Early termination	–	–	–	4	–	4	4	–
Model risk	25	85	6	9	–	125	122	3
Operational risk	22	28	3	9	–	62	50	12
Investing and funding costs	–	56	–	2	–	58	58	–
Unearned credit spreads	–	90	4	8	–	102	102	–
Future administrative costs	–	1	–	7	–	8	8	–
Other	–	–	–	–	–	–	–	–
Total adjustment at 31 Dec 2019	307	621	60	176	5	1,169	950	219

The net PVA charge decreased by \$36m compared to 2019 as a result of:

- a \$330m decrease due to the application of a higher diversification benefit temporarily permitted by regulators until 1 January 2021; partly offset by
- a \$245m increase in other additional valuation adjustments, driven by additional uncertainty reserves for exiting over-the-counter derivative transactions and increased uncertainty in credit spread and liquidity premiums.

The items for which the highest PVA is observed include (i) asset backed securities and other fixed income securities, (ii) structured derivative products and (iii) valuation adjustments related to non-collateralised derivatives.

Non-financial risk

Non-financial risk is the risk to achieving our strategy or objectives as a result of inadequate or failed internal processes, people and systems, or from external events. Sound non-financial risk management is central to achieving good outcomes for our customers. Non-financial risk is relevant to every aspect of our business and is broadly managed through the risk management framework ('RMF'). Non-financial risk covers a wide spectrum of issues, such as resilience risk, financial crime and fraud, regulatory compliance, financial reporting and tax risk, legal risk, model risk,

people risk. Losses arising from breaches of regulation and law, unauthorised activities, error, omission, inefficiency, fraud, systems failure or external events all fall within the definition of non-financial risk.

Operational risk capital requirements

Operational risk is part of non-financial risk. Table 68 reports our operational risk capital requirements by region and global business.

Table 68: Operational risk RWAs

	31 Dec 2020		31 Dec 2019 ¹	
	RWAs \$bn	Capital required \$bn	RWAs \$bn	Capital required \$bn
By global business	94.3	7.5	92.8	7.4
– Wealth and Personal Banking,	34.6	2.7	33.9	2.7
– Commercial Banking	26.6	2.1	26.2	2.1
– Global Banking and Markets	32.4	2.6	31.6	2.5
– Corporate Centre	0.7	0.1	1.1	0.1
By geographical region	94.3	7.5	92.8	7.4
– Europe	25.9	2.1	24.5	2.0
– Asia	45.3	3.6	45.2	3.6
– Middle East and North Africa	6.2	0.5	6.2	0.5
– North America	11.7	0.9	11.9	0.9
– Latin America	5.2	0.4	5.0	0.4

¹ Comparatives are restated for the change in reportable segments.

Organisation and responsibilities

Responsibility for managing non-financial risk lies with our people. During 2020, we continued to strengthen our approach to managing non-financial risk. The RMF sets out our approach to governance and risk appetite. It provides a single view of non-financial risks that matter the most and associated controls. While there remains more to do, we made progress in strengthening the control environment and the management of non-financial risk.

In line with the increasing expectations from customers, regulators and our Board, and in response to a continually evolving threat landscape that the wider industry faces, we formed a new combined Operational and Resilience risk sub-function in 2020. This is a combined risk stewardship and oversight function, which ensures governance and management of Operational and Resilience Risk through the delivery and embedding of effective frameworks, and continuous oversight and assurance of end-to-end processes, risks and controls. The effectiveness of first line of defence risk and control owners, and second line of defence risk stewards in managing our Non-Financial Risk processes and practices is reported through Risk Management Meetings (RMMs) and the Non-Financial Risk Management Board (NFRMB).

The NFRMB is a formal governance body which provides recommendations and advice to the Group Chief Risk Officer in relation to the management of HSBC Non-Financial Risk profile, including elements of the RMF which supports non-financial risk management.

Non-financial risk is organised as a specific risk discipline within Global Risk and is headed by the Group Head of Operational and Resilience Risk. The Group Head of Operational and Resilience Risk is responsible for monitoring the effectiveness of the internal control environment, overseeing the risk and control management of risks, ensuring the organisation is protected against emerging risks in the most effective way, and to monitor the level of operational losses. The Group Head of Operational and Resilience Risk is accountable to the Group Chief Risk Officer in respect of this element of the overall risk management framework.

Activity to strengthen the three lines of defence model continued to be a key focus in 2020. The first line of defence owns the risk and is accountable for identifying, assessing, managing key existing and emerging risks. The second line of defence sets the policy and control standards to manage risks, and provides advice and guidance to support these policies. It also challenges the first

line to ensure it is managing risk effectively. The third line of defence is Global Internal Audit, which provides independent assurance to the Board and management that our risk management approach and processes are designed and operating effectively.

Measurement and monitoring

The RMF is written as a high-level standard, supplemented by detailed policies. These policies explain our approach to identifying, assessing, monitoring and controlling non-financial risk, and give guidance on mitigating actions to be taken when weaknesses are identified.

In order to drive risk awareness in a more forward looking manner, we set out our risk appetite and then regularly monitor non-financial risk exposure against that risk appetite. This assists management in determining whether further action is required.

Risk scenario analysis across material legal entities provides a top down, forward-looking assessment of risks to help determine whether they are being effectively managed within our risk appetite or whether further management action is required. In each of our subsidiaries, the first line of defence are responsible for maintaining an appropriate level of internal control, commensurate with the scale and nature of operations. They are responsible for identifying and assessing risks, designing controls and monitoring the effectiveness of these controls. The RMF helps managers to fulfil these responsibilities by defining a standard risk assessment methodology and providing a tool for the systematic reporting of operational loss data.

Risk and control assessment approach

Non-financial risk and control assessments are performed by the first line of defence. The risk and control assessment process is designed to provide the first line of defence with a forward-looking view of non-financial risks, an assessment of the effectiveness of controls, and a tracking mechanism for action plans so that they can proactively manage non-financial risks within acceptable levels. Appropriate means of mitigation and controls are considered. These include making specific changes to strengthen the internal control environment, and investigating whether cost-effective insurance cover is available to mitigate the risk.

Recording

We use a Group-wide risk management system to record the results of our non-financial risk management process. Non-financial risk and control assessments, as described above, are input and maintained by the first line of defence. The first line of defence monitors and follows up the progress of documented action plans. Operational risk losses are entered into the Group-wide risk management system and reported to governance on a monthly basis. Loss capture thresholds are in line with industry standards.

Continuity of business operations during Covid-19 outbreak

As a result of the Covid-19 outbreak, we successfully implemented business continuity responses and continued to maintain the majority of service level agreements. We did not experience any major impacts to the supply chain for our third party service providers due to Covid-19. The risk of damage or theft to our physical assets or criminal injury to our colleagues remains unchanged and no significant incidents have impacted our buildings or people.

Liquidity

Strategies and processes

HSBC has an internal liquidity and funding risk management framework ('LFRF'), which aims to allow it to withstand very severe liquidity stresses. It is designed to be adaptable to changing business models, markets and regulations. The management of liquidity and funding is primarily undertaken locally (by country) in our operating entities in compliance with the Group's LFRF, and with practices and limits set by the Group Executive Committee through the RMM and approved by the Board. Our general policy is that each defined operating entity should be self-sufficient in funding its own activities.

The key aspects of the internal LFRF which is used to ensure that HSBC maintains an appropriate overall liquidity risk profile are:

- each entity must manage liquidity and funding risk on a stand-alone basis without reliance on other members of the group or central banks, unless pre-approved;
- minimum liquidity coverage ratio ('LCR') requirement; and
- minimum net stable funding ratio ('NSFR') requirement or other appropriate metric.

The internal LFRF and the risk tolerance limits were approved by the Group Risk Committee and the Board on the basis of recommendations made by the RMM.

Structure and organisation

Asset, Liability and Capital Management ('ALCM') teams are responsible for the application of the LFRF at a local operating entity level. The elements of the LFRF are underpinned by a robust governance framework, the two major elements of which are:

- Group, regional and entity level asset and liability management committees ('ALCOs'); and
- an internal liquidity adequacy assessment process ('ILAAP') used to validate risk tolerance and set risk appetite.

All operating entities and Group are required to prepare an internal liquidity adequacy assessment ('ILAA') document at an appropriate frequency. The final objective of the ILAA, approved by the relevant Board of Directors, is to verify that the entity and subsidiaries maintain liquidity resources which are adequate in both amount and quality at all times, ensuring that there is no significant risk that its liabilities cannot be met as they fall due, maintaining a prudent funding profile.

Management of liquidity and funding risk

Liquidity coverage ratio

The LCR aims to ensure that a bank has sufficient unencumbered high-quality liquid assets ('HQLA') to meet its liquidity needs in a 30 calendar day liquidity stress scenario. For the calculation of the LCR, HSBC follows the EU Regulation LCR Delegated Act 2015/61.

The methodology used in the Group consolidated LCR in relation to the treatment of part of Group's HQLA is currently under review. Upon implementation of this revised approach it is anticipated that the Group's consolidated LCR will reduce, although remain within appetite. The liquidity position of the entities is unaffected by this change and remains the key focus.

Net stable funding ratio

HSBC uses the NSFR or other appropriate metric as a basis for ensuring operating entities raise sufficient stable funding to support their business activities. The NSFR or other appropriate metric requires institutions to maintain a minimum amount of stable funding based on assumptions of asset liquidity.

Currency mismatch in the LCR

The Group's internal liquidity and funding risk management framework requires all operating entities to monitor the LCR for material currencies. Limits are set to ensure that outflows can be met, given assumptions on stressed capacity in the FX swap markets.

Governance

ALCM teams apply the LFRF at both an individual entity and Group level. Regional and local ALCM teams are responsible for the implementation of Group-wide and local regulatory policy at a legal entity level. Markets Treasury has responsibility for cash and liquidity management.

Treasury Risk Management carry out independent review, challenge and assurance of the appropriateness of the risk management activities undertaken by ALCM and Markets Treasury. They provide oversight and stewardship of liquidity management including setting policy and control standards.

Global Internal Audit provide independent assurance that risk is managed effectively.

More details on the concentration of funding and liquidity sources may be found on page 178 of the Annual Report and Accounts 2020.

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Table 69: Level and components of HSBC Group consolidated liquidity coverage ratio (LIQ1)

	Quarter ended 31 Dec 2020		Quarter ended 30 Sep 2020		Quarter ended 30 Jun 2020		Quarter ended 31 Mar 2020	
	Total unweighted value	Total weighted value	Total unweighted value	Total weighted value	Total unweighted value	Total weighted value	Total unweighted value	Total weighted value
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
Number of data points used in the calculation of averages		12		12		12		12
High quality liquid assets								
Total high quality liquid assets ('HQLA')		630,165		598,689		567,242		549,652
Cash outflows								
Retail deposits and small business funding	812,940	81,841	789,800	79,932	765,409	78,012	752,813	77,353
– of which:								
stable deposits	356,974	17,849	344,285	17,214	329,660	16,483	315,256	15,763
less stable deposits	450,557	63,683	441,129	62,392	432,864	61,188	436,373	61,225
Unsecured wholesale funding	750,643	349,583	713,245	334,614	677,164	318,381	653,998	309,558
– operational deposits (all counterparties) and deposits in networks of cooperative banks	228,993	56,072	216,575	52,996	208,653	51,066	202,933	49,596
– non-operational deposits (all counterparties)	507,690	279,551	482,156	267,104	453,969	252,773	436,488	245,385
– unsecured debt	13,960	13,960	14,514	14,514	14,542	14,542	14,577	14,577
Secured wholesale funding		9,783		8,910		9,569		10,540
Additional requirements	327,180	105,076	322,224	101,507	314,550	96,653	312,502	92,904
– outflows related to derivative exposures and other collateral requirements	56,075	55,722	53,191	53,038	47,965	47,769	43,397	43,094
– outflows related to loss of funding on debt products	–	–	–	–	–	–	–	–
– credit and liquidity facilities	271,105	49,354	269,033	48,469	266,585	48,884	269,105	49,810
Other contractual funding obligations	80,289	41,260	77,703	37,213	77,124	37,433	79,908	38,011
Other contingent funding obligations	571,753	13,558	547,508	13,213	521,149	12,762	493,269	12,520
Total cash outflows		601,101		575,389		552,810		540,886
Cash inflows								
Secured lending transactions (including reverse repos)	296,912	32,950	297,940	32,713	300,901	32,398	305,539	32,716
Inflows from fully performing exposures	107,119	76,105	102,962	72,189	100,136	69,113	103,053	71,401
Other cash inflows	124,692	57,252	125,212	57,248	121,077	54,242	118,516	51,750
(Difference between total weighted inflows and total weighted outflows arising from transactions in third countries where there are transfer restrictions or which are denominated in non-convertible currencies)		–		–		–		–
(Excess inflows from a related specialised credit institution)		–		–		–		–
Total cash inflows	528,723	166,307	526,114	162,150	522,114	155,753	527,108	155,867
Fully exempt inflows	–	–	–	–	–	–	–	–
Inflows Subject to 90% Cap	–	–	–	–	–	–	–	–
Inflows Subject to 75% Cap	509,318	166,307	504,235	162,150	496,650	155,753	497,693	155,867
Liquidity coverage ratio (Adjusted value)								
Liquidity Buffer		630,165		598,689		567,242		549,652
Total net cash outflows		434,794		413,239		397,057		385,019
Liquidity coverage ratio (%)		144.9 %		144.9 %		142.9 %		142.8 %

Analysis of on-balance sheet encumbered and unencumbered assets and off-balance sheet collateral

On-balance sheet encumbered and unencumbered assets

The table on the following page summarises the total on-balance sheet assets capable of supporting future funding and collateral needs, and shows the extent to which they are currently pledged for this purpose. This disclosure aims to facilitate an understanding of available and unrestricted assets that could be used to support potential future funding and collateral needs.

Off-balance sheet collateral

The fair value of assets accepted as collateral that we are permitted to sell or repledge in the absence of default was \$447bn at 31 December 2020 (2019: \$469bn). The fair value of any such collateral actually sold or repledged was \$247bn (2019: \$304bn). We are obliged to return equivalent securities. These

transactions are conducted under terms that are usual and customary to standard reverse repo, stock borrowing and derivative transactions.

The fair value of collateral received and re-pledged in relation to reverse repos, stock borrowing and derivatives is reported on a gross basis. The related balance sheet receivables and payables are reported on a net basis where required under IFRS offset criteria. As a consequence of reverse repo, stock borrowing and derivative transactions where the collateral received could be sold or re-pledged but had not been, we held \$200bn (2019: \$165bn) of unencumbered collateral available to support potential future funding and collateral needs at 31 December 2020.

Further information on collateral obligations under derivative contracts in the event of downgrade is provided on page 63. For further details on risks to liquidity, see page 171 onwards of the Annual Report and Accounts 2020.

Table 70: Analysis of on-balance sheet encumbered and unencumbered assets

	Assets encumbered as a result of transactions with counterparties other than central banks			Assets positioned at central banks (i.e. pre-positioned plus encumbered)	Unencumbered assets not positioned at central banks				Total
	As a result of covered bonds	As a result of securitisations	Other		Assets readily available for encumbrance	Other assets capable of being encumbered	Reverse repos/stock borrowing receivables and derivative assets	Assets that cannot be encumbered	
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
Cash and balances at central banks	–	–	–	303	304,093	26	–	59	304,481
Items in the course of collection from other banks	–	–	–	–	–	–	–	4,094	4,094
Hong Kong Government certificates of indebtedness	–	–	–	–	–	–	–	40,420	40,420
Trading assets	–	–	68,971	2,134	127,033	9,464	22,277	2,111	231,990
– treasury and other eligible bills	–	–	5,533	1,715	15,555	1,232	–	–	24,035
– debt securities	–	–	37,338	419	61,180	3,275	–	634	102,846
– equity securities	–	–	26,100	–	50,298	1,245	–	–	77,643
– loans and advances to banks	–	–	–	–	–	1,230	5,739	1,273	8,242
– loans and advances to customers	–	–	–	–	–	2,482	16,538	204	19,224
Financial assets designated and otherwise mandatorily measured at fair value through profit or loss	–	–	511	–	2,360	1,739	556	40,387	45,553
– treasury and other eligible bills	–	–	–	–	–	–	–	661	661
– debt securities	–	–	–	–	266	203	–	6,638	7,107
– equity securities	–	–	1	–	2,054	(687)	–	32,444	33,812
– loans and advances to banks and customers	–	–	–	–	40	1,748	556	644	2,988
– other assets	–	–	510	–	–	475	–	–	985
Derivatives	–	–	–	–	–	–	307,726	–	307,726
Loans and advances to banks	–	–	65	4,089	4,843	53,169	–	19,450	81,616
Loans and advances to customers	7,845	7,322	6,864	75,734	15,849	890,498	25	33,850	1,037,987
Reverse repurchase agreements – non-trading	–	–	–	–	–	–	230,628	–	230,628
Financial investments	–	182	23,996	25,281	356,527	5,600	–	79,107	490,693
– treasury and other eligible bills	–	182	1,071	4,371	121,726	1,850	–	720	129,920
– debt securities	–	–	22,925	20,910	234,241	2,826	–	77,447	358,349
– equity securities	–	–	–	–	560	924	–	853	2,337
– other instruments	–	–	–	–	–	–	–	87	87
Prepayments, accrued income and other assets	–	14	60,173	156	8,062	29,899	–	58,108	156,412
Current tax assets	–	–	–	–	–	–	–	954	954
Interest in associates and joint ventures	–	–	–	–	36	26,228	–	420	26,684
Goodwill and intangible assets	–	–	–	–	–	–	–	20,443	20,443
Deferred tax	–	–	–	–	–	–	–	4,483	4,483
At 31 Dec 2020	7,845	7,518	160,580	107,697	818,803	1,016,623	561,212	303,886	2,984,164

Pillar 3 Disclosures at 31 December 2020

Table 70: Analysis of on-balance sheet encumbered and unencumbered assets (continued)

	Assets encumbered as a result of transactions with counterparties other than central banks			Assets positioned at central banks (i.e. pre-positioned plus encumbered)	Unencumbered assets not positioned at central banks				Total
	As a result of covered bonds	As a result of securitisations	Other		Assets readily available for encumbrance	Other assets capable of being encumbered	Reverse repos/stock borrowing receivables and derivative assets	Assets that cannot be encumbered	
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
Cash and balances at central banks	—	—	—	244	151,247	39	—	2,569	154,099
Items in the course of collection from other banks	—	—	—	—	—	—	—	4,956	4,956
Hong Kong Government certificates of indebtedness	—	—	—	—	—	—	—	38,380	38,380
Trading assets	—	—	58,310	3,440	159,552	10,019	21,349	1,601	254,271
– treasury and other eligible bills	—	—	1,650	2,354	17,215	531	—	39	21,789
– debt securities	—	—	32,034	1,086	90,783	2,088	—	52	126,043
– equity securities	—	—	24,626	—	51,534	2,648	—	19	78,827
– loans and advances to banks	—	—	—	—	20	1,797	5,538	1,047	8,402
– loans and advances to customers	—	—	—	—	—	2,955	15,811	444	19,210
Financial assets designated and otherwise mandatorily measured at fair value through profit or loss	—	—	1,145	—	2,507	4,896	642	34,437	43,627
– treasury and other eligible bills	—	—	629	—	—	—	—	32	661
– debt securities	—	—	—	—	266	179	—	6,107	6,552
– equity securities	—	—	1	—	2,182	1,086	—	27,670	30,939
– loans and advances to banks and customers	—	—	—	—	59	3,227	642	628	4,556
– other assets	—	—	515	—	—	404	—	—	919
Derivatives	—	—	—	—	—	—	242,995	—	242,995
Loans and advances to banks	—	—	85	2,920	1,337	44,318	—	20,543	69,203
Loans and advances to customers	7,471	7,812	3,328	53,343	15,815	909,677	53	39,244	1,036,743
Reverse repurchase agreements – non-trading	—	—	—	—	—	—	240,862	—	240,862
Financial investments	—	405	25,517	19,503	321,651	4,957	—	71,279	443,312
– treasury and other eligible bills	—	405	564	9,000	93,486	1,228	—	836	105,519
– debt securities	—	—	24,953	10,503	227,665	3,013	—	69,661	335,795
– equity securities	—	—	—	—	500	716	—	697	1,913
– other instruments	—	—	—	—	—	—	—	85	85
Prepayments, accrued income and other assets	—	17	49,580	398	4,444	27,736	—	54,505	136,680
Current tax assets	—	—	—	—	—	—	—	755	755
Interest in associates and joint ventures	—	—	—	—	14	24,029	—	431	24,474
Goodwill and intangible assets	—	—	—	—	—	—	—	20,163	20,163
Deferred tax	—	—	—	—	—	—	—	4,632	4,632
At 31 Dec 2019	7,471	8,234	137,965	79,848	656,567	1,025,671	505,901	293,495	2,715,152

Other risks

Non-trading book exposures in equities

At 31 December 2020, we had equity investments in the non-trading book of \$5.8bn (2019: \$5.9bn). These consist of investments held for the purposes shown in Table 71.

We make investments in private equity primarily through managed funds that are subject to limits on the amount of investment. We risk-assess these commitments to ensure that industry and geographical concentrations remain within acceptable levels for the portfolio as a whole, and perform regular reviews to substantiate the valuation of the investments within the portfolio.

Exchange traded investments amounted to \$0.3bn (2019: \$0.5bn), with the remainder being unlisted. These investments are held at fair value in line with market prices.

On a regulatory consolidation basis, the net realised gain from disposal of equity securities amounted to \$0.4bn (2019: \$0.1bn). Unrealised gains on FVOCI equities of \$0.8bn at 31 December 2020 were fully recognised in CET1.

Details of our accounting policy for equity investments measured at FVOCI and the valuation of financial instruments may be found on page 292 of the Annual Report and Accounts 2020. A detailed description of the valuation techniques applied to private equity may be found on page 317 of the Annual Report and Accounts 2020.

Table 71: Non-trading book equity investments

	Fair value through other comprehensive income (FVOCI)	Mandatorily measured at fair value through profit and loss	Total
	\$bn	\$bn	\$bn
Private equity holdings	–	2.0	2.0
Investment to facilitate ongoing business ¹	2.4	1.0	3.4
Other strategic investments	–	0.4	0.4
At 31 Dec 2020	2.4	3.4	5.8
Private equity holdings	–	2.4	2.4
Investment to facilitate ongoing business	2.0	1.3	3.3
Other strategic investments	–	0.2	0.2
At 31 Dec 2019	2.0	3.9	5.9

¹ Includes holdings in government-sponsored enterprises and local stock exchanges.

Risk management of insurance operations

We operate an integrated bancassurance model that provides insurance products principally for customers with whom we have a banking relationship.

The insurance contracts we sell relate to the underlying needs of our banking customers, which we can identify from our point-of-sale contacts and customer knowledge. The majority of sales are of savings and investment products and term and credit life contracts.

By focusing largely on personal and small- and medium-sized enterprises ('SMEs') lines of business, we are able to optimise volumes and diversify individual insurance risks.

We choose to manufacture these insurance products in HSBC subsidiaries based on an assessment of operational scale and risk appetite. Manufacturing insurance allows us to retain the risks and rewards associated with writing insurance contracts by keeping part of the underwriting profit and investment income within the Group.

We have life insurance manufacturing subsidiaries in Argentina, mainland China, France, Hong Kong, Malta, Mexico, Singapore and the UK. We also have a life insurance manufacturing associate in India.

Where we do not have the risk appetite or operational scale to be an effective insurance manufacturer, we engage with a handful of leading external insurance companies in order to provide insurance products to our customers through our banking network and direct channels. These arrangements are generally structured with our exclusive strategic partners and earn the Group a combination of commissions, fees and a share of profits. We distribute insurance products in all of our geographical regions.

Insurance products are sold through all global businesses, but predominantly by WPB and CMB through our branches and direct channels worldwide.

The risk profile of our insurance manufacturing businesses is measured using an economic capital approach. Assets and liabilities are measured on a market value basis, and a capital requirement is defined to ensure that there is a less than one-in-200 chance of insolvency over a one-year time horizon, given the risks to which the businesses are exposed. The methodology for the economic capital calculation is largely aligned to the pan-European Solvency II insurance capital regulations.

Subsidiaries engaged in insurance activities are excluded from the regulatory consolidation by excluding assets, liabilities and post-acquisition reserves, leaving the investment of these insurance subsidiaries to be recorded at cost and deducted from CET1 subject to thresholds (amounts below the thresholds are risk-weighted).

Further details of the management of financial risks and insurance risk arising from the insurance operations are provided on page 189 of the Annual Report and Accounts 2020.

Climate change risk

Climate change can create physical risks such as severe weather events of increasing severity and/or frequency. Transition risk, in the context of climate change, is the possibility that a customer's ability to meet its financial obligations will deteriorate due to the global movement from a high-carbon economy to a low-carbon economy.

We are a signatory to the disclosure recommendations by the Financial Stability Board's Task Force on Climate-related Financial Disclosures.

Refer to page 20 of the Annual Report and Accounts 2020 for our disclosure under the framework.

Appendix I

Additional tables

Credit risk

Table 72 sets out IRB exposures by obligor grade for central governments and central banks, institutions and corporates, all of which are assessed using our 23-grade CRR master scale. We benchmark the master scale against the ratings of external rating agencies. Each CRR band is associated with an external rating

grade by reference to long-run default rates for that grade, represented by the average of issuer-weighted historical default rates. The correspondence between the agency long-run default rates and the PD ranges of our master scale is obtained by matching a smoothed curve based on those default rates with our master scale reference PDs. This association between internal and external ratings is indicative and may vary over time. In these tables, the ratings of S&P are cited for illustration purposes, although we also benchmark against other agencies' ratings in an equivalent manner.

Table 72: Wholesale IRB exposure – by obligor grade

Default risk	CRR	PD range %	Central governments and central banks			Institutions			Corporates ²		
			Average net carrying values ¹	Undrawn commitments	Mapped external rating	Average net carrying values ¹	Undrawn commitments	Mapped external rating	Average net carrying values ¹	Undrawn commitments	Mapped external rating
			\$bn	\$bn		\$bn	\$bn		\$bn	\$bn	
Minimal	0.1	0.000 to 0.010	263.4	0.7	AAA to AA	2.7	0.1	AAA	0.1	–	–
	1.1	0.011 to 0.028	71.3	1.6	AA- to A+	35.1	3.1	AA+ to AA	33.5	17.7	AAA to AA
	1.2	0.029 to 0.053	25.1	0.2	A to A-	14.5	2.3	AA-	66.5	35.9	AA-
Low	2.1	0.054 to 0.095	5.7	0.1	BBB+	10.5	2.0	A+ to A	92.1	57.7	A+ to A
	2.2	0.096 to 0.169	8.2	–	BBB	11.9	4.0	A-	109.2	76.3	A-
Satisfactory	3.1	0.170 to 0.285	4.6	–	BBB-	3.4	1.3	BBB+	122.4	71.8	BBB+
	3.2	0.286 to 0.483	1.5	–	BBB-	1.4	0.4	BBB	107.5	54.3	BBB
	3.3	0.484 to 0.740	4.4	0.2	BB+/BB	1.1	0.4	BBB-	107.1	52.3	BBB-
Fair	4.1	0.741 to 1.022	2.5	–	BB-	1.0	0.2	BB+	79.2	39.2	BB+
	4.2	1.023 to 1.407	0.5	–	B+	0.3	0.1	BB	59.0	27.3	BB
	4.3	1.408 to 1.927	2.4	–	B+	0.3	0.2	BB-	52.9	33.4	BB-
Moderate	5.1	1.928 to 2.620	1.3	–	B+	0.3	0.2	BB-	86.8	34.9	BB-
	5.2	2.621 to 3.579	0.2	–	B	0.1	0.1	B+	28.4	15.3	B+
	5.3	3.580 to 4.914	0.3	–	B	–	–	B	23.5	13.3	B
Significant	6.1	4.915 to 6.718	–	0.1	B-	–	–	B-	15.3	6.0	B-
	6.2	6.719 to 8.860	0.3	–	B-	–	–	B-	7.5	3.0	B-
High	7.1	8.861 to 11.402	0.2	0.2	B-	–	–	CCC+	5.6	2.3	CCC+
	7.2	11.403 to 15.000	–	–	CCC+	0.1	0.1	CCC+	1.8	0.8	CCC+
Special Management	8.1	15.001 to 22.000	–	–	CCC+	–	–	CCC	2.9	1.8	CCC
	8.2	22.001 to 50.000	–	–	CCC	–	–	CCC- to CC	0.9	0.2	CCC- to CC
	8.3	50.001 to 99.999	1.7	–	CCC- to C	–	–	C	0.6	0.1	C
Default	9/10	100.000	0.1	–	Default	–	–	Default	6.0	1.9	Default
At 31 Dec 2020			393.7	3.1		82.7	14.5		1,008.8	545.5	
Minimal	0.1	0.000 to 0.010	214.4	0.9	AAA to AA	2.5	–	AAA	0.4	–	–
	1.1	0.011 to 0.028	70.1	1.2	AA- to A+	34.5	2.2	AA+ to AA	32.1	20.2	AAA to AA
	1.2	0.029 to 0.053	25.0	0.3	A to A-	13.6	1.5	AA-	67.4	44.6	AA-
Low	2.1	0.054 to 0.095	9.7	0.3	BBB+	11.0	2.7	A+ to A	91.5	60.8	A+ to A
	2.2	0.096 to 0.169	9.6	–	BBB	11.9	3.6	A-	109.2	62.7	A-
Satisfactory	3.1	0.170 to 0.285	2.4	0.3	BBB-	4.0	1.2	BBB+	123.9	71.4	BBB+
	3.2	0.286 to 0.483	2.1	–	BBB-	2.4	0.3	BBB	120.8	57.4	BBB
	3.3	0.484 to 0.740	3.0	0.3	BB+/BB	1.3	0.1	BBB-	108.3	46.9	BBB-
Fair	4.1	0.741 to 1.022	1.4	–	BB-	0.9	0.3	BB+	77.0	35.3	BB+
	4.2	1.023 to 1.407	0.5	0.1	B+	0.5	0.1	BB	60.6	24.7	BB
	4.3	1.408 to 1.927	3.1	–	B+	0.2	0.1	BB-	47.5	21.0	BB-
Moderate	5.1	1.928 to 2.620	1.5	–	B+	0.1	–	BB-	84.7	31.4	BB-
	5.2	2.621 to 3.579	–	–	B	–	–	B+	25.9	12.6	B+
	5.3	3.580 to 4.914	0.2	–	B	–	–	B	19.8	9.7	B
Significant	6.1	4.915 to 6.718	–	0.1	B-	–	–	B-	10.7	4.5	B-
	6.2	6.719 to 8.860	0.4	0.1	B-	–	–	B-	6.1	1.8	B-
High	7.1	8.861 to 11.402	–	–	B-	–	–	CCC+	4.1	1.7	CCC+
	7.2	11.403 to 15.000	–	–	CCC+	0.1	0.1	CCC+	1.9	0.5	CCC+
Special Management	8.1	15.001 to 22.000	0.1	–	CCC+	–	–	CCC	2.6	1.4	CCC
	8.2	22.001 to 50.000	0.1	–	CCC	–	–	CCC- to CC	0.7	0.5	CCC- to CC
	8.3	50.001 to 99.999	0.3	–	CCC- to C	–	–	C	0.2	0.1	C
Default	9/10	100.000	–	–	Default	–	–	Default	4.0	0.9	Default
At 31 Dec 2019			343.9	3.6		83.0	12.2		999.4	510.1	

¹ Average net carrying value are calculated by aggregating the net carrying values of the last five quarters and dividing by five.

² Corporates excludes specialised lending exposures subject to supervisory slotting approach.

PD, LGD, RWA and exposure by country/territory

The following Tables 73. a-c analyse the exposure-weighted average PD, exposure-weighted average LGD, RWAs and exposure by location of the lending subsidiary or branch. The

tables exclude specialised lending exposures subject to the supervisory slotting approach, securitisation exposures and non-credit obligations. Countries disclosed in this table were selected using thresholds based on the net carrying values of exposures within regions and countries

Table 73.a: PD, LGD, RWA and exposure by country/territory – wholesale IRB advanced approach

	Wholesale IRB advanced approach							
	All asset classes				Central governments and central banks			
	At 31 Dec 2020				At 31 Dec 2020			
	Exposure-weighted average PD	Exposure-weighted average LGD	Exposure value	RWAs	Exposure-weighted average PD	Exposure-weighted average LGD	Exposure value	RWAs
%	%	\$bn	\$bn	%	%	\$bn	\$bn	
Europe	1.52	36.3	125.9	29.2	0.05	44.9	60.3	5.7
UK	0.38	39.4	63.9	7.5	0.04	44.8	46.8	3.6
France	3.32	28.3	46.6	18.7	0.02	45.0	1.6	0.1
Asia	1.04	42.9	619.7	187.7	0.04	44.2	262.9	20.0
Hong Kong	0.98	39.2	331.6	91.2	0.02	43.5	128.1	6.2
Australia	0.73	43.3	33.1	9.5	0.01	45.0	14.9	0.7
Mainland China	0.62	48.0	87.8	31.8	0.02	45.0	35.5	2.4
Singapore	2.03	41.4	51.1	9.7	0.01	44.3	26.3	1.0
Middle East and North Africa	0.54	43.5	24.7	9.6	0.51	44.1	20.1	7.9
North America	1.30	35.7	196.2	65.7	0.01	35.0	78.1	4.7
US	1.33	33.9	126.0	43.2	0.01	35.1	50.0	3.3
Canada	1.30	34.9	66.3	22.2	0.01	34.8	25.1	1.2
Latin America	15.49	44.7	10.4	6.4	16.50	45.0	9.7	6.1

	Wholesale IRB advanced approach							
	Institutions				Corporates			
	At 31 Dec 2020				At 31 Dec 2020			
	Exposure-weighted average PD	Exposure-weighted average LGD	Exposure value	RWAs	Exposure-weighted average PD	Exposure-weighted average LGD	Exposure value	RWAs
%	%	\$bn	\$bn	%	%	\$bn	\$bn	
Europe	0.21	32.8	15.9	3.1	3.71	26.8	49.7	20.4
UK	0.14	26.4	11.9	1.9	3.96	21.7	5.2	2.0
France	0.17	46.5	1.2	0.4	3.53	27.1	43.8	18.2
Asia	0.13	45.0	45.7	6.9	2.02	41.7	311.1	160.8
Hong Kong	0.06	38.0	24.4	3.4	1.79	36.4	179.1	81.6
Australia	0.05	40.2	1.8	0.3	1.45	42.1	16.4	8.5
Mainland China	0.07	45.4	9.6	1.4	1.24	51.0	42.7	28.0
Singapore	0.05	37.5	4.8	0.5	5.17	38.5	20.0	8.2
Middle East and North Africa	0.15	45.1	2.1	0.6	1.04	23.1	2.5	1.1
North America	0.07	44.7	5.4	0.8	2.25	36.2	112.7	60.2
US	0.14	44.1	1.6	0.5	2.25	32.8	74.4	39.4
Canada	0.04	23.6	3.0	0.2	2.25	35.8	38.2	20.8
Latin America	0.39	45.0	0.4	0.2	1.05	29.3	0.3	0.1

Pillar 3 Disclosures at 31 December 2020

Table 73.b: PD, LGD, RWA and exposure by country/territory – wholesale IRB foundation approach

	Wholesale IRB foundation approach							
	All asset classes				Central governments and central banks			
	At 31 Dec 2020				At 31 Dec 2020			
	Exposure-weighted average PD	Exposure-weighted average LGD	Exposure value	RWAs	Exposure-weighted average PD	Exposure-weighted average LGD	Exposure value	RWAs
%	%	\$bn	\$bn	%	%	\$bn	\$bn	
Europe	3.85	36.8	166.8	93.9	0.02	45.0	–	–
UK	3.96	35.2	142.0	78.9	–	–	–	–
France	3.33	45.0	0.5	0.4	–	–	–	–
Asia	–	–	–	–	–	–	–	–
Hong Kong	–	–	–	–	–	–	–	–
Australia	–	–	–	–	–	–	–	–
Mainland China	–	–	–	–	–	–	–	–
Singapore	–	–	–	–	–	–	–	–
Middle East and North Africa	5.62	44.3	17.3	9.5	0.04	45.0	0.4	0.1
North America	0.11	45.0	0.2	0.1	–	–	–	–
US	–	–	–	–	–	–	–	–
Canada	–	–	–	–	–	–	–	–
Latin America	–	–	–	–	–	–	–	–

	Wholesale IRB foundation approach							
	Institutions				Corporates			
	At 31 Dec 2020				At 31 Dec 2020			
	Exposure-weighted average PD	Exposure-weighted average LGD	Exposure value	RWAs	Exposure-weighted average PD	Exposure-weighted average LGD	Exposure value	RWAs
%	%	\$bn	\$bn	%	%	\$bn	\$bn	
Europe	0.17	45.0	0.1	–	3.85	36.8	166.7	93.9
UK	–	–	–	–	3.96	35.2	142.0	78.9
France	–	–	–	–	3.33	45.0	0.5	0.4
Asia	–	–	–	–	–	–	–	–
Hong Kong	–	–	–	–	–	–	–	–
Australia	–	–	–	–	–	–	–	–
Mainland China	–	–	–	–	–	–	–	–
Singapore	–	–	–	–	–	–	–	–
Middle East and North Africa	0.11	44.9	0.6	0.2	5.98	44.2	16.3	9.2
North America	–	–	–	–	0.11	45.0	0.2	0.1
US	–	–	–	–	–	–	–	–
Canada	–	–	–	–	–	–	–	–
Latin America	–	–	–	–	–	–	–	–

Table 73.c: PD, LGD, RWA and exposure by country/territory – retail IRB approach

	Retail IRB approach											
	All asset classes				Retail secured by mortgages on immovable property non-SME				Retail secured by mortgages on immovable property SME			
	At 31 Dec 2020				At 31 Dec 2020				At 31 Dec 2020			
	Exposure-weighted average PD	Exposure-weighted average LGD	Exposure value	RWAs	Exposure-weighted average PD	Exposure-weighted average LGD	Exposure value	RWAs	Exposure-weighted average PD	Exposure-weighted average LGD	Exposure value	RWAs
%	%	\$bn	\$bn	%	%	\$bn	\$bn	%	%	\$bn	\$bn	
Europe	1.46	27.1	256.5	34.5	0.97	15.1	193.8	14.5	15.61	29.2	0.7	0.5
UK	1.28	29.9	218.4	27.1	0.86	15.6	169.8	9.4	33.33	50.1	0.1	0.1
France	2.99	13.6	30.0	7.2	1.71	11.0	24.0	5.2	13.09	26.2	0.6	0.4
Asia	1.12	28.2	200.4	37.4	1.27	10.7	132.3	26.2	0.91	11.7	0.5	0.1
Hong Kong	0.71	33.1	154.5	33.0	0.62	10.0	91.2	22.0	0.91	11.7	0.5	0.1
Australia	3.19	10.0	21.7	1.2	3.19	10.0	21.7	1.2	–	–	–	–
Mainland China	–	–	–	–	–	–	–	–	–	–	–	–
Singapore	0.78	14.3	12.5	1.2	0.99	19.4	8.0	1.0	–	–	–	–
Middle East and North Africa	–	–	–	–	–	–	–	–	–	–	–	–
North America	2.59	38.5	49.2	11.7	2.61	32.1	42.7	9.1	0.81	18.4	0.4	–
US	4.61	60.1	23.3	9.0	5.10	51.2	18.5	6.8	–	–	–	–
Canada	0.78	19.1	25.9	2.7	0.72	17.6	24.2	2.3	0.81	18.4	0.4	–
Latin America	–	–	–	–	–	–	–	–	–	–	–	–

	Retail IRB approach											
	Retail QRRE				Other SME				Other non-SME			
	At 31 Dec 2020				At 31 Dec 2020				At 31 Dec 2020			
	Exposure-weighted average PD	Exposure-weighted average LGD	Exposure value	RWAs	Exposure-weighted average PD	Exposure-weighted average LGD	Exposure value	RWAs	Exposure-weighted average PD	Exposure-weighted average LGD	Exposure value	RWAs
%	%	\$bn	\$bn	%	%	\$bn	\$bn	%	%	\$bn	\$bn	
Europe	1.63	79.6	36.6	7.5	9.50	59.5	4.9	3.6	3.03	39.6	20.5	8.4
UK	1.82	79.6	36.6	7.5	7.43	85.2	2.9	3.0	4.67	78.1	9.0	7.1
France	31.05	78.6	–	–	12.40	23.5	2.1	0.5	4.60	24.7	3.3	1.1
Asia	0.89	97.3	40.5	8.1	0.41	26.8	0.1	–	0.70	10.5	27.0	3.0
Hong Kong	0.89	97.3	40.5	8.1	0.41	26.8	0.1	–	0.77	11.7	22.2	2.8
Australia	–	–	–	–	–	–	–	–	–	–	–	–
Mainland China	–	–	–	–	–	–	–	–	–	–	–	–
Singapore	–	–	–	–	–	–	–	–	0.42	5.2	4.5	0.2
Middle East and North Africa	–	–	–	–	–	–	–	–	–	–	–	–
North America	2.20	91.5	4.4	1.9	2.55	51.5	0.3	0.1	3.61	67.4	1.4	0.6
US	2.18	93.6	4.1	1.8	–	–	–	–	5.99	96.7	0.7	0.4
Canada	2.45	61.8	0.3	0.1	2.55	51.5	0.3	0.1	1.34	39.4	0.7	0.2
Latin America	–	–	–	–	–	–	–	–	–	–	–	–

Pillar 3 Disclosures at 31 December 2020

Table 74: Retail IRB exposure – by internal PD band

	PD range %	At 31 Dec 2020		At 31 Dec 2019	
		Average net carrying values ¹	Undrawn commitments	Average net carrying values ¹	Undrawn commitments
		\$bn	\$bn	\$bn	\$bn
Retail SME exposure secured by mortgages on immovable property		1.9	–	3.6	0.3
Band 1	0.000 to 0.483	0.8	–	1.1	0.1
Band 2	0.484 to 1.022	0.3	–	0.7	0.1
Band 3	1.023 to 4.914	0.6	–	1.3	0.1
Band 4	4.915 to 8.860	0.2	–	0.3	–
Band 5	8.861 to 15.000	–	–	0.1	–
Band 6	15.001 to 50.000	–	–	–	–
Band 7	50.001 to 100.000	–	–	0.1	–
Retail non-SME exposure secured by mortgages on immovable property		336.5	19.8	298.9	17.4
Band 1	0.000 to 0.483	283.6	17.5	252.0	15.8
Band 2	0.484 to 1.022	25.2	1.3	22.2	0.8
Band 3	1.023 to 4.914	20.1	0.9	18.7	0.7
Band 4	4.915 to 8.860	2.6	–	1.9	–
Band 5	8.861 to 15.000	0.8	–	0.6	0.1
Band 6	15.001 to 50.000	1.9	0.1	1.3	–
Band 7	50.001 to 100.000	2.3	–	2.2	–
Qualifying revolving retail exposure		139.6	124.8	135.1	117.8
Band 1	0.000 to 0.483	112.9	109.4	107.1	101.9
Band 2	0.484 to 1.022	11.7	7.9	12.0	8.1
Band 3	1.023 to 4.914	12.2	6.6	13.0	6.7
Band 4	4.915 to 8.860	1.4	0.5	1.5	0.6
Band 5	8.861 to 15.000	0.6	0.2	0.6	0.2
Band 6	15.001 to 50.000	0.5	0.1	0.6	0.2
Band 7	50.001 to 100.000	0.3	0.1	0.3	0.1
Other retail SME exposure		10.9	3.2	7.8	4.3
Band 1	0.000 to 0.483	1.1	0.5	1.3	1.1
Band 2	0.484 to 1.022	1.0	0.5	1.2	0.9
Band 3	1.023 to 4.914	6.5	1.7	3.8	1.7
Band 4	4.915 to 8.860	1.1	0.3	0.8	0.3
Band 5	8.861 to 15.000	0.4	0.1	0.3	0.1
Band 6	15.001 to 50.000	0.6	0.1	0.3	0.1
Band 7	50.001 to 100.000	0.2	–	0.1	0.1
Other retail non-SME exposure		75.7	29.5	62.6	27.4
Band 1	0.000 to 0.483	49.8	24.0	39.4	22.7
Band 2	0.484 to 1.022	12.4	3.2	10.7	2.2
Band 3	1.023 to 4.914	11.6	2.2	10.4	2.4
Band 4	4.915 to 8.860	0.9	0.1	1.2	0.1
Band 5	8.861 to 15.000	0.3	–	0.4	–
Band 6	15.001 to 50.000	0.4	–	0.2	–
Band 7	50.001 to 100.000	0.3	–	0.3	–
Total retail exposure		564.6	177.3	508.0	167.3
Band 1	0.000 to 0.483	448.2	151.4	400.9	141.7
Band 2	0.484 to 1.022	50.6	12.9	46.8	12.1
Band 3	1.023 to 4.914	51.0	11.4	47.2	11.6
Band 4	4.915 to 8.860	6.2	0.9	5.7	1.0
Band 5	8.861 to 15.000	2.1	0.3	2.0	0.4
Band 6	15.001 to 50.000	3.4	0.3	2.4	0.3
Band 7	50.001 to 100.000	3.1	0.1	3.0	0.2

¹ Average net carrying values are calculated by aggregating the net carrying values of the last five quarters and dividing by five.

Table 75: IRB expected loss and CRAs – by exposure class

	Expected loss \$bn	CRA	
		Balances \$bn	Charge for the year \$bn
1 Total IRB approach			
2 Central governments and central banks	0.8	0.1	–
3 Institutions	–	0.1	0.1
4 Corporates	8.4	7.5	4.6
5 Retail	2.7	3.0	2.3
– secured by mortgages on immovable property SME	–	–	–
– secured by mortgages on immovable property non-SME	0.9	0.4	0.3
– qualifying revolving retail	0.9	1.3	1.0
– other SME	0.4	0.6	0.3
– other non-SME	0.5	0.7	0.7
6 Total at 31 Dec 2020	11.9	10.7	7.0
1 Total IRB approach			
2 Central governments and central banks	0.6	0.1	–
3 Institutions	–	–	–
4 Corporates	5.5	4.3	1.0
5 Retail	2.6	2.0	1.1
– secured by mortgages on immovable property SME	0.1	0.1	–
– secured by mortgages on immovable property non-SME	0.8	0.2	–
– qualifying revolving retail	0.9	1.0	0.6
– other SME	0.4	0.3	0.2
– other non-SME	0.4	0.4	0.3
6 Total at 31 Dec 2019	8.7	6.4	2.1
1 Total IRB approach			
2 Central governments and central banks	0.1	0.1	–
3 Institutions	–	–	–
4 Corporates	5.0	4.1	0.5
5 Retail	2.4	1.8	0.9
– secured by mortgages on immovable property SME	0.1	0.1	0.1
– secured by mortgages on immovable property non-SME	0.8	0.3	–
– qualifying revolving retail	0.7	0.7	0.4
– other SME	0.4	0.3	0.2
– other non-SME	0.4	0.4	0.2
6 Total at 31 Dec 2018	7.5	6.0	1.4

Pillar 3 Disclosures at 31 December 2020

Table 76: Credit risk RWAs – by geographical region

	RWAs					
	Europe \$bn	Asia \$bn	MENA \$bn	North America \$bn	Latin America \$bn	Total \$bn
IRB advanced approach	73.8	231.8	9.6	82.0	6.4	403.6
– central governments and central banks	5.7	20.0	7.9	4.7	6.1	44.4
– institutions	3.0	7.0	0.6	0.8	0.2	11.6
– corporates	30.6	167.4	1.1	64.8	0.1	264.0
– total retail	34.5	37.4	–	11.7	–	83.6
IRB securitisation positions	2.0	–	–	–	–	2.0
IRB non-credit obligation assets	5.0	6.5	0.7	2.1	1.1	15.4
IRB foundation approach	93.9	–	9.5	0.1	–	103.5
– central governments and central banks	–	–	0.1	–	–	0.1
– institutions	–	–	0.2	–	–	0.2
– corporates	93.9	–	9.2	0.1	–	103.2
Standardised approach	36.5	69.0	30.4	11.9	19.6	167.4
– central governments and central banks	3.7	1.7	0.9	3.5	1.3	11.1
– regional governments or local authorities	–	–	1.3	–	0.6	1.9
– public sector entities	–	–	–	0.1	–	0.1
– institutions	0.2	0.1	0.2	–	0.1	0.6
– corporates	9.8	14.8	20.4	3.4	11.8	60.2
– retail	1.6	4.8	3.3	0.9	2.9	13.5
– secured by mortgages on immovable property	3.3	5.7	1.5	0.5	1.3	12.3
– exposures in default	0.8	0.4	1.9	0.5	0.9	4.5
– items associated with particularly high risk	5.3	–	0.1	0.4	0.1	5.9
– securitisation positions	5.7	1.2	–	1.1	0.2	8.2
– claims in the form of CIU	0.4	–	–	–	–	0.4
– equity	2.7	35.4	0.1	1.1	0.2	39.5
– other items	3.0	4.9	0.7	0.4	0.2	9.2
Total at 31 Dec 2020	211.2	307.3	50.2	96.1	27.1	691.9
IRB advanced approach	138.1	218.3	7.6	82.8	5.8	452.6
– central governments and central banks	4.1	15.9	6.0	4.9	5.4	36.3
– institutions	3.4	5.8	0.5	0.8	0.3	10.8
– corporates	100.2	160.5	1.1	65.8	0.1	327.7
– total retail	30.4	36.1	–	11.3	–	77.8
IRB securitisation positions	3.5	0.2	–	–	–	3.7
IRB non-credit obligation assets	4.6	4.9	0.9	2.0	0.9	13.3
IRB foundation approach	22.7	–	9.6	–	–	32.3
– central governments and central banks	–	–	–	–	–	–
– institutions	–	–	0.2	–	–	0.2
– corporates	22.7	–	9.4	–	–	32.1
Standardised approach	39.4	68.5	29.9	13.7	23.2	174.7
– central governments and central banks	3.5	1.9	0.5	4.3	1.0	11.2
– regional governments or local authorities	–	–	0.9	–	0.7	1.6
– public sector entities	–	–	–	–	–	–
– institutions	0.1	0.1	0.6	–	0.1	0.9
– corporates	15.1	17.0	20.1	5.0	15.3	72.5
– retail	1.1	5.4	3.7	0.9	3.3	14.4
– secured by mortgages on immovable property	3.3	5.5	1.4	0.6	1.2	12.0
– exposures in default	0.8	0.5	1.9	0.3	0.6	4.1
– items associated with particularly high risk	7.2	–	0.1	0.5	0.1	7.9
– securitisation positions	2.3	1.3	–	0.8	0.2	4.6
– claims in the form of CIU	0.4	–	–	–	–	0.4
– equity	2.9	32.0	0.2	1.0	0.2	36.3
– other items	2.7	4.8	0.5	0.3	0.5	8.8
Total at 31 Dec 2019	208.3	291.9	48.0	98.5	29.9	676.6

Table 77: Standardised exposure – by credit quality step

	At 31 Dec 2020			At 31 Dec 2019		
	Original exposure ¹ \$bn	Exposure value \$bn	RWAs [^] \$bn	Original exposure ¹ \$bn	Exposure value \$bn	RWAs [^] \$bn
Central governments and central banks						
Credit quality step 1	288.6	309.7		171.3	180.5	
Credit quality step 2	–	–		0.3	0.2	
Credit quality step 3	–	0.1		0.4	0.4	
Credit quality step 4	–	–		–	–	
Credit quality step 5	–	–		–	–	
Credit quality step unrated	4.5	4.4		4.6	4.4	
	293.1	314.2	11.1	176.6	185.5	11.2
Institutions						
Credit quality step 1	0.1	0.1		0.3	0.4	
Credit quality step 2	0.1	0.1		0.9	0.2	
Credit quality step 3	–	–		0.7	0.6	
Credit quality step 4	0.3	0.3		–	–	
Credit quality step 5	0.1	0.1		0.1	0.1	
Credit quality step unrated	0.2	0.3		0.4	0.3	
	0.8	0.9	0.6	2.4	1.6	0.9
Corporates						
Credit quality step 1	1.7	4.1		1.6	4.0	
Credit quality step 2	2.8	1.8		3.7	2.7	
Credit quality step 3	2.3	1.6		2.4	1.7	
Credit quality step 4	1.9	1.2		2.6	1.8	
Credit quality step 5	0.6	0.5		0.6	0.4	
Credit quality step 6	0.4	0.2		0.6	0.3	
Credit quality step unrated	123.6	55.4		148.9	65.9	
	133.3	64.8	60.2	160.4	76.8	72.5

¹ Figures presented on an 'obligor basis'.

[^] Figures have been prepared on an IFRS 9 transitional basis.

Table 78: Specialised lending on slotting approach (CR10)

Regulatory categories	Remaining maturity	On-balance sheet amount	Off-balance sheet amount	Risk weight	Exposure amount	RWAs	Expected loss
		\$bn	\$bn	%	\$bn	\$bn	\$bn
Category 1 – Strong	Less than 2.5 years	15.6	1.8	50	16.2	8.1	–
	Equal to or more than 2.5 years	8.3	1.2	70	8.9	6.2	0.1
Category 2 – Good	Less than 2.5 years	5.6	0.9	70	5.9	4.1	–
	Equal to or more than 2.5 years	2.2	0.3	90	2.2	2.0	–
Category 3 – Satisfactory	Less than 2.5 years	0.4	–	115	0.4	0.5	–
	Equal to or more than 2.5 years	0.3	–	115	0.3	0.3	–
Category 4 – Weak	Less than 2.5 years	0.1	–	250	0.1	0.2	–
	Equal to or more than 2.5 years	–	–	250	–	–	–
Category 5 – Default	Less than 2.5 years	0.5	–	–	0.7	–	0.4
	Equal to or more than 2.5 years	0.1	–	–	0.1	–	–
Total at 31 Dec 2020	Less than 2.5 years	22.2	2.7		23.3	12.9	0.4
	Equal to or more than 2.5 years	10.9	1.5		11.5	8.5	0.1
Category 1 – Strong	Less than 2.5 years	15.6	2.6	50	16.7	8.4	–
	Equal to or more than 2.5 years	11.5	2.3	70	12.5	8.7	0.1
Category 2 – Good	Less than 2.5 years	3.6	0.3	70	3.7	2.6	–
	Equal to or more than 2.5 years	2.0	0.8	90	2.3	2.1	–
Category 3 – Satisfactory	Less than 2.5 years	0.5	–	115	0.5	0.5	–
	Equal to or more than 2.5 years	0.1	–	115	0.1	0.1	–
Category 4 – Weak	Less than 2.5 years	0.1	–	250	0.1	0.2	–
	Equal to or more than 2.5 years	–	–	250	–	–	–
Category 5 – Default	Less than 2.5 years	0.5	–	–	0.8	–	0.4
	Equal to or more than 2.5 years	–	–	–	0.1	–	–
Total at 31 Dec 2019	Less than 2.5 years	20.3	2.9		21.8	11.7	0.4
	Equal to or more than 2.5 years	13.6	3.1		15.0	10.9	0.1

Pillar 3 Disclosures at 31 December 2020

Table 79: IRB – Credit risk exposures by portfolio and PD range (CR6)

PD scale	Original on-balance sheet gross exposure \$bn	Off-balance sheet exposures pre-CCF \$bn	Average CCF %	EAD post-CRM and post-CCF \$bn	Average PD %	Number of obligors	Average LGD %	Average maturity years	RWAs [^] \$bn	RWA density %	Expected loss \$bn	Value adjustments and provisions [^] \$bn
AIRB – Central government and central banks												
0.00 to <0.15	406.2	2.6	42.4	407.5	0.02	410	42.6	1.80	26.8	7	–	
0.15 to <0.25	6.6	–	44.7	6.6	0.22	15	44.8	3.10	3.6	55	–	
0.25 to <0.50	0.6	–	43.8	0.6	0.37	9	45.0	1.80	0.3	56	–	
0.50 to <0.75	5.5	0.2	55.6	5.7	0.63	74	44.5	1.30	3.7	65	–	
0.75 to <2.50	7.5	–	51.7	7.4	1.29	33	42.3	1.20	6.2	83	–	
2.50 to <10.00	1.5	0.1	30.0	1.2	3.89	14	41.3	1.60	1.4	116	–	
10.00 to <100.00	2.1	0.2	11.8	1.9	71.52	3	43.2	1.10	2.4	126	0.7	
100.00 (Default)	0.2	–	–	0.2	100.00	1	45.0	1.30	–	–	0.1	
Sub-total	430.2	3.1	42.8	431.1	0.43	559	42.7	1.80	44.4	10	0.8	0.1
AIRB – Institutions												
0.00 to <0.15	59.7	11.4	29.7	63.7	0.05	4,011	36.6	1.30	8.3	13	–	
0.15 to <0.25	1.4	1.3	36.2	2.4	0.22	304	45.0	1.10	1.0	41	–	
0.25 to <0.50	0.7	0.4	29.6	0.8	0.37	129	42.2	0.80	0.4	48	–	
0.50 to <0.75	1.1	0.4	65.4	1.4	0.63	128	44.6	1.20	1.1	75	–	
0.75 to <2.50	1.4	0.6	31.8	1.0	1.13	167	31.7	2.10	0.7	76	–	
2.50 to <10.00	0.1	0.1	19.2	0.1	3.71	31	44.2	0.50	0.1	119	–	
10.00 to <100.00	–	0.1	49.3	0.1	15.33	19	14.0	1.30	–	63	–	
100.00 (Default)	–	–	39.8	–	100.00	3	49.0	1.00	–	50	–	
Sub-total	64.4	14.3	31.5	69.5	0.15	4,792	37.0	1.30	11.6	17	–	0.1
AIRB – Corporate – Specialised Lending (excluding Slotting)¹												
0.00 to <0.15	1.7	0.6	54.6	1.8	0.09	41	18.8	3.10	0.2	12	–	
0.15 to <0.25	1.6	0.7	42.3	1.9	0.22	45	27.4	3.60	0.6	31	–	
0.25 to <0.50	1.4	1.4	38.3	1.8	0.37	36	20.6	3.60	0.6	33	–	
0.50 to <0.75	0.3	0.7	46.2	0.7	0.63	19	31.2	3.00	0.3	53	–	
0.75 to <2.50	2.0	0.9	42.6	2.0	1.38	49	25.5	3.40	1.3	62	–	
2.50 to <10.00	0.3	–	78.3	0.3	4.58	11	23.5	3.80	0.2	75	–	
10.00 to <100.00	0.3	–	94.6	0.3	31.15	7	20.1	2.70	0.3	106	–	
100.00 (Default)	0.3	0.1	60.5	0.3	100.00	12	14.7	4.10	0.2	64	0.1	
Sub-total	7.9	4.4	44.3	9.1	5.36	220	23.3	3.40	3.7	41	0.1	0.1
AIRB – Corporate – Other												
0.00 to <0.15	74.7	136.5	32.7	154.8	0.08	6,469	40.8	2.10	32.4	21	0.1	
0.15 to <0.25	29.7	51.9	31.4	51.7	0.22	4,575	42.5	1.70	20.1	39	–	
0.25 to <0.50	28.3	37.9	29.9	44.8	0.37	4,798	38.6	1.80	20.8	46	0.1	
0.50 to <0.75	43.8	39.7	30.6	55.3	0.63	6,454	37.0	1.70	31.6	57	0.1	
0.75 to <2.50	123.3	101.4	28.5	118.0	1.35	29,867	35.6	1.80	87.8	75	0.6	
2.50 to <10.00	33.6	29.0	30.1	31.1	4.33	9,409	36.1	2.00	33.9	109	0.5	
10.00 to <100.00	6.2	4.0	33.8	6.1	18.25	1,304	29.2	2.30	8.3	135	0.3	
100.00 (Default)	5.2	0.6	23.7	5.4	100.00	1,124	41.5	1.70	4.0	74	2.8	
Sub-total	344.8	401.0	31.0	467.2	2.18	64,000	38.5	1.90	238.9	51	4.5	3.9
Wholesale AIRB – Total at 31 Dec 2020²												
	913.2	422.8	31.2	1,042.8	1.29	69,571	40.1	1.80	314.0	31	5.4	4.2

Table 79: IRB – Credit risk exposures by portfolio and PD range (CR6) (continued)

PD scale	Original on-balance sheet gross exposure \$bn	Off-balance sheet exposures pre-CCF \$bn	Average CCF %	EAD post-CRM and post-CCF \$bn	Average PD %	Number of obligors	Average LGD %	Average maturity years	RWAs ^A \$bn	RWA density %	Expected loss \$bn	Value adjustments and provisions ^A \$bn
AIRB – Secured by mortgages on immovable property SME												
0.00 to <0.15	0.3	–	100.0	0.3	0.06	928	12.0	–	–	5	–	–
0.15 to <0.25	–	–	47.7	–	0.18	90	19.9	–	–	8	–	–
0.25 to <0.50	0.4	–	47.4	0.3	0.38	2,111	18.9	–	–	10	–	–
0.50 to <0.75	0.1	–	85.1	0.1	0.57	255	21.0	–	–	17	–	–
0.75 to <2.50	0.2	–	67.0	0.2	1.45	818	21.9	–	0.1	34	–	–
2.50 to <10.00	0.4	–	67.8	0.4	4.73	1,532	24.6	–	0.3	65	–	–
10.00 to <100.00	–	–	32.0	0.1	15.74	465	31.4	–	0.1	133	–	–
100.00 (Default)	0.1	–	100.0	0.1	100.00	948	40.1	–	0.1	134	–	–
Sub-total	1.5	–	73.9	1.5	7.28	7,147	21.0	–	0.6	37	–	–
AIRB – Secured by mortgages on immovable property non-SME												
0.00 to <0.15	213.6	12.4	86.5	228.4	0.07	704,597	15.5	–	18.0	8	–	–
0.15 to <0.25	44.7	2.2	92.5	46.7	0.20	219,781	16.0	–	6.5	14	–	–
0.25 to <0.50	36.9	3.0	44.5	38.3	0.35	215,008	16.4	–	6.9	18	–	–
0.50 to <0.75	15.7	0.7	73.7	16.3	0.57	89,486	15.2	–	3.3	20	–	–
0.75 to <2.50	25.0	1.2	73.6	25.9	1.33	164,852	13.4	–	7.1	27	0.1	–
2.50 to <10.00	6.7	0.2	84.0	6.9	4.56	41,967	11.3	–	2.4	35	–	–
10.00 to <100.00	3.3	0.1	101.7	3.4	24.75	25,632	17.1	–	3.4	100	0.1	–
100.00 (Default)	2.7	–	24.7	2.7	100.00	26,249	23.3	–	2.2	82	0.7	–
Sub-total	348.6	19.8	79.4	368.6	1.27	1,487,572	15.5	–	49.8	14	0.9	0.4
AIRB – Qualifying revolving retail exposures												
0.00 to <0.15	5.4	79.1	50.5	45.3	0.06	10,693,104	89.0	–	1.8	4	–	–
0.15 to <0.25	1.2	16.4	49.6	9.2	0.20	3,506,564	93.1	–	1.2	13	–	–
0.25 to <0.50	2.2	14.5	43.6	8.4	0.35	2,371,363	90.8	–	1.5	18	–	–
0.50 to <0.75	2.3	5.1	51.3	4.9	0.59	939,613	87.8	–	1.3	27	–	–
0.75 to <2.50	4.7	7.9	46.8	8.4	1.40	1,937,102	86.7	–	4.1	49	0.1	–
2.50 to <10.00	2.7	1.6	68.6	3.9	4.87	968,333	84.0	–	4.3	111	0.2	–
10.00 to <100.00	0.8	0.3	67.0	1.0	30.64	333,268	82.6	–	2.5	240	0.3	–
100.00 (Default)	0.4	–	49.3	0.4	100.00	125,030	85.9	–	0.8	202	0.3	–
Sub-total	19.7	124.9	49.6	81.5	1.38	20,874,377	89.0	–	17.5	21	0.9	1.3
AIRB – Other SME												
0.00 to <0.15	0.1	0.1	70.4	0.1	0.10	58,340	57.2	–	–	12	–	–
0.15 to <0.25	–	0.1	50.3	0.1	0.21	38,369	91.4	–	–	31	–	–
0.25 to <0.50	0.1	0.3	64.0	0.3	0.38	106,149	76.4	–	0.1	38	–	–
0.50 to <0.75	0.2	0.3	84.8	0.4	0.62	86,640	61.8	–	0.2	40	–	–
0.75 to <2.50	5.6	1.5	49.3	2.1	1.58	271,860	67.0	–	1.4	70	–	–
2.50 to <10.00	3.9	0.8	58.7	1.8	4.96	130,184	44.7	–	1.1	61	–	–
10.00 to <100.00	2.0	0.1	49.8	0.3	18.86	79,915	62.4	–	0.4	143	0.1	–
100.00 (Default)	0.3	–	35.1	0.3	100.00	20,713	47.9	–	0.5	155	0.3	–
Sub-total	12.2	3.2	56.8	5.4	8.89	792,170	58.3	–	3.7	70	0.4	0.6
AIRB – Other non-SME												
0.00 to <0.15	11.0	15.8	10.2	13.1	0.06	664,664	8.3	–	0.3	2	–	–
0.15 to <0.25	4.4	2.7	32.6	5.7	0.21	464,914	36.6	–	1.0	18	–	–
0.25 to <0.50	8.9	5.7	16.2	10.1	0.36	401,321	14.8	–	1.1	11	–	–
0.50 to <0.75	5.5	1.7	20.1	5.9	0.61	225,786	31.6	–	1.6	28	–	–
0.75 to <2.50	10.4	2.9	4.6	10.6	1.28	399,998	30.8	–	4.1	39	–	–
2.50 to <10.00	2.4	0.8	25.1	2.7	4.23	222,677	56.9	–	2.5	93	0.1	–
10.00 to <100.00	0.5	–	17.4	0.5	30.12	94,482	70.6	–	0.8	153	0.1	–
100.00 (Default)	0.4	–	49.9	0.4	100.00	46,480	66.9	–	0.6	162	0.3	–
Sub-total	43.5	29.6	13.8	49.0	1.76	2,520,322	24.3	–	12.0	25	0.5	0.7
Retail AIRB – Total at 31 Dec 2020	425.5	177.5	47.1	506.0	1.43	25,681,588	28.6	–	83.6	17	2.7	3.0

Pillar 3 Disclosures at 31 December 2020

Table 79: IRB – Credit risk exposures by portfolio and PD range (CR6) (continued)

PD scale	Original on-balance sheet gross exposure \$bn	Off-balance sheet exposures pre-CCF \$bn	Average CCF %	EAD post-CRM and post-CCF \$bn	Average PD %	Number of obligors	Average LGD %	Average maturity years	RWAs [^] \$bn	RWA density %	Expected loss \$bn	Value adjustments and provisions [^] \$bn
FIRB – Central government and central banks												
0.00 to <0.15	–	–	75.0	0.5	0.04	1	45.0	4.60	0.1	29	–	–
0.15 to <0.25	–	–	–	–	–	–	–	–	–	–	–	–
0.25 to <0.50	–	–	–	–	–	–	–	–	–	–	–	–
0.50 to <0.75	–	–	–	–	–	–	–	–	–	–	–	–
0.75 to <2.50	–	–	–	–	–	–	–	–	–	–	–	–
2.50 to <10.00	–	–	–	–	–	–	–	–	–	–	–	–
10.00 to <100.00	–	–	–	–	–	–	–	–	–	–	–	–
100.00 (Default)	–	–	–	–	–	–	–	–	–	–	–	–
Sub-total	–	–	75.0	0.5	0.04	1	45.0	4.60	0.1	29	–	–
FIRB – Institutions												
0.00 to <0.15	0.4	–	23.7	0.3	0.03	4	44.9	2.70	0.1	17	–	–
0.15 to <0.25	0.3	–	29.7	0.3	0.22	1	45.0	2.40	0.1	48	–	–
0.25 to <0.50	–	–	16.8	–	0.37	2	45.0	1.60	–	54	–	–
0.50 to <0.75	–	–	–	–	0.63	–	45.0	3.60	–	96	–	–
0.75 to <2.50	–	0.2	–	–	–	1	–	–	–	–	–	–
2.50 to <10.00	–	–	–	–	–	–	–	–	–	–	–	–
10.00 to <100.00	–	–	–	–	–	–	–	–	–	–	–	–
100.00 (Default)	–	–	–	–	–	–	–	–	–	–	–	–
Sub-total	0.7	0.2	25.5	0.6	0.11	8	44.9	2.60	0.2	30	–	–
FIRB – Corporate – Other												
0.00 to <0.15	24.5	50.6	53.5	52.8	0.09	6,442	39.7	2.10	12.1	23	–	–
0.15 to <0.25	14.2	19.1	46.0	23.9	0.22	6,367	33.5	2.00	8.2	34	–	–
0.25 to <0.50	15.7	15.2	42.3	20.4	0.37	6,153	35.5	2.00	9.7	48	–	–
0.50 to <0.75	12.6	10.3	36.9	16.6	0.63	5,504	30.8	2.00	8.6	52	–	–
0.75 to <2.50	38.0	33.9	30.8	44.4	1.41	45,024	37.1	2.10	37.9	85	0.3	–
2.50 to <10.00	15.1	8.5	42.4	16.5	4.48	7,769	39.7	2.30	21.5	130	0.3	–
10.00 to <100.00	3.4	1.2	28.9	3.4	15.44	1,577	34.7	1.80	5.2	154	0.2	–
100.00 (Default)	5.0	1.2	42.3	5.2	100.00	1,971	45.0	1.80	–	–	2.5	–
Sub-total	128.5	140.0	43.7	183.2	4.04	80,807	37.1	2.10	103.2	56	3.3	3.2
FIRB – Total at 31 Dec 2020	129.2	140.2	43.7	184.3	4.02	80,816	37.1	2.10	103.5	56	3.3	3.2

[^] Figures have been prepared on an IFRS 9 transitional basis.

1 Slotting exposures are disclosed in Table 78: Specialised lending on slotting approach (CR10).

2 The Wholesale AIRB Total includes non-credit obligation assets amounting to \$65.9bn of original exposure and EAD, and \$15.4bn of RWAs.

Table 79: IRB – Credit risk exposures by portfolio and PD range (CR6) (continued)

PD scale	Original on-balance sheet gross exposure \$bn	Off-balance sheet exposures pre-CCF \$bn	Average CCF %	EAD post-CRM and post-CCF \$bn	Average PD %	Number of obligors	Average LGD %	Average maturity years	RWAs [^] \$bn	RWA density %	Expected loss \$bn	Value adjustments and provisions \$bn
AIRB – Central government and central banks												
0.00 to <0.15	328.5	2.6	42.9	329.6	0.02	269	41.6	2.10	26.1	8	–	
0.15 to <0.25	2.0	0.3	2.6	2.0	0.22	11	45.0	1.40	0.8	38	–	
0.25 to <0.50	2.3	–	20.0	2.3	0.37	12	45.0	1.20	1.1	50	–	
0.50 to <0.75	2.4	0.3	60.6	2.6	0.63	15	45.0	1.10	1.6	64	–	
0.75 to <2.50	5.6	0.2	31.1	5.4	1.39	21	44.5	1.20	4.8	89	–	
2.50 to <10.00	0.5	0.2	0.2	0.1	7.58	8	7.8	3.30	–	31	–	
10.00 to <100.00	1.5	–	–	1.5	75.00	5	45.0	1.00	1.9	130	0.6	
100.00 (Default)	–	–	–	–	–	–	–	–	–	–	–	
Sub-total	342.8	3.6	40.1	343.5	0.37	341	41.7	2.10	36.3	11	0.6	0.1
AIRB – Institutions												
0.00 to <0.15	56.7	9.9	32.4	59.6	0.05	2,520	37.1	1.40	7.9	13	–	
0.15 to <0.25	2.9	1.2	27.4	3.3	0.22	290	33.7	1.00	1.0	30	–	
0.25 to <0.50	1.3	0.3	56.5	1.5	0.37	145	41.3	1.10	0.7	48	–	
0.50 to <0.75	0.8	0.1	3.8	0.8	0.63	102	45.0	1.40	0.6	82	–	
0.75 to <2.50	0.8	0.6	28.6	0.9	1.14	177	28.3	2.10	0.5	59	–	
2.50 to <10.00	–	–	36.7	0.1	3.60	25	45.3	0.90	0.1	125	–	
10.00 to <100.00	–	0.1	17.9	–	15.75	19	45.8	1.90	–	216	–	
100.00 (Default)	–	–	–	–	100.00	1	45.8	1.00	–	10	–	
Sub-total	62.5	12.2	32.0	66.2	0.09	3,279	37.0	1.40	10.8	16	–	–
AIRB – Corporate – Specialised Lending (excluding Slotting)¹												
0.00 to <0.15	2.1	1.2	39.5	2.5	0.10	40	20.5	3.30	0.4	17	–	
0.15 to <0.25	1.8	0.8	32.0	2.0	0.22	44	29.3	3.80	0.8	40	–	
0.25 to <0.50	1.1	0.6	40.1	1.2	0.37	31	27.0	3.50	0.5	43	–	
0.50 to <0.75	1.1	0.2	52.6	1.0	0.63	24	26.1	3.70	0.6	53	–	
0.75 to <2.50	1.2	0.7	51.5	1.4	1.40	35	28.3	3.10	1.0	74	–	
2.50 to <10.00	0.6	–	69.2	0.5	4.51	13	25.3	3.30	0.4	85	–	
10.00 to <100.00	0.1	–	57.5	0.1	18.28	4	12.3	2.50	0.1	64	–	
100.00 (Default)	0.2	0.1	66.2	0.2	100.00	12	19.5	4.50	0.3	129	–	
Sub-total	8.2	3.6	41.8	8.9	3.45	203	25.4	3.50	4.1	46	–	0.1
AIRB – Corporate – Other												
0.00 to <0.15	107.4	171.5	36.0	212.1	0.08	10,842	40.7	2.10	45.5	21	0.1	
0.15 to <0.25	50.0	64.0	36.4	83.8	0.22	9,967	38.8	2.00	32.2	38	0.1	
0.25 to <0.50	55.4	51.0	32.9	75.3	0.37	11,148	36.6	2.10	35.3	47	0.1	
0.50 to <0.75	54.1	40.5	31.6	63.2	0.63	10,296	35.0	2.00	35.7	57	0.1	
0.75 to <2.50	142.5	101.3	30.0	132.2	1.36	41,384	37.0	1.90	103.4	78	0.7	
2.50 to <10.00	34.7	25.8	33.0	32.7	4.31	11,505	38.7	1.90	38.8	119	0.6	
10.00 to <100.00	5.0	3.7	39.1	4.9	17.34	1,812	33.1	1.90	7.6	156	0.3	
100.00 (Default)	4.2	0.6	35.8	4.4	100.00	2,246	46.1	1.80	2.5	57	2.4	
Sub-total	453.3	458.4	34.1	608.6	1.56	99,200	38.4	2.00	301.0	49	4.4	3.4
Wholesale AIRB – Total at 31 Dec 2019²												
	929.2	477.8	34.2	1,089.6	1.09	103,023	39.3	2.00	365.5	34	5.0	3.6

Pillar 3 Disclosures at 31 December 2020

Table 79: IRB – Credit risk exposures by portfolio and PD range (CR6) (continued)

PD scale	Original on-balance sheet gross exposure \$bn	Off-balance sheet exposures pre-CCF \$bn	Average CCF %	EAD post-CRM and post-CCF \$bn	Average PD %	Number of obligors	Average LGD %	Average maturity years	RWAs [^] \$bn	RWA density %	Expected loss \$bn	Value adjustments and provisions \$bn
AIRB – Secured by mortgages on immovable property SME												
0.00 to <0.15	0.4	–	46.0	0.3	0.06	1,196	11.8	–	–	4	–	
0.15 to <0.25	0.1	–	36.2	0.1	0.21	2,192	32.7	–	–	13	–	
0.25 to <0.50	0.6	–	41.6	0.6	0.35	6,785	27.0	–	0.1	15	–	
0.50 to <0.75	0.3	0.1	38.7	0.4	0.62	5,423	33.1	–	0.1	27	–	
0.75 to <2.50	1.0	0.2	37.8	1.0	1.44	13,167	33.6	–	0.5	48	–	
2.50 to <10.00	0.7	0.1	38.4	0.8	4.54	7,098	30.8	–	0.6	81	–	
10.00 to <100.00	0.1	–	37.9	0.1	17.47	1,117	31.1	–	0.1	135	–	
100.00 (Default)	0.1	–	66.0	0.1	100.00	1,042	33.8	–	0.1	85	0.1	
Sub-total	3.3	0.4	38.9	3.4	5.03	38,020	29.5	–	1.5	45	0.1	0.1
AIRB – Secured by mortgages on immovable property non-SME												
0.00 to <0.15	191.2	11.1	88.0	204.8	0.07	1,110,935	15.7	–	14.8	7	–	
0.15 to <0.25	33.4	1.7	88.4	35.1	0.21	136,145	16.2	–	4.6	13	–	
0.25 to <0.50	27.3	3.0	40.4	28.7	0.35	126,980	17.2	–	5.2	18	–	
0.50 to <0.75	14.1	0.4	91.6	14.6	0.59	56,837	14.9	–	2.8	19	–	
0.75 to <2.50	21.1	1.0	76.6	22.0	1.36	99,412	13.1	–	5.9	27	0.1	
2.50 to <10.00	6.1	0.1	97.0	6.3	4.42	27,562	11.3	–	2.4	38	–	
10.00 to <100.00	1.8	0.1	99.3	1.9	23.22	16,032	20.1	–	2.4	129	0.1	
100.00 (Default)	2.3	–	77.9	2.3	100.00	17,845	23.8	–	2.3	98	0.6	
Sub-total	297.3	17.4	79.3	315.7	1.18	1,591,748	15.7	–	40.4	13	0.8	0.2
AIRB – Qualifying revolving retail exposures												
0.00 to <0.15	5.8	72.5	49.4	41.4	0.06	13,492,492	89.4	–	1.8	4	–	
0.15 to <0.25	1.3	15.7	49.0	8.9	0.20	2,827,957	92.5	–	1.0	11	–	
0.25 to <0.50	2.5	14.2	41.9	8.4	0.36	2,155,649	90.3	–	1.5	18	–	
0.50 to <0.75	2.9	5.3	48.2	5.4	0.61	1,012,194	87.4	–	1.4	26	–	
0.75 to <2.50	6.1	7.8	47.9	9.8	1.43	1,894,368	86.0	–	4.7	48	0.1	
2.50 to <10.00	3.7	1.8	63.8	4.8	4.91	887,239	84.2	–	5.3	111	0.2	
10.00 to <100.00	1.0	0.4	65.2	1.2	30.09	315,052	84.3	–	2.6	209	0.4	
100.00 (Default)	0.3	–	25.3	0.3	100.00	151,301	77.9	–	0.5	195	0.2	
Sub-total	23.6	117.7	48.5	80.2	1.40	22,736,252	88.8	–	18.8	23	0.9	1.0
AIRB – Other SME												
0.00 to <0.15	0.1	0.4	31.5	0.2	0.09	99,557	73.9	–	–	14	–	
0.15 to <0.25	–	0.3	37.6	0.1	0.23	76,713	85.0	–	–	31	–	
0.25 to <0.50	0.2	0.5	48.4	0.4	0.38	135,359	76.5	–	0.2	40	–	
0.50 to <0.75	0.2	0.5	58.2	0.5	0.64	126,958	67.2	–	0.2	46	–	
0.75 to <2.50	1.1	1.2	54.9	1.7	1.60	327,051	68.3	–	1.2	69	–	
2.50 to <10.00	1.7	1.1	49.6	2.5	4.85	183,343	59.7	–	1.9	80	0.1	
10.00 to <100.00	0.4	0.1	61.3	0.5	20.11	75,895	76.8	–	0.7	141	0.1	
100.00 (Default)	0.3	0.1	77.9	0.3	100.00	19,210	44.3	–	0.5	138	0.2	
Sub-total	4.0	4.2	50.3	6.2	9.41	1,044,086	65.3	–	4.7	76	0.4	0.3
AIRB – Other non-SME												
0.00 to <0.15	15.1	14.7	15.8	17.7	0.07	675,819	12.5	–	0.7	4	–	
0.15 to <0.25	8.1	3.7	39.7	9.9	0.20	529,201	24.7	–	1.2	12	–	
0.25 to <0.50	12.2	4.4	24.8	13.5	0.37	459,987	19.0	–	1.6	13	–	
0.50 to <0.75	7.9	1.8	22.8	8.4	0.62	246,120	22.6	–	1.7	20	–	
0.75 to <2.50	13.2	1.7	9.7	13.5	1.31	490,546	24.9	–	4.1	30	–	
2.50 to <10.00	3.5	1.1	23.7	3.9	4.27	238,724	34.0	–	2.0	52	0.1	
10.00 to <100.00	0.8	–	16.4	0.9	23.85	96,236	42.5	–	0.7	86	0.1	
100.00 (Default)	0.3	–	59.5	0.3	100.00	36,471	48.4	–	0.4	114	0.2	
Sub-total	61.1	27.4	20.9	68.1	1.48	2,773,104	21.0	–	12.4	18	0.4	0.4
Retail AIRB – Total at 31 Dec 2019												
	389.3	167.1	47.3	473.6	1.40	28,183,210	29.6	–	77.8	16	2.6	2.0

Table 79: IRB – Credit risk exposures by portfolio and PD range (CR6) (continued)

PD scale	Original on-balance sheet gross exposure \$bn	Off-balance sheet exposures pre-CCF \$bn	Average CCF %	EAD post-CRM and post-CCF \$bn	Average PD %	Number of obligors	Average LGD %	Average maturity years	RWAs ¹ \$bn	RWA density %	Expected loss \$bn	Value adjustments and provisions \$bn
FIRB – Central government and central banks												
0.00 to <0.15	–	–	75	0.1	0.03	1	45.0	3.60	–	20	–	–
0.15 to <0.25	–	–	–	–	–	–	–	–	–	–	–	–
0.25 to <0.50	–	–	–	–	–	–	–	–	–	–	–	–
0.50 to <0.75	–	–	–	–	–	–	–	–	–	–	–	–
0.75 to <2.50	–	–	–	–	–	–	–	–	–	–	–	–
2.50 to <10.00	–	–	–	–	–	–	–	–	–	–	–	–
10.00 to <100.00	–	–	–	–	–	–	–	–	–	–	–	–
100.00 (Default)	–	–	–	–	–	–	–	–	–	–	–	–
Sub-total	–	–	75	0.1	0.03	1	45.0	3.60	–	20	–	–
FIRB – Institutions												
0.00 to <0.15	0.7	–	29.3	0.6	0.08	2	45.0	2.70	0.2	25	–	–
0.15 to <0.25	–	–	40.9	–	0.22	1	45.0	2.40	–	48	–	–
0.25 to <0.50	–	–	16.9	–	0.37	1	45.0	0.10	–	36	–	–
0.50 to <0.75	–	–	–	–	–	–	–	–	–	–	–	–
0.75 to <2.50	–	–	–	–	–	–	–	–	–	–	–	–
2.50 to <10.00	–	–	–	–	–	–	–	–	–	–	–	–
10.00 to <100.00	–	–	–	–	–	–	–	–	–	–	–	–
100.00 (Default)	–	–	–	–	–	–	–	–	–	–	–	–
Sub-total	0.7	–	31.3	0.6	0.08	4	45.0	2.70	0.2	26	–	–
FIRB – Corporate – Other												
0.00 to <0.15	10.2	15.5	38.5	17.0	0.08	1,357	44.1	2.10	4.1	24	–	–
0.15 to <0.25	4.8	6.5	39.9	7.0	0.22	1,431	43.8	2.40	3.3	47	–	–
0.25 to <0.50	4.6	5.8	28.4	6.1	0.37	1,905	42.8	1.90	3.5	56	–	–
0.50 to <0.75	4.5	6.8	33.7	6.7	0.63	1,676	39.0	1.60	4.2	63	–	–
0.75 to <2.50	10.7	10.0	21.4	12.1	1.32	5,329	43.1	1.60	10.8	89	0.1	–
2.50 to <10.00	3.7	2.9	20.6	3.7	4.60	1,239	42.4	1.60	4.9	133	0.1	–
10.00 to <100.00	0.6	0.5	21.4	0.7	13.62	186	43.7	1.40	1.3	197	–	–
100.00 (Default)	0.8	0.2	20.7	0.9	100.00	435	43.7	2.10	–	–	0.4	–
Sub-total	39.9	48.2	32.1	54.2	2.59	13,558	42.9	1.90	32.1	59	0.6	0.5
FIRB – Total at 31 Dec 2019	40.6	48.2	32.1	54.9	2.55	13,563	43.0	1.90	32.3	59	0.6	0.5

1 Slotting exposures are disclosed in Table 78: Specialised lending on slotting approach (CR10).

2 The Wholesale AIRB Total includes non-credit obligation assets amounting to \$62.4bn of original exposure and EAD, and \$13.3bn of RWAs.

Counterparty credit risk

Table 80: Counterparty credit risk – RWAs by exposure class, product and geographical region

	Footnotes	RWAs					Total \$bn	Capital required \$bn
		Europe \$bn	Asia \$bn	MENA \$bn	North America \$bn	Latin America \$bn		
By exposure class								
IRB advanced approach		8.9	9.5	0.6	4.6	0.6	24.2	1.8
– central governments and central banks		0.3	0.5	0.3	–	0.5	1.6	0.1
– institutions		7.7	2.4	0.1	0.8	0.1	11.1	0.8
– corporates		0.9	6.6	0.2	3.8	–	11.5	0.9
IRB foundation approach		12.1	–	0.3	–	–	12.4	1.0
– corporates		12.1	–	0.3	–	–	12.4	1.0
Standardised approach		0.3	0.5	0.2	0.1	1.0	2.1	0.2
– central governments and central banks		–	–	–	–	–	–	–
– institutions		–	–	–	–	0.1	0.1	–
– corporates		0.3	0.5	0.2	0.1	0.9	2.0	0.2
CVA advanced	1	1.5	0.6	–	0.3	–	2.4	0.2
CVA standardised	1	0.2	–	0.3	0.1	0.1	0.7	0.1
CCP standardised		0.7	0.1	–	0.2	–	1.0	0.1
At 31 Dec 2020		23.7	10.7	1.4	5.3	1.7	42.8	3.4
By product								
Derivatives (OTC and exchange traded derivatives)		15.1	7.4	0.8	4.1	1.0	28.4	2.3
SFTs		5.4	1.4	0.3	0.7	0.6	8.4	0.6
Other	2	1.1	1.2	–	–	–	2.3	0.2
CVA advanced	1	1.5	0.6	–	0.3	–	2.4	0.2
CVA standardised	1	0.2	–	0.3	0.1	0.1	0.7	0.1
CCP default funds	3	0.4	0.1	–	0.1	–	0.6	–
At 31 Dec 2020		23.7	10.7	1.4	5.3	1.7	42.8	3.4
By exposure class								
IRB advanced approach		20.3	7.3	0.5	6.0	0.3	34.4	2.7
– central governments and central banks		0.4	0.1	0.2	0.1	0.1	0.9	0.1
– institutions		7.9	2.2	0.1	1.0	0.2	11.4	0.9
– corporates		12.0	5.0	0.2	4.9	–	22.1	1.7
IRB foundation approach		2.0	–	0.2	–	–	2.2	0.2
– corporates		2.0	–	0.2	–	–	2.2	0.2
Standardised approach		0.3	0.6	0.4	–	1.1	2.4	0.2
– central governments and central banks		–	–	–	–	–	–	–
– institutions		–	–	–	–	0.1	0.1	–
– corporates		0.3	0.6	0.4	–	1.0	2.3	0.2
CVA advanced	1	1.6	0.7	–	0.8	–	3.1	0.2
CVA standardised	1	0.2	0.0	0.2	0.2	0.3	0.9	0.1
CCP standardised		0.7	0.1	–	0.3	–	1.1	0.1
At 31 Dec 2019		25.1	8.7	1.3	7.3	1.7	44.1	3.5
By product								
Derivatives (OTC and exchange traded derivatives)		17.1	5.9	0.8	4.6	1.2	29.6	2.4
SFTs		5.0	1.0	0.3	1.5	0.2	8.0	0.6
Other	2	0.8	1.0	–	0.1	–	1.9	0.2
CVA advanced	1	1.6	0.7	–	0.8	–	3.1	0.2
CVA standardised	1	0.2	0.0	0.2	0.2	0.3	0.9	0.1
CCP default funds	3	0.4	0.1	–	0.1	–	0.6	–
At 31 Dec 2019		25.1	8.7	1.3	7.3	1.7	44.1	3.5

- 1 The RWA impact due to the CVA capital charge is calculated based on the exposures under the IRB and standardised approaches. No additional exposures are taken into account.
- 2 Includes free deliveries not deducted from regulatory capital.
- 3 Default fund contributions are cash balances posted to CCPs by all members. These cash balances are not included in the total reported exposure.

Table 81: IRB – CCR exposures by portfolio and PD scale (CCR4)

PD scale	EAD post-CRM \$bn	Average PD %	Number of obligors	Average LGD %	Average maturity years	RWAs \$bn	RWA density %
AIRB – Central Government and Central Banks							
0.00 to <0.15	11.5	0.03	89	44.5	0.57	0.6	5
0.15 to <0.25	0.7	0.22	8	45.0	0.05	0.2	24
0.25 to <0.50	0.2	0.37	11	45.0	1.56	0.1	54
0.50 to <0.75	–	0.63	1	45.0	1.00	–	62
0.75 to <2.50	0.3	1.55	10	45.2	2.07	0.3	107
2.50 to <10.00	–	7.85	1	45.0	1.00	–	168
10.00 to <100.00	0.4	73.52	3	44.2	1.09	0.4	129
100.00 (Default)	–	–	–	–	–	–	–
Sub-total	13.1	2.05	123	44.5	0.60	1.6	12
AIRB – Institutions							
0.00 to <0.15	43.8	0.07	4,429	44.8	0.95	8.2	19
0.15 to <0.25	4.0	0.22	425	42.6	1.13	1.6	42
0.25 to <0.50	0.7	0.37	94	45.3	1.46	0.4	63
0.50 to <0.75	0.3	0.63	81	43.7	1.25	0.2	77
0.75 to <2.50	0.5	1.24	152	45.1	1.59	0.5	97
2.50 to <10.00	–	6.99	23	44.5	2.50	0.1	177
10.00 to <100.00	–	13.95	6	45.4	3.46	–	233
100.00 (Default)	–	100.00	1	39.5	1.00	–	–
Sub-total	49.3	0.11	5,211	44.6	0.98	11.0	22
AIRB – Corporates							
0.00 to <0.15	13.9	0.07	3,784	44.0	1.71	3.0	21
0.15 to <0.25	4.8	0.22	1,333	46.0	2.07	2.1	43
0.25 to <0.50	1.6	0.37	649	44.0	1.91	0.9	55
0.50 to <0.75	1.6	0.63	672	46.0	2.67	1.1	76
0.75 to <2.50	3.7	1.30	2,035	45.0	1.69	3.7	99
2.50 to <10.00	0.5	3.87	389	47.0	1.67	0.6	129
10.00 to <100.00	0.1	16.23	57	44.0	1.72	0.2	216
100.00 (Default)	–	100.00	17	32.0	4.35	–	–
Sub-total	26.2	0.64	8,936	45.0	1.74	11.6	44
AIRB – Total at 31 Dec 2020	88.6	0.56	14,270	45.0	1.15	24.2	27
FIRB – Corporates							
0.00 to <0.15	21.1	0.08	3,013	44.3	1.52	4.5	21
0.15 to <0.25	4.2	0.22	780	44.9	1.26	1.4	34
0.25 to <0.50	1.2	0.37	528	45.0	1.39	0.7	55
0.50 to <0.75	1.6	0.63	490	44.9	1.17	1.2	75
0.75 to <2.50	3.5	1.48	1,807	45.0	1.54	3.6	104
2.50 to <10.00	0.7	4.11	456	45.0	1.52	0.9	140
10.00 to <100.00	–	11.60	68	45.0	1.46	0.1	196
100.00 (Default)	0.1	100.00	25	45.0	1.44	–	–
FIRB – Total at 31 Dec 2020	32.4	0.64	7,167	44.5	1.47	12.4	38
Total (all portfolios) at 31 Dec 2020	121.0	0.58	21,437	44.6 %	1.24	36.6	30

Pillar 3 Disclosures at 31 December 2020

Table 81: IRB – CCR exposures by portfolio and PD scale (CCR4) (continued)

PD scale	EAD post-CRM \$bn	Average PD %	Number of obligors	Average LGD %	Average maturity years	RWAs \$bn	RWA density %
AIRB – Central Government and Central Banks							
0.00 to <0.15	10.5	0.02	97	44.6	0.93	0.6	6
0.15 to <0.25	0.2	0.22	12	45.0	1.22	0.1	35
0.25 to <0.50	–	0.37	7	45.0	2.01	–	59
0.50 to <0.75	–	0.63	1	45.0	2.35	–	80
0.75 to <2.50	0.3	1.64	6	45.0	1.77	0.3	104
2.50 to <10.00	–	6.65	2	33.8	7.00	–	195
10.00 to <100.00	–	–	–	–	–	–	–
100.00 (Default)	–	–	–	–	–	–	–
Sub-total	11.0	0.07	125	44.7	0.96	1.0	9
AIRB – Institutions							
0.00 to <0.15	41.0	0.07	4,551	44.4	1.20	8.5	21
0.15 to <0.25	3.0	0.22	409	44.9	1.60	1.4	48
0.25 to <0.50	0.7	0.37	85	46.2	1.50	0.4	65
0.50 to <0.75	0.3	0.63	62	42.8	1.10	0.3	79
0.75 to <2.50	0.4	1.21	130	45.1	2.10	0.4	107
2.50 to <10.00	0.1	4.91	29	47.6	1.10	0.1	151
10.00 to <100.00	–	12.23	8	46.1	2.90	–	229
100.00 (Default)	–	100.00	1	45.0	1.00	–	365
Sub-total	45.5	0.12	5,275	44.6	1.20	11.1	24
AIRB – Corporates							
0.00 to <0.15	30.5	0.07	5,498	44.1	1.80	6.8	22
0.15 to <0.25	9.7	0.22	1,962	45.7	1.59	4.1	42
0.25 to <0.50	3.9	0.37	1,039	46.0	1.46	2.2	57
0.50 to <0.75	3.1	0.63	941	43.0	1.88	2.5	80
0.75 to <2.50	5.2	1.34	3,493	46.3	1.41	5.3	102
2.50 to <10.00	0.8	3.95	549	48.7	1.73	1.2	152
10.00 to <100.00	–	18.17	63	48.0	1.62	–	230
100.00 (Default)	–	100.00	13	39.6	1.96	–	–
Sub-total	53.2	0.37	13,558	44.7	1.70	22.1	42
AIRB – Retail other							
0.00 to <0.15	–	0.04	212	0.90	–	–	–
0.15 to <0.25	–	0.23	10	1.80	–	–	1
0.25 to <0.50	–	0.38	52	2.20	–	–	2
0.50 to <0.75	–	0.62	22	1.80	–	–	2
0.75 to <2.50	–	1.24	22	1.50	–	–	3
2.50 to <10.00	–	2.82	2	3.00	–	–	4
10.00 to <100.00	–	96.57	1	83.60	–	–	29
100.00 (Default)	–	0.00	–	0.00	–	–	0
Sub-total	–	0.64	321	1.60	–	–	1
AIRB – Total at 31 Dec 2019	109.7	0.19	19,279	49.0	1.30	34.2	31
FIRB – Corporates							
0.00 to <0.15	3.7	0.07	1,188	45.0	1.98	0.8	22
0.15 to <0.25	0.6	0.22	156	45.0	1.59	0.2	41
0.25 to <0.50	0.5	0.37	166	45.0	1.29	0.3	55
0.50 to <0.75	0.2	0.63	119	45.0	1.21	0.1	72
0.75 to <2.50	0.6	1.41	516	45.0	1.80	0.6	101
2.50 to <10.00	0.1	4.86	129	45.0	2.59	0.2	162
10.00 to <100.00	–	10.08	14	45.0	1.03	–	200
100.00 (Default)	–	100.00	5	45.0	1.08	–	–
FIRB – Total at 31 Dec 2019	5.7	0.44	2,293	45.0	1.85	2.2	39
Total (all portfolios) at 31 Dec 2019	115.4	0.25	21,572	44.7	1.58	36.4	32

Appendix II

Countercyclical capital buffer

The table below discloses the geographical distribution of credit exposures relevant to the calculation of the countercyclical buffer under Article 440 of the Regulation (EU) 575/2013. Countries or territories that have a CCyB requirement or have an own funds requirement of greater than 0.7% or that are material in nature are disclosed below.

Table 82: Geographical distribution of credit exposures relevant for the calculation of the countercyclical capital buffer

Country	General credit exposures		Trading book exposures		Securitisation exposures	Own funds requirements			Share of total own funds requirements %	CCyB rate %	
	SA \$m	IRB \$m	Sum of long/short positions for SA \$m	Internal models \$m	Total Exposure value in the banking book \$m	of which:	of which:	of which:			
						General credit exposures \$m	Trading book exposures \$m	Securitisation exposures \$m			
Australia	1,008	39,168	490	145	1,949	939	21	23	983	1.9	—
Bulgaria	1	19	—	—	—	1	—	—	1	—	0.50
Canada	764	63,880	—	51	188	1,948	5	2	1,955	3.7	—
China	25,111	62,221	375	1,175	564	5,936	32	7	5,975	11.4	—
Czech Republic	127	406	—	7	—	28	1	—	29	0.1	0.50
France	5,851	65,223	94	35	1,734	2,119	13	39	2,171	4.1	—
Germany	1,037	17,971	87	62	771	826	13	7	846	1.6	—
Hong Kong	22,655	362,524	—	353	—	10,606	10	—	10,616	20.3	1.00
India	3,125	16,400	—	965	927	996	28	54	1,078	2.1	—
Indonesia	854	6,116	—	71	—	443	9	—	452	0.9	—
Luxembourg	1,343	5,093	25	37	39	385	8	3	396	0.8	0.25
Mexico	18,638	3,294	38	116	538	1,310	17	6	1,333	2.6	—
Malaysia	2,801	13,275	1	76	—	674	11	—	685	1.3	—
Netherlands	1,563	13,220	342	145	1,463	592	9	21	622	1.2	—
Norway	2	1,393	—	27	—	29	8	—	37	0.1	1.00
Saudi Arabia	18,330	3,310	—	53	—	1,354	11	—	1,365	2.6	—
Singapore	2,287	31,298	—	226	—	875	13	—	888	1.7	—
Slovakia	40	72	—	3	—	5	—	—	5	—	1.00
United Arab Emirates	5,033	17,334	—	18	—	836	1	—	837	1.6	—
United Kingdom	10,940	387,610	1,567	778	16,906	9,899	82	447	10,428	19.9	—
United States	8,198	122,096	125	302	7,197	5,282	26	153	5,461	10.4	—
Other countries	32,682	113,722	720	1,433	2,268	5,984	203	50	6,236	11.9	—
Total	162,390	1,345,645	3,864	6,078	34,544	51,067	521	812	52,399	100.00	

Table 83: Countercyclical capital buffer

Total Risk Exposure Amount (\$m)	2020
Institution specific countercyclical capital buffer rate	857,520
Institution specific countercyclical capital buffer requirement (\$m)	0.21 %
	1,763

Appendix III

Asset encumbrance

Table 84: A – Assets¹

	Carrying amount of encumbered assets		Fair value of encumbered assets		Carrying amount of unencumbered assets		Fair value of unencumbered assets	
	Total	<i>of which: notionally eligible EHQLA and HQLA</i>	Total	<i>of which: notionally eligible EHQLA and HQLA</i>	Total	<i>of which: EHQLA and HQLA</i>	Total	<i>of which: EHQLA and HQLA</i>
		\$m		\$m		\$m		\$m
01 Assets of the reporting institution	204,954	75,654			2,637,364	673,684		
03 Equity instruments	17,830	12,555	17,830	12,555	44,409	13,391	44,409	13,391
04 Debt securities	87,401	63,099	87,399	63,099	456,409	399,064	457,188	399,064
– of which:								
05 – covered bonds	130	105	130	105	8,677	7,996	8,662	7,996
06 – asset-backed securities	–	–	–	–	5,229	–	5,234	9
07 – issued by general governments	70,317	51,149	70,317	51,149	272,658	246,562	273,079	246,562
08 – issued by financial corporations	5,247	1,982	5,247	1,982	91,514	73,682	91,457	73,682
09 – issued by non-financial corporations	2,319	1,155	2,319	1,155	11,857	6,161	11,774	6,161
12 Other assets	99,723	–			1,858,173	10,202		

Table 84: B – Collateral received¹

	Fair value of encumbered collateral received or own debt securities issued		Unencumbered Fair value of collateral received or own debt securities issued available for encumbrance	
	Total	<i>of which: notionally eligible EHQLA and HQLA</i>	Total	<i>of which: EHQLA and HQLA</i>
		\$m		\$m
130 Collateral received by the reporting institution	249,998	183,702	214,935	151,872
140 Loans on demand	–	–	–	–
150 Equity instruments	25,224	18,267	15,645	7,141
160 Debt securities	223,864	165,435	197,757	144,731
– of which:				
170 – covered bonds	361	361	20	3
180 – asset-backed securities	10,205	4	1,278	–
190 – issued by general governments	197,842	155,660	115,587	126,036
200 – issued by financial corporations	8,771	3,875	23,683	8,883
210 – issued by non-financial corporations	6,835	5,619	14,591	6,901
220 Loans and advances other than loans on demand	–	–	–	–
230 Other collateral received	910	–	1,533	–
240 Own debt securities issued other than own covered bonds or ABSs	–	–	–	–
241 Own covered bonds and ABSs issued and not yet pledged	–	–	10,265	–
250 Total assets, collateral received and own debt securities issued	454,952	259,356		

Table 84: C – Encumbered assets/collateral received and associated liabilities¹

	Matching liabilities, contingent liabilities or securities lent	Assets, collateral received and own debt securities issued other than covered bonds and ABSs encumbered
	\$m	\$m
010 Carrying amount of selected financial liabilities	256,432	368,806

¹ The values in these tables are the average of quarterly data points in the year.

Importance of encumbrance

We are a deposit-led bank and hence the majority of our funding is from customer current accounts and customer savings deposits payable on demand or at short notice. Given this structural unsecured funding position, we have little requirement to fund ourselves in secured markets, and therefore our overall low level of encumbrance reflects this position. However, we do provide collateralised financing services to clients as part of our GBM

For details on balance sheet encumbered and unencumbered assets, please refer to Table 70.

business model, providing cash financing or specific securities, and these result in off-balance sheet encumbrance. The other sources that contribute to encumbrance are securities pledged in derivative transactions, mostly for hedging purposes, issuance of asset-backed securities, and covered bond programmes. HSBC Holdings ALCO reviews the asset encumbrance of the institution as a whole quarterly and any events changing the asset encumbrance level are examined.

Appendix IV

Summary of disclosures withheld

CRD IV reference	Description	Rationale
442(e)	Institutions shall disclose the distribution of the exposures by industry or counterparty type, broken down by exposure classes, including specifying exposure to SMEs, and further detailed if appropriate;	We have not previously disclosed corporate small- and medium-sized enterprises ('SMEs') as a separate exposure class. Improvements undertaken in connection with the implementation of the revised SME supporting factor are expected to enable disclosure of corporate SMEs later in 2021.
448(a)	Key assumptions (including assumptions regarding loan prepayments and behaviour of non-maturity deposits) on their exposure to interest rate risk on positions not included in the trading book.	Assumptions regarding fixed term loan repayments and term behaviouralisation of non-maturity deposits and capital drive HSBC's structural interest rates positioning and market hedging requirements. These assumptions are proprietary and their disclosure could give key business strategy information to our competitors.

Other Information

Abbreviations

The following abbreviated terms are used throughout this document.

Currencies

\$	United States dollar
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A

ABCP	Asset-backed commercial paper
ABS ¹	Asset-backed security
AIRB ¹	Advanced internal ratings based approach
ALCM	Asset, Liability and Capital Management
ALCO	Asset and Liability Management Committee
AT1 capital	Additional tier 1 capital
AVA	Additional value adjustment

B

BCBS	Basel Committee on Banking Supervision
BoE	Bank of England

C

CCB ¹	Capital conservation buffer
CCP ¹	Central counterparty
CCR ¹	Counterparty credit risk
CCyB ¹	Countercyclical capital buffer
CDS ¹	Credit default swap
CET1 ¹	Common equity tier 1
CIU	Collective investment undertakings
CMB	Commercial Banking, a global business
CML1	Consumer and Mortgage Lending (US)
CRA	Credit risk adjustment
CRD IV ¹	Capital Requirements Regulation and Directive
CRE ¹	Commercial real estate
CRM ¹	Credit risk mitigation/mitigant
CRR ¹	Customer risk rating
CRR II	Revised Capital Requirements Regulation, as implemented
CRO	Chief Risk Officer
CSA ¹	Credit Support Annex
CVA ¹	Credit valuation adjustment
CVC	Conduct and Values Committee

D

D-SIB	Domestic systemically important bank
DECL	Disclosure of expected credit losses

E

EAD ¹	Exposure at default
EBA	European Banking Authority
EC	European Commission
ECA	Export Credit Agency
ECAI	External Credit Assessment Institution
ECL ¹	Expected credit losses
EEA	European Economic Area
EL ¹	Expected loss
EHQLA	Extremely high-quality liquid assets
EU	European Union
EVE	Economic value of equity

F

FFVA	Funding Fair Value Adjustment
Fitch	Fitch Ratings
FPC ¹	Financial Policy Committee (UK)
FRTB	Fundamental Review of the Trading book
FSB	Financial Stability Board
FSVC	Financial System Vulnerabilities Committee
FVOCI ¹	Fair value through other comprehensive income

G

GAC	Group Audit Committee
GBM	Global Banking and Markets, a global business
GEC	Group Executive Committee

GRC	Group Risk Committee
Group	HSBC Holdings together with its subsidiary undertakings
G-SIB ¹	Global systemically important bank
G-SII	Global systemically important institution

H

HKMA	Hong Kong Monetary Authority
Hong Kong	The Hong Kong Special Administrative Region of the
HQLA	High-quality liquid assets
HSBC	HSBC Holdings together with its subsidiary undertakings
HVCRE	High volatility commercial real estate

I

IAA	Internal assessment approach
ICAAP ¹	Internal capital adequacy assessment process
ICG	Individual capital guidance
ICR	Individual capital requirement
IFRSs	International Financial Reporting Standards
ILAA	Individual liquidity adequacy assessment
ILR	Inherent Liquidity Risk
IMM ¹	Internal model method
IMR	Independent Model Review
IRC	Incremental risk charge
IRC	Incremental risk charge

L

LCR ¹	Liquidity coverage ratio
LFRF	Liquidity and funding risk framework
LGD ¹	Loss given default
Libor	London interbank offered rate

M

MDB	Multilateral Development Bank
MENA	Middle East and North Africa
MOC	Model Oversight Committee
Moody's	Moody's Investor Service
MPE	Multiple point of entry
MREL	Minimum requirements for own funds and eligible liabilities
MRM	Model Risk Management

N

NCOA	Non-credit obligation asset
NPL	Non-performing loans
NSFR ¹	Net Stable Funding Ratio

O

ORMF	Operational risk management framework
OTC ¹	Over-the-counter

P

PD ¹	Probability of default
PFE	Potential future exposure
PIT	Point-in-time
POCI	Purchased or originated credit impaired loans
PPE	Property, plant and equipment
PRA ¹	Prudential Regulation Authority (UK)
PVA	Prudent valuation adjustment

Q

QCCP	Qualifying Central Counterparty
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R

RAF	Resolvability Assessment Framework
RAS	Risk appetite statement
RBM ¹	Ratings Based Method
RBWM	Retail Bank and Wealth Management, a former global
Retail IRB ¹	Retail internal ratings based approach
RMM	Risk Management Meeting of the GMB
RNIV	Risks not in VaR
ROU	Right of use

S

SA/STD ¹	Standardised approach
SA-CCR	Standardised approach for counterparty credit risk
S&P	Standard and Poor's rating agency
SFM	Supervisory Formula Method
SFT	Securities Financing Transactions

SIC	Securities Investment Conduit
SME	Small- and medium-sized enterprise
SPE ¹	Special Purpose Entity
SRB ¹	Systemic Risk Buffer
SREP	Supervisory Review and Evaluation Process
SSFA/SFA	Simplified supervisory formula approach
SVaR	Stressed Value at risk

T

TCFD	Task Force on Climate-related Financial Disclosures
TTC	Through-the-cycle
T1 capital ¹	Tier 1 capital
T2 capital ¹	Tier 2 capital

U

UK	United Kingdom
US	United States

V

VaR1	Value at risk
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W

WPB	Wealth and Personal Banking, a global business
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¹ Full definition included in the Glossary published on HSBC website www.hsbc.com.

Cautionary statement regarding forward-looking statements

The *Pillar 3 Disclosures at 31 December 2020* contains certain forward-looking statements with respect to HSBC's financial condition, results of operations, capital position and business.

Statements that are not historical facts, including statements about HSBC's beliefs and expectations, are forward-looking statements. Words such as 'will', 'should', 'expects', 'targets', 'anticipates', 'intends', 'plans', 'believes', 'seeks', 'estimates', 'potential' and 'reasonably possible', variations of these words and similar expressions are intended to identify forward-looking statements. These statements are based on current plans, information, data, estimates and projections, and therefore undue reliance should not be placed on them. Forward-looking statements speak only as of the date they are made. HSBC makes no commitment to revise or update any forward-looking statements to reflect events or circumstances occurring or existing after the date of any forward-looking statements.

Written and/or oral forward-looking statements may also be made in the periodic reports to the US Securities and Exchange Commission, summary financial statements to shareholders, proxy statements, offering circulars and prospectuses, press releases and other written materials, and in oral statements made by HSBC's Directors, officers or employees to third parties, including financial analysts.

Forward-looking statements involve inherent risks and uncertainties. Readers are cautioned that a number of factors could cause actual results to differ, in some instances materially, from those anticipated or implied in any forward-looking statement. These include, but are not limited to:

- changes in general economic conditions in the markets in which we operate, such as continuing or deepening recessions and fluctuations in employment and creditworthy customers beyond those factored into consensus forecasts (including, without limitation, as a result of the Covid-19 pandemic); the Covid-19 pandemic, which is expected to continue to have adverse impacts on our income due to lower lending and transaction volumes, lower wealth and insurance manufacturing revenue, and lower or negative interest rates in markets where we operate, as well as, more generally, the potential for material adverse impacts on our financial condition, results of operations, prospects, liquidity, capital position and credit ratings; deviations from the market and economic assumptions that form the basis for our ECL measurements (including, without limitation, as a result of the Covid-19 pandemic or the UK's exit from the EU); potential
- changes in dividend policy; changes in foreign exchange rates and interest rates, including the accounting impact resulting from financial reporting in respect of hyperinflationary economies; volatility in equity markets; lack of liquidity in wholesale funding or capital markets, which may affect our ability to meet our obligations under financing facilities or to fund new loans, investments and businesses; geopolitical tensions or diplomatic developments producing social instability or legal uncertainty, such as the unrest in Hong Kong, the continuing US-China tensions and the emerging challenges in UK-China relations, which in turn may affect demand for our products and services and could result in (among other things) regulatory, reputational and market risks for HSBC; the efficacy of government, customer, and HSBC's actions in managing and mitigating climate change and in supporting the global transition to net zero carbon emissions, which may cause both idiosyncratic and systemic risks resulting in potential financial and non-financial impacts; illiquidity and downward price pressure in national real estate markets; adverse changes in central banks' policies with respect to the provision of liquidity support to financial markets; heightened market concerns over sovereign creditworthiness in over-indebted countries; adverse changes in the funding status of public or private defined benefit pensions; societal shifts in customer financing and investment needs, including consumer perception as to the continuing availability of credit; exposure to counterparty risk, including third parties using us as a conduit for illegal activities without our knowledge; the expected discontinuation of certain key lbors and the development of near risk-free benchmark rates, which may require us to enhance our capital position and/or position additional capital in specific subsidiaries; and price competition in the market segments we serve;
- changes in government policy and regulation, including the monetary, interest rate and other policies of central banks and other regulatory authorities in the principal markets in which we operate and the consequences thereof (including, without limitation, actions taken as a result of the Covid-19 pandemic); initiatives to change the size, scope of activities and interconnectedness of financial institutions in connection with the implementation of stricter regulation of financial institutions in key markets worldwide; revised capital and liquidity benchmarks, which could serve to deleverage bank balance sheets and lower returns available from the current business model and portfolio mix; imposition of levies or taxes designed to change business mix and risk appetite; the practices, pricing or responsibilities of financial institutions serving their consumer markets; expropriation, nationalisation, confiscation of assets and changes in legislation relating to foreign ownership; the UK's exit from the EU, which may result in a prolonged period of uncertainty, unstable economic conditions and market volatility, including currency fluctuations; passage of the Hong Kong national security law and restrictions on telecommunications, as well as the US Hong Kong Autonomy Act, which have caused tensions between China, the US and the UK; general changes in government policy that may significantly influence investor decisions; the costs, effects and outcomes of regulatory reviews, actions or litigation, including any additional compliance requirements; and the effects of competition in the markets where we operate including increased competition from non-bank financial services companies; and
- factors specific to HSBC, including our success in adequately identifying the risks we face, such as the incidence of loan losses or delinquency, and managing those risks (through account management, hedging and other techniques); our ability to achieve our financial, investment, capital and ESG targets/commitments, which may result in our failure to achieve any of the expected benefits of our strategic priorities; model limitations or failure, including, without limitation, the impact that the consequences of the Covid-19 pandemic have had on the performance and usage of financial models, which may require us to hold additional capital, incur losses and/or use compensating controls, such as overlays and overrides, to

Pillar 3 Disclosures at 31 December 2020

address model limitations; changes to the judgements, estimates and assumptions we base our financial statements on; changes in our ability to meet the requirements of regulatory stress tests; a reduction in the credit ratings assigned to us or any of our subsidiaries, which could increase the cost or decrease the availability of our funding and affect our liquidity position and net interest margin; changes to the reliability and security of our data management, data privacy, information and technology infrastructure, including threats from cyber-attacks, which may impact our ability to service clients and may result in financial loss, business disruption and/or loss of customer services and data; changes in insurance customer behaviour and insurance claim rates; our dependence on loan payments and dividends from subsidiaries to meet our obligations; changes in accounting standards, which may have a material impact on the way we prepare our financial statements; changes in our ability to manage third-party, fraud

and reputational risks inherent in our operations; employee misconduct, which may result in regulatory sanctions and/or reputational or financial harm; changes in skill requirements, ways of working and talent shortages, which may affect our ability to recruit and retain senior management and diverse and skilled personnel; and changes in our ability to develop sustainable finance products and our capacity to measure the climate impact from our financing activity, which may affect our ability to achieve our climate ambition. Effective risk management depends on, among other things, our ability through stress testing and other techniques to prepare for events that cannot be captured by the statistical models it uses; and our success in addressing operational, legal and regulatory, and litigation challenges; and other risks and uncertainties we identify in 'Top and emerging risks' on pages 110 to 116 of the *Annual Report and Accounts 2020*.

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